TIME CRITICAL DIAGNOSIS MANUAL
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SUBJECT: **Guidelines for Helicopter Use for Time Critical Diagnosis Patients**	Chapter: 1. Out-of-Hospital Item: 1.2
REFERENCE Chapter 190, Emergency Services Section 190.134— (Review pending on appropriate statutory reference)	Page 1 of 5 Date Issued: 8/19/10 (DRAFT)

DISTRIBUTION: All Emergency Medical Services-Medical Dispatch Agencies and ground and air ambulance services.

PURPOSE: To provide guidance on when to request an air ambulance response for transport of a time critical diagnosis patient. This document is also for use by agencies that incorporate early launch into their protocols. An air ambulance should be considered when it will assist the **Time Critical Diagnosis patient** in arriving at the appropriate facility during the time window specific to the disease.

I. ~~I.~~ **Trauma Patient**: ~~The~~ Helicopter utilization ~~and the Early Launch Process~~ for the Type I, II [and III-(?)] trauma patient as outlined in state classification guidelines for EMS and below should be considered when

a. transport by ground EMS will require greater than 60 minutes~~,~~ for Trauma I and II (? And 90 minutes for Trauma III) to and from scene (in total) to the closest appropriate trauma center or
b. utilization of ground ambulance would leave the local community without adequate ambulance coverage~~,~~. ~~**and one or more of the following criteria** are met:~~

~~A.~~ Type I, II, and III trauma patients include the following **Physiologic, Anatomical, and Biomechanical Criteria:**

Trauma I (RED): Treatment Window-Within 30 minutes of first medical contact to appropriate trauma center. Includes vital sign and anatomy of injury as below:

- Glasgow Coma Scale < 14 at time of report with injury or drop of 2 points from time of injury
- Systolic Blood Pressure: <90 at any time and/or clinical signs/symptoms of shock
- Respiratory rate: < 10 or > 29

and/or clinical signs/symptoms of shock

Also consider

- Heart Rate: >120

CDC and MO. Anatomic criteria:

- All penetrating injuries to head, neck, torso, and extremities (boxer short and T-shirt areas) proximal to elbow and knee
- Flail chest, airway compromise or obstruction, hemo- or pneumothorax, or patients intubated on scene

- Two or more proximal long-bone fractures
- *Extremity trauma with loss of distal pulse*
- Amputation proximal to wrist and ankle
- Pelvic fractures
- Open or depressed skull fractures
- Paralysis or signs of spinal cord or cranial nerve injury
- Active or uncontrolled hemorrhage: for example, significant arterial or venous bleeding relatively controlled with direct pressure but still active
- *Severe Burns with Associated Trauma: 2nd/3rd degree burns >20% BSA (> 10% BSA in over 50) or any signs of inhalation injury*
    - *If trauma presents the greater immediate risk, triage to trauma center according to triage protocol.*
    - *If the burn injury poses the greatest risk for morbidity and mortality, patient should be transferred to burn trauma? facility.* *follow burn guidelines and local and regional plan*
- *Isolated Severe Burns: 2nd/3rd degree burns >20% BSA (> 10% BSA in over 50) or any signs of inhalation injury*
    - *Triage to burn facility[peds: 2nd/3rd degree >10% BSA ages <10 or >20% BSA or any signs of inhalation injury] follow burn guidelines and local and regional plan]]*
- Medical Director/Medical Control Discretion: ambulance medical director or receiving hospital medical control according to regional process

Trauma II: Treatment Window- Within 60 minutes of first medical contact to appropriate trauma center. Includes Biomechanics of injury and evidence of high energy transfer:

- Falls > or = 20 ft (one story = 10 ft.)
- High-risk auto crash: Considered as > 40 mph or highway speeds
    - Intrusion: > 12 in occupant site; > 18 inches in any site; refers to interior compartment intrusion
    - Ejection (partial or complete) from automobile
    - Rollover
    - Death in same passenger compartment
    - Vehicle telemetry data consistent with high risk of injury or highway speed
- High-risk Pedestrian, Cycle, ATV Crash
    - Auto v. Pedestrian/bicyclist thrown, run over, or with significant (> or = 20 mph) impact
    - Motorcycle or ATV crash > or = 20 mph with separation of rider or with rollover
- *Crush, degloved, or mangled extremity*
- *All open fractures*
- Femur fracture
- Trauma with prolonged Loss of Consciousness
- Pregnancy with acute abdominal pain and traumatic event

Also consider

- Penetrating injuries distal to T-shirt and boxer area to wrist and to ankle

~~B.~~

[Trauma III: Treatment Window- Within 60 to 90 to 120 ? minutes of first medical contact to appropriate trauma center

- Age: > age 55
- Falls: 5-20 Feet

- *Less Severe Burns 10% (< 50 yoa) to 20% 2nd or 3rd degree*
  - *With trauma:*
    - *If trauma presents the greater immediate risk, triage to trauma center according to triage protocol.*
    - *If the burn injury poses the greatest risk for morbidity and mortality, patient should be transferred to burn trauma? facility.* *follow burn guidelines and local and regional plan*
  - *Without trauma: triage to burn facility*
- Lower-risk Crash: considered as
  - MVC < 40 MPH or UNK speed,
  - Auto v. Pedestrian/bicyclist with <20 mph impact
  - Motorcycle or ATV crash < 20 mph with separation of rider or rollover
- *Amputation distal to wrist or ankle of two or more digits* *(follow replant guidelines and local regional plan)*
- Medical Co-Morbidity
  - Anticoagulation and bleeding disorder
  - End-stage renal disease requiring dialysis
  - All pregnant patients involved in traumatic event
- Near drowning/ Near hanging
- EMS provider judgment

Also consider:
- Penetrating injury distal to wrist or ankle
- Assault without Loss of Consciousness
- Suspected elder physical abuse]

- ~~All penetrating injuries to head, neck, torso, boxer short and T-shirt coverage areas, and extremities proximal to elbow and knee~~
- ~~Flail chest, airway compromise or obstruction, hemo- or pneumothorax, or patients intubated on scene~~
- ~~Two or more proximal long-bone fractures~~
- ~~*Crush, degloved, pulseless, or mangled extremity*~~
- ~~Amputation proximal to wrist and ankle~~
- ~~Pelvic fractures *(need to further specify?)*~~
- ~~Open or depressed skull fractures~~
- ~~Paralysis or signs of spinal cord or cranial nerve injury~~
- ~~Active or uncontrolled hemorrhage for example, significant arterial or venous bleeding relatively controlled with direct pressure but still active~~

~~*Severe Burns with Associated Trauma: 2nd/3rd degree burns >20% BSA (> 10% BSA in over 50 or less than 10) or any signs of inhalation injury*~~
- ~~*If trauma presents the greater immediate risk, triage to trauma center according to triage protocol.*~~
- ~~*If the burn injury poses the greatest risk for morbidity and mortality, patient should be transferred to burn trauma? facility.* *follow burn guidelines and local and regional plan*~~

~~*Isolated Severe Burns: 2nd/3rd degree burns >20% BSA (> 10% BSA in over 50 or less than 10) or any signs of inhalation injury*~~
- ~~*Triage to burn facility[peds: 2nd/3rd degree >10% BSA ages <10 or >20% BSA or any signs of inhalation injury] follow burn guidelines and local and regional plan]]*~~

- ~~*Severe BURNS:*~~

- ADULTS: 2nd/3rd degree burns >20% BSA (>10% BSA >50) or any signs of inhalation injury
- PEDS: 2nd/3rd degree burns > 10% BSA over age 10 or >20% BSA or any signs of inhalation injury

- PEDS other:
  - Maxillo-facial or upper airway injury

B.Biomechanics of Injury/Evidence of High Energy Impact?

- Falls
  - Adults: > 20 ft (one story = 10 ft.)
  - Children: > 10 ft. *[or 2-3 times height of the child- confirm why delete?]*
- High-risk auto crash
  - Intrusion: > 12 in occupant site; *[> 18 inches in any site- confirm why delete?]*
  - Ejection (partial or complete) from automobile
  - Rollover
  - Death in same passenger compartment
  - Vehicle telemetry data consistent with high risk of injury or highway speed
- High-risk Pedestrian, Cycle, ATV Crash
  - Auto v. Pedestrian/bicyclist thrown, run over, or with significant (> 20 mph) impact
  - Motorcycle or ATV crash > 20 mph with separation of rider
- *All open fractures?*
- *Amputation distal to wrist or ankle of two or more digits (follow replant guidelines and local regional plan)?*
- *Penetrating injuries from elbow to wrist and knee to ankle with neurovascular compromise*
- *TraumaAssault with prolongedother than brief Loss of Consciousness (? Define time*
- Pregnancy with acute abdominal pain and traumatic event
- Burns with associated trauma
- PEDS other:
  - Seat Belt Sign
    Unrestrained child 8 years of age or younger
    > 30 mph crash
  - Evidence of significant change in position and location within vehicle
  - 2 or more extremity fractures

II. Burn Patient (see above; keep here or remove?)

1. Greater than 20% body surface area burned
2. Inhalation Injury (closed space – facial burns)

III~~V~~. **Suspected Stroke:** Helicopters for the stroke patient should be considered when ground EMS determines that helicopter transfer to a designated stroke center will result in arrival at a facility that can provide treatment within the recommended time window.

IV. **STEMI patient:** Helicopters for the STEMI patient should be considered when ground EMS and/or the STEMI center confirms a STEMI and [**transport from scene to STEMI center** (Level I or II) **is greater than 60 minutes by ground or if] anticipated time from EMS first contact to reperfusion by ground is greater than 120 minutes. If a Level III or IV STEMI center is within 30 minutes of scene EMS first contact, patient should be taken there by ground.**

(Dispatch personnel will not be able to determine if the patient is experiencing a STEMI so therefore would not be in a position to authorize early launch of helicopter. It is for this reason that the work group recommended that this decision be made by EMS upon arrival and assessment.

Local HELP policies and procedures should be established with the approval of the ground emergency medical response agencies and consistent with existing Revised Statutes, Chapter 190, Emergency Services Section 190.134.

Acronyms:

ATV-All terrain vehicle
BSA-Body surface area
EMS-Emergency Medical Services
EMD-Emergency Medical Dispatchers
HELP-Helicopter Early Launch Process
PEDS-Pediatric, under xx years of age
STEMI-ST-Elevation Myocardial Infarction

Stroke and STEMI and Trauma meetings at which Out-of-Hospital, Stroke and STEMI, and Trauma Work Groups contributed input into this document: 2/10/09, 4/7/09, and 5/12/09------.