SYMPTOMS: Patients of all ages who have sustained injuries due to mechanical trauma including blunt, penetrating, and blast injuries and burns. Patients with multiple system trauma, major hemorrhage, hemodynamic instability, penetrating torso trauma, or signs of traumatic brain injury often require rapid surgical intervention. Minimize scene time (goal is under 20 minutes) and transport to the nearest appropriate hospital.

Assessment, Treatment and Interventions

ALL LEVELS

1. Assure scene is safe.
2. Perform RAPID ASSESSMENT of patient and manage life-threatening injuries.
    a. Stop severe bleeding/Hemorrhage control. [See Extremity Trauma/External Hemorrhage Management guideline [T-5].)
    b. Airway
        i. Assure/Establish patent airway with cervical spine precautions per the Airway Management [RP-1] and Spinal Care guidelines [T-9] as necessary.
        ii. Look for obstructions including unstable facial fractures, expanding neck hematoma, blood or vomitus in the airway, facial burns, inhalation injury.
        iii. For open chest wound, place semi-occlusive dressing.
        iv. If respiratory efforts are inadequate, assist with bag-valve mask ventilation.
        v. If patient is unable to maintain airway, consider oral airway. Nasal airway should not be used with significant facial injury or possible basilar skull fracture.
        vi. If there is an impending airway obstruction or altered mental status resulting in inability to maintain airway patency, secure definitive airway.
    c. Breathing
        i. Assess respiratory rate and pattern.
        ii. Assess symmetry of chest wall movement.
        iii. Listen bilaterally on lateral chest wall for breath sounds.
        iv. Monitor oxygen saturation and, if indicated, administer oxygen as appropriate for dyspnea or distress with a target of achieving greater than 93% saturation for most acutely ill patients.
    d. Circulation
        i. Look for signs of shock including tachycardia, hypotension, pale, cool, clammy skin, capillary refill greater than 2 seconds. Treat per Shock guideline [M-13].
        ii. If pelvis is unstable and patient is hypotensive, place pelvic binder or sheet to stabilize pelvis.
        iii. Continue to monitor/stop any bleeding.
    e. Disability – Assess ability of patient to respond to commands.
    f. Exposure
        i. Perform rapid evaluation of entire body to identify sites of penetrating wounds or blunt injuries.
        ii. Inspect back for injury as patient is moved or rolled on to backboard.
        iii. Prevent hypothermia.
3. Determine whether immediate transport required. (a “Load and Go” situation).

EMR-O; EMT-R

1. Perform SECONDARY ASSESSMENT (during transport as situation warrants).
    a. May not be completed if patient has life-threatening conditions
    b. Do not delay transport of critical patient to conduct secondary survey.

    c. Tailor secondary survey to patient presentation and chief complaint.
2. Obtain vital signs including pulse, respiratory rate, and blood pressure.
3. Head
    a. Palpate head, scalp and face and evaluate for soft tissue injury or any crepitus
    b. Assess pupils
4. Neck
    a. Check for contusions, abrasions, hematomas, JVD, tracheal deviation.
    b. Palpate for crepitus
    c. Conduct a spinal assessment per the Spinal Care guideline [T-9].
5. Chest
    a. Palpate for instability or crepitus
    b. Assess symmetry of chest wall movement.
    c. Inspect for penetrating or soft tissue injuries
    d. Listen bilaterally on lateral chest wall for breath sounds.
6. Abdomen
    a. Palpate for tenderness
    b. Inspect for penetrating or soft tissue injuries.
7. Pelvis
    a. Inspect for penetrating or soft tissue injuries.
    b. Palpate once for instability by applying medial pressure on the iliac crests bilaterally.
    c. If pelvis is unstable and patient is hypotensive, place pelvic binder or sheet to stabilize pelvis.
8. Back
    a. Maintain spinal alignment. Refer to Spinal Care guideline [T-9].
    b. Inspect for penetrating or soft tissue injuries.
9. Neurologic status
    a. Perform serial assessment of mental status.
    b. Perform gross exam of motor strength and sensation in all four extremities.
    c. Glasgow Coma Score (GCS)
    d. AVPU (Alert, Verbal, Painful, Unresponsive)
10. Extremities
    a. Assess for fracture or deformity
    b. Assess peripheral pulses/capillary refill
    c. Evaluate gross motor and sensory in all extremities
    d. Obtain blood pressure.
11. Obtain SAMPLE history as time allows including asking if patient is on blood thinners.
12. Monitor patient for deterioration over time with serial vital signs and repeat neurologic status assessment.
    a. Patients with compensated shock may not manifest hypotension until severe blood loss has occurred.
    b. Patients with traumatic brain injury may deteriorate as intracranial swelling and hemorrhage increase.
    c. Anticipate progressive airway compromise in patients with trauma to head and neck.
13. Frequent reassessment of the patient is important.
    a. If patient develops difficulty with ventilation, reassess breath sounds for development of tension pneumothorax.
    b. If extremity hemorrhage is controlled with pressure dressing or tourniquet, reassess for evidence of continued hemorrhage.
    c. If mental status declines, reassess ABCs and repeat neurologic status assessment.

AEMT-R

4. Establish IV access.
5. Normal saline fluid resuscitation
    a. Adults
        i. If SBP greater than 90 mmHg, no IV fluids required.
        ii. If SBP less than 90 mmHg or HR greater than 120, consider isotonic IV/IO fluid bolus 20ml/kg normal saline and reassess.

AEMT-O

        iii. Consider lactated Ringer's as appropriate and reassess.
        iv. Penetrating trauma: target SBP 90 mmHg (or palpable radial pulse)
        v. Head injury: target SBP 110-120 mm/Hg. Hypotension should be avoided to maintain cerebral perfusion.
    b. Pediatrics
        i. If child demonstrated tachycardia for age with signs of poor perfusion (low BP; greater than 2-second capillary refill; altered mental status; hypoxia; weak pulses, pallor; mottle, or cool skin) give 20ml/kg crystalloid bolus and reassess.
        ii. Target normal BP for age. [See APPENDIX F - Abnormal Vital Signs.]

INT-R

6. If absent or diminished breath sounds in a hypotensive patient, consider tension pneumothorax, and perform needle decompression.
7. Evaluate and manage pain per the Pain Management guideline [M-11].

Traumatic Arrest: Withholding and Termination of Resuscitative Efforts

Resuscitative efforts should be withheld for trauma patients with the following:

A. Decapitation
B. Hemicorporectomy (body amputated below the waist)
C. Signs of rigor mortis or dependent lividity
D. Blunt trauma: apneic, pulseless, no organized cardiac activity on monitor.

GLASCOW COMA SCORE

ADULT GCS		PEDIATRIC GCS	
Eye Opening (4)		Eye Opening (4)	
Spontaneous	4	Spontaneous	4
To speech	3	To speech	3
To pain	2	To pain	2
None	1	None	1
Best Motor Response (6)		Best Motor Response (6)	
Obeys commands	6	Obeys commands	6
Localizes pain	5	Localizes pain	5
Withdraws from pain	4	Withdraws from pain	4
Abnormal flexion	3	Abnormal flexion	3
Abnormal extension	2	Abnormal extension	2
None	1	None	1
Verbal Response (5)		Verbal Response (5)	
Oriented	5	Oriented	5
Confused	4	Confused	4
Inappropriate	3	Inappropriate	3
Incomprehensible	2	Incomprehensible	2
None	1	None	1
Total		Total	