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EMT Trauma Study Guide

2025 Edition - NREMT & PHTLS-Aligned Basics
Bleeding Control - Primary Survey - Shock - Splinting - Transport Decisions

Trauma = ~15-20% of NREMT EMT cognitive exam + psychomotor skills stations
(Bleeding Control/Shock, Spinal Immobilization, Long Bone Splinting)

Core EMT Trauma Principle (2025):
Bleeding kills fastest. Control life-threatening external hemorrhage in the first 30 seconds of patient contact. After that, protect the airway, support breathing, treat shock, and get to a trauma center before the patient decompensates.

Scene time for unstable trauma: <10 minutes (Load and Go)

EMT Scope Reminder

EMT CAN: Direct pressure, tourniquets, hemostatic dressings (some protocols), spinal motion restriction, splinting, oxygen, shock positioning, rapid transport
EMT CANNOT: IV/IO, needle decompression, advanced airways, TXA, pelvic binders (most protocols) - *Check local protocol!*

Section 1: Scene Size-Up & Primary Survey

Scene Size-Up (First 10 Seconds)

- **BSI/PPE** - Gloves, eye protection, gown if needed
- **Scene safety** - Traffic, fire, violence, downed wires, hazmat
- **Mechanism of Injury** - High-energy vs. low-energy
- **Number of patients** / need for additional resources
- **Consider ALS intercept early**

Primary Survey - C-ABCDE for EMTs

C **Catastrophic Hemorrhage**

- Immediate direct pressure (gloved hand or dressing)
- **Tourniquet** for life-threatening extremity bleeding (high & tight, note time)
- Hemostatic dressing if protocol allows

A **Airway** with C-spine Protection

- **Jaw thrust** (preferred in trauma)
- Head tilt-chin lift only if jaw thrust fails (2025 AHA BLS update)
- OPA if no gag reflex / NPA if semi-conscious

B **Breathing**

- Assess for adequate chest rise
- High-flow O_2 via NRB if SpO_2 <94%
- Seal open chest wounds (3-sided occlusive or vented seal)
- Manual stabilization of flail segment

C **Circulation**

- Check for major bleeding (reassess tourniquets)
- Pale/cool/clammy, delayed cap refill (>2 sec), tachycardia → treat for shock
- Supine with legs elevated (if no spinal injury or respiratory distress)

- Keep warm (blankets)

D **Disability**

- AVPU or GCS quick check
- Pupil check
- Fingerstick glucose if AMS

E **Exposure / Environment**

- Full exposure to find hidden injuries
- Prevent hypothermia (cover patient quickly)

Load-and-Go Triggers (Rapid Transport <10 min)

- Uncontrolled bleeding after intervention
- Difficulty breathing not improving with basic measures
- Altered mental status (GCS <13)
- Signs of shock (tachycardia + poor perfusion)
- Penetrating trauma to head, neck, chest, abdomen
- High-energy MOI with instability

Section 2: Bleeding Control - EMT's #1 Job

Bleeding Type	Immediate Action	Secondary Action	Key Judgment Notes
Arterial spurting (bright red, pulsing)	Direct pressure → tourniquet if extremity	Note application time, do NOT loosen once on	Tourniquet saves lives – apply early & high
Venous / moderate (steady dark flow)	Direct pressure + elevation (if no fracture)	Pack wound if deep & uncontrolled	Most bleeding stops with firm pressure
Internal (no external bleeding, signs of shock)	High-flow O_2, keep warm, rapid transport	Treat for hypovolemic shock	No field reversal – focus on speed to trauma center
Amputation	Direct pressure on stump, tourniquet if needed	Preserve part (wrap in sterile gauze, place on ice—not directly)	Control bleeding first, part preservation secondary

Tourniquet Rules (2025)

- **When in doubt, put it on.** Better to have a tourniquet than bleed out.
- Place 2-3 inches above wound (not over joint)
- Tighten until bleeding stops
- **Document time applied** (write on TQ or patient)
- Do NOT loosen or remove in the field
- A second tourniquet is acceptable if first doesn't stop bleeding

Section 3: Shock Recognition & Treatment (EMT Level)

Signs of Shock (Hypoperfusion)

Early Signs:

- Anxiety, restlessness
- Tachycardia (HR >100)
- Pale, cool skin
- Delayed cap refill (>2 sec)

Late Signs:

- Altered mental status
- Hypotension (SBP <90)
- Cyanosis
- Weak/absent pulses

EMT Shock Treatment

1. **Control bleeding** (hemorrhagic shock = #1 trauma cause)
2. **High-flow O_2** (15 LPM NRB)
3. **Position:** Supine, legs elevated 8-12 inches (if no spinal/head injury or respiratory distress)
4. **Keep warm** (blankets, turn up heat in ambulance)
5. **Rapid transport** to trauma center
6. **Call for ALS** if available

Section 4: Spinal Motion Restriction (2025 Guidelines)

Indications for Spinal Motion Restriction (SMR)

- High-energy MOI
- Midline spinal tenderness/pain
- Numbness/tingling/paralysis

- Altered mental status
- Intoxication
- Distracting painful injury

EMT SMR Technique (Supine Patient - NREMT Skill)

1. **Manual stabilization first** (maintain neutral alignment)
2. **Apply cervical collar** (proper sizing)
3. **Secure to long backboard** or scoop stretcher
4. **Straps:** torso first, then head
5. **Reassess** distal neuro & pulses

2025 Selective Immobilization Trend

Many agencies moving toward **selective immobilization** (only high-risk patients). Follow local protocol – focus on mechanism + clinical signs.

Device	When to Use	Key Points
Cervical Collar	Suspected c-spine injury	Proper size; doesn't replace manual stabilization during movement
Long Backboard	Extrication, moving patient	Limit time on board (<30 min); pad voids
Vacuum Mattress	Extended transport	More comfortable; full-body immobilization
KED	Seated patient (vehicle)	Use when patient is stable; rapid extrication if unstable

Section 5: Chest & Abdominal Trauma Basics

Injury	Signs/Symptoms	EMT Intervention	Transport Priority
Open Chest Wound (Sucking)	Air movement through wound, bubbling, dyspnea	Immediate 3-sided occlusive dressing	High – monitor for tension pneumothorax
Flail Chest	Paradoxical chest movement, severe pain	Manual stabilization of flail segment, high-flow O_2	Moderate – support oxygenation
Abdominal Evisceration	Organs protruding	Cover with moist sterile dressing (do NOT reinsert)	High – rapid transport
Impaled Object	Object still in place	Stabilize in place (bulky dressings), do NOT remove	High – exception only if airway obstruction or CPR interference

Section 6: Splinting Basics

Splinting Principles

- **Splint in position found** unless no distal pulse
- **Immobilize joint above and below** the fracture
- **Check PMS** (Pulse, Motor, Sensation) before AND after splinting
- **Pad all voids** and bony prominences
- **Apply cold pack** (not directly on skin)
- If no distal pulse, **one attempt at gentle realignment** , then splint

Injury	Splint Type	Special Considerations
Forearm / Wrist	Rigid splint, sling & swathe	Include elbow and hand
Humerus	Sling & swathe, rigid splint	Check radial pulse
Femur	Traction splint	Contraindicated if hip/knee/pelvis injury
Tibia / Fibula	Rigid splint or air splint	Include knee and ankle
Ankle / Foot	Pillow splint, rigid splint	Position of comfort

Section 7: High-Yield NREMT Judgment Questions

Q1: 45 y/o male, MVC, arterial bleed from leg, pale, tachycardic. What is your first action?

A: Apply tourniquet high & tight – bleeding kills fastest.

Q2: You apply a tourniquet. Bleeding stops. Patient now has weak distal pulse. Next?

A: Leave tourniquet on – **life over limb**. Document time.

Q3: Fall victim, c-spine tenderness, moving all extremities, complaining of neck pain. Management?

A: Manual c-spine stabilization, cervical collar, SMR (backboard or vacuum mattress), transport.

Q4: Patient with closed femur fracture, foot is pale and pulseless. Next step?

A: One gentle attempt to realign, reassess PMS. If pulse returns, splint in that position. If no pulse, splint and rapid transport.

Q5: Trauma patient: HR 130, BP 88/60, cool/clammy skin, anxious. Treatment?

A: Shock! Control any bleeding, high-flow O_2, supine with legs elevated, keep warm, rapid transport, ALS intercept.

Q6: Patient with sucking chest wound, becoming more dyspneic after you applied occlusive dressing. Next?

A: "Burp" the dressing (lift one corner to release air) – developing tension pneumothorax.

Q7: 30 y/o female, abdominal pain after MVC, rigid abdomen, BP 86/50.

A: Treat for shock (high-flow O_2, supine, keep warm), rapid trauma center transport. Suspect internal bleeding.

Q8: 18 y/o fall from ladder, midline neck pain, numbness in fingers.

A: Manual c-spine stabilization, cervical collar, backboard, rapid transport.

Quick Trauma Math Example

Question: Tourniquet applied at 14:45. Current time is 15:12. How long has it been on?

Solution: 15:12 – 14:45 = **27 minutes**

Reasoning: Subtract application time from current time (convert to minutes if needed).

Master EMT Trauma

Think like this:
Bleeding → Airway → Breathing → Shock → Transport

Everything else (splinting, bandaging) comes after life threats are controlled.

Practice tourniquet application until it's second nature. Reassess bleeding constantly. Load unstable patients fast.

You're the first person between the injury and the operating room. Make every second count.

Stay vigilant. Stay fast. Stay lifesaving.