



Objectives

- Cover the assessment of the trauma patient.
- Relate importance of using physiologic status of patient to determine stability.
- Incorporate primary, secondary, and reassessment phase findings into the patient's clinical status.

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Discuss objectives.



Introduction

- Assessment is perhaps the most important skill performed by the EMT.
 - Identifies what happened to the patient
 - How it happened
 - And how the patient is likely to respond to care
- Very dynamic process of assessment, interpretation, and integration.

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The 1994 EMT-B curriculum provided a detailed, scripted approach to patient assessment.

The new National EMS Education Standards do not provide this scripted approach.

The common theme to remember is that the assessment is typically started in a straight-forward format, but almost immediately you know that as the assessment progresses, the steps and format may change based upon the assessment findings you uncover.


Table 14-1 Comparison of the 1994 EMT-B Curriculum and National EMS Education Standards (Trauma Assessment)

1994 EMT-B Curriculum	National EMS Education Standards
Scene size-up	Scene size-up
Initial assessment	Primary assessment
Rapid trauma exam	Secondary examination
Focused exam	Secondary examination
Detailed assessment	Secondary examination
Ongoing assessment	Reassessment



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Scene Size-Up

- Scene Size-Up Components: Trauma
 - Scene safety
 - Standard precautions
 - Mechanism of Injury
 - Number of patients
 - Hazards
 - Resources needed


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The only area with a change to the science is mechanism of injury.

In the past, mechanism of injury was used as a significant predictor of injury and was a formative part of the early decisions EMTs made in reference to the trauma patient.

Now, although mechanism of injury is still part of the puzzle, it is considered of less prognostic value than in prior years.



Scene Size-Up

- Trauma Triage Guidelines
 - Physiologic criteria
 - Anatomic signs of serious injury
 - Mechanism of injury
 - Special considerations

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- Does the patient have physiologic signs of instability, including a diminished Glasgow Coma Scale (GCS) (<14), a decreased systolic blood pressure (<90 mmHg), or respirations <10 or >29 per minute? If so, the patient should be transported to a trauma center.
- Does the patient have anatomic signs of serious injury? These include penetrating injuries to the head and torso, flail chest, multiple long bone fractures, and other significant injuries. These injuries indicate the need for transport to a trauma center.
- Mechanism of injury. Has the patient experienced a fall (adult >20 feet, child >10 feet or two to three times the child's height), ejection from a vehicle, or a death in the same passenger compartment or significant intrusion of damage into the passenger compartment? In many cases you will have already decided to transport to a trauma center, but if not, these mechanisms will indicate a trauma center is warranted.
- Special patient or scene considerations. These include the age of the patient, pregnancy, some additional specific injuries, and the judgment of the EMS provider.


Figure 14-1 Trauma assessment.



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Primary Assessment

- General Impression
 - Consider cervical spine immobilization
- Airway
 - Open or closed?
- Breathing
 - Adequate or inadequate?

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Although some of the terms have changed, the primary assessment is basically the same as the previous “initial assessment”.


The goal is to assess airway, breathing, circulation, and mental status to determine if any lost function or acute change is present.

The only interventions provided during the primary assessment are those geared to support lost function to:

- Airway
- Breathing
- Circulation
- Mental status components

Following the conclusion of the primary, the EMT will determine:

- The degree of patient stability or instability
- Proceed with either rapid transport or continued assessment and management with routine transport to the hospital



Primary Assessment

- Circulation
 - Intact or deficient?
- Priority Determination
 - Stable, potentially unstable, unstable

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Secondary Assessment

- Head-to-Toe Assessment
 - Normal head-to-toe versus rapid head-to-toe
 - Always use standard precautions
 - DCAP-BTLS as memory prompt
- Patient History
 - SAMPLE

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To many providers, especially those new to their level of certification, care is about performing modalities.

Experienced providers, however, know that care is a carefully balanced event.

It is balanced between need and risk, standing order and online consult, and present need at the scene versus consideration of hospital care down the line.

Care plans fit into the continuum of clinical reasoning in that constant monitoring for therapeutic benefit or adverse reaction is necessary—and that the patient's response to a particular modality may be diagnostic.



Secondary Assessment

- Vital Signs
 - Pulse, respirations, skin characteristics, blood pressure, pupils

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Table 14-2 Secondary Assessments of Unstable Patients.

Secondary Assessment—Unstable Patient

Purpose: To perform a rapid exam that will help identify major injuries and end with the patient being placed on a spine board.

Further examination can be done en route if time permits.

Maintain c-spine stabilization throughout.

Rapidly examine the following:

- Head
- Neck
- Chest
- Abdomen
- Pelvis
- Extremities
- Posterior



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Table 14-2 Secondary Assessments of Stable Patients.

Secondary Assessment—Stable Patient
<i>Purpose:</i> To perform a head-to-toe assessment on a stable patient to determine a full picture of the patient's injuries.
-or-
To assess a single injured area on a patient if the mechanism of injury and chief complaint indicate the injury is isolated.
Maintain c-spine stabilization if indicated.
Examine in detail (when indicated):
<ul style="list-style-type: none">• Head• Face• Neck• Shoulders/clavicles• Chest• Abdomen• Pelvis• Lower extremities• Upper extremities• Posterior



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Figure 14-4 Secondary assessment is a head-to-toe examination. HEAD: DCAP-BTLS plus crepitation.



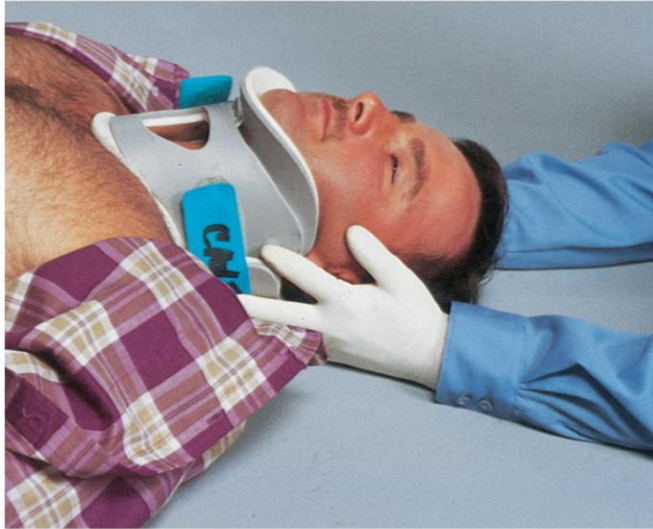
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Figure 14-4 (continued) NECK: DCAP-BTLS plus jugular vein distention and crepitation (then apply cervical collar).



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Figure 14-4 (continued) CHEST: DCAP-BTLS plus crepitation, paradoxical motion, and breath sounds (absent, present, equal).



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Figure 14-4 (continued) ABDOMEN: DCAP-BTLS plus firm, soft, distended.



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Figure 14-4 (continued) PELVIS: DCAP-BTLS with gentle compression for tenderness or motion.



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Figure 14-4 (continued) EXTREMITIES: DCAP-BTLS plus distal pulse, motor function, and sensation.



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Figure 14-4 (continued) POSTERIOR: DCAP-BTLS. (To examine posterior, roll patient using spinal precautions.)



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Figure 14-4 (continued) VITAL SIGNS



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Table 14-3 Vital Sign Trends in Traumatic Conditions.

	Pulse	Respirations	Blood Pressure	Pulse Pressure	Skin
Shock	Increase	Increase	Decrease (late)	Narrows	Becomes cool and clammy
Increasing intracranial pressure (late)	Decrease	Irregular	Increase	Widens	Varies
Anxious, uninjured patient calming down	Decrease	Decrease	May decrease or remain the same	No significant change	Becomes warm and dry



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Figure 14-5 Noninvasive blood pressure (NIBP) monitor.



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Sample History Interview patient or (if patient is unresponsive) interview family and bystanders to get as much information as possible about the patient's problem.



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Interventions and Transport Contact on-line medical direction and perform interventions as needed.



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Interventions and Transport Package and transport the patient.



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Interventions and Transport (continued) Package and transport the patient.



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Reassessment

- Unstable
 - Every 5 minutes
- Stable
 - Every 15 minutes

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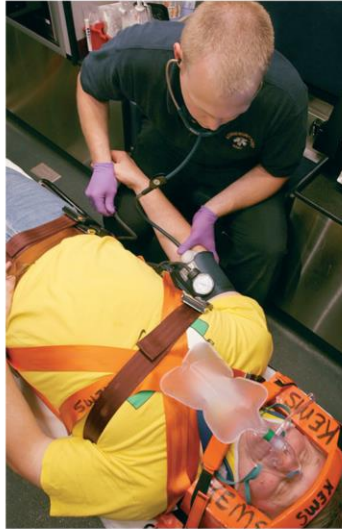
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Reassessment should be performed approximately every 15 minutes for stable patients and every 5 minutes for unstable patients when time and priorities permit.

Figure 14-6 Reassessment is done en route to the hospital—every 5 minutes for the unstable patient, every 15 minutes for the stable patient.



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Case Study

You are called to a busy freeway where a stalled vehicle beside the road caused another driver to swerve, setting up a Multiple-car MVC. As you approach the accident, you note cars still traveling in the fast lane of the freeway.

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Discuss case presentation.



Case Study

- Scene Size-Up
 - There are multiple patients; all are walking around except for one who is entrapped in her vehicle
 - Standard precautions are taken
 - No downed wires or utility poles noted
 - Traffic still traveling by the wrecked cars
 - Dispatch advises police and fire are en route

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Discuss case presentation.



Case Study

- What are some risks when approaching this type of scene?
- How would the EMTs minimize their exposure to injury at this scene?
- What kind of standard precautions should the providers take?

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Risks include:

- Other motorists driving by
- Injury from broken glass and torn metal
- Soft-tissue trauma from burns
- Inhalation injuries from fumes or smoke
- Unstable vehicles that may shift or roll

The EMT would minimize exposure by:

- Parking at a safe distance
- Exiting the ambulance on the right side
- Whenever possible, donning reflective vests
- If necessary consider shutting down the freeway so all traffic stops

Standard Precautions would include at a minimum gloves. Consider also eye protection, and carry with you face protection. Depending on the level of ambient noise (e.g., traffic, horns), hearing protection could be necessary.



Case Study

- Primary Assessment Findings
 - You find your patient entrapped in a car
 - The patient is a conscious, 17 y.o. female
 - Airway is patent, patient is talking
 - Breathing is adequate
 - Peripheral pulse is present but thready
 - Large laceration to left leg where it has been crushed and pinned by the dash of the car

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Discuss as needed.



Case Study

- Is this patient a high or low priority? Why?
- What care should be provided immediately?
- What are some limitations or assessment adjustments the EMT may have to make?

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Even though the patient is conscious and talking, they would be assigned a potentially unstable rating as the external bleed and traumatic MOI suggest more significant injuries may be present.

The EMT should attempt control of the hemorrhage to the leg if possible. If the leg cannot be reached with direct pressure, or if that fails, the EMT may have to consider a tourniquet proximally to stop the bleed.

Adjustment to the assessment and management will be necessary due to the nature of the scene and the entrapment of the patient.

For example, a rapid trauma assessment of the lower extremities may have to be withheld till the person is extricated.

Likewise, treatment that may have been withheld till the patient was in the ambulance may be administered on scene if the extrication process is lengthy.



Case Study

- Medical History
 - None per patient
- Medications
 - Birth control pill
- Allergies
 - None per patient

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Discuss presentation.



Case Study

- Pertinent Secondary Assessment Findings
 - Right leg benign, left leg bleeding heavily and still pinned
 - Upper extremities benign
 - Pulse 128/min, Resp 20/min, B/P 80/palp
 - Pulse ox 97% on room air

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Discuss case presentation.



Case Study

- Pertinent Secondary Assessment Findings
 - PEARL, membranes hydrated, airway patent
 - Breathing adequate, alveolar sounds present
 - Abdomen soft without pain
 - Pelvis feels unstable

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Discuss case presentation.



Case Study

The patient is now receiving high-flow oxygen. A rescuer is in the back of the auto manually holding C-spine. Attempts to manage the leg bleed with pressure have failed. The fire department is still working to extricate her.

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Discuss case development.



Case Study

- How will the leg injury be managed?
- Although this patient is not ready yet to be transported, what kind of transport considerations must be taken?

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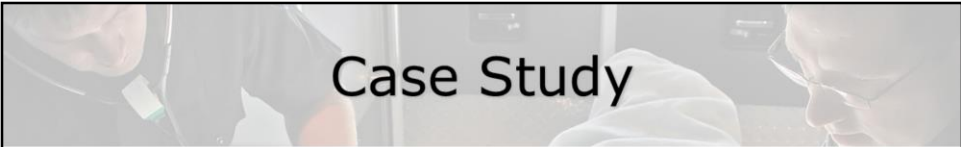
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The entrapment is going to necessitate the EMT to go outside the normal management procedure for an external bleed (direct pressure, cold application and elevation, digital pressure, pressure point, tourniquet)—directly to tourniquet since none of the other interventions are possible with the patient's position and ongoing extrication efforts.

If the accident occurred on the freeway, some distance from a trauma center, the EMT may consider alerting the local medevac service to launch so that they have already landed on scene to assume patient care upon extrication.



Case Study

- The local air medevac service has launched at your request, you have requested the FD to establish a landing zone.
- After 20 minutes the patient is extricated and care is turned over to the medevac crew.

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It was the ability of the EMT to:

- Think like a clinician to properly assess and manage the patient outside typical protocol
- Alert medevac so they could assume care and fly the patient to the trauma center for faster access to a higher level of care.



Summary

- Trauma patients, due to their injury patterns or mechanism, will require modifications to traditional prehospital care.
- Always integrate your assessment findings with critical thinking in order to best manage the patient.

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