

Chapter

Committee on Trauma Presents

NINTH EDITION

Initial Assessment and Management



The primary survey should be repeated frequently to identify any deterioration in the patient's status that indicates the need for additional intervention.



Case Scenario

- 44-year-old male driver who crashed head-on into a wall
- Patient found unresponsive at the scene
- Arrives at hospital via basic life support with c-collar in place and strapped to a backboard; technicians assisting ventilations with bag-mask





What is the sequence of priorities in assessing this patient?

- 1. Do you need to identify the specific injuries before initial management of this patient?
- 2. If not, how do you proceed?



Objectives

- 1. Identify the correct sequence of priorities for assessment of a multiply injured patient.
- 2. Apply the principles outlined in the primary and secondary surveys to the assessment of a multiply injured patient.
- 3. Explain how a patient's medical history and the mechanism of injury contribute to the identification of injuries.
- 4. Identify the pitfalls associated with the initial assessment and management of an injured patient and describe steps to minimize their impact.
- 5. Recognize patients who will require transfer for definitive management.



Standard Precautions

- Cap
- Gown
- Gloves
- Mask
- Shoe covers
- Protective eyewear / face shield





Initial Assessment

Primary survey and resuscitation of vital functions are done simultaneously using a team approach.



Concepts of Initial Assessment

Preparation

Primary Survey Resuscitation Adjuncts

Reevaluation

Detailed Secondary Survey Reevaluation Adjuncts

Reevaluation

Definitive Care



What is a quick, simple way to assess a patient in 10 seconds?



What is a quick, simple way to assess a patient in 10 seconds?

- Ask the patient his or her name
- Ask the patient what happened



Appropriate Response Confirms



Patent airway



Sufficient air reserve to permit speech



C Sufficient perfusion



Clear sensorium





The priorities are the same for all patients.







Special Populations

- Elderly
- Infants and Children
- Pregnant Women



- Obese
- Athletes





Airway



Establish patent airway and protect c-spine

- Occult airway injury
- Progressive loss of airway
- Equipment failure
- Inability to intubate



Breathing and Ventilation

Assess and ensure adequate oxygenation and ventilation

- Respiratory rate
- Chest movement
- Air entry
- Oxygen saturation



Breathing and Ventilation



Airway versus ventilation problem?

latrogenic pneumothorax or tension pneumothorax?



Circulation (including hemorrhage control)

Assess for organ perfusion

- Level of consciousness
- Skin color and temperature
- Pulse rate and character



Circulatory Management

- Control hemorrhage
- Restore volume
- Reassess patient





Disability

- Baseline neurologic
 evaluation
- Glasgow Coma Scale score
- Pupillary response





Exposure / Environment

Completely undress the patient







Resuscitation

- Protect and secure airway
- Ventilate and oxygenate
- Stop the bleeding!
- Crystalloid / blood resuscitation
- Protect from hypothermia





Diagnostic Tools





Diagnostic Tools

FAST

• DPL





Consider Early Transfer

- Use time before transfer for resuscitation
- Do not delay transfer for diagnostic tests







What is the secondary survey?

The <u>complete</u> history and physical examination



When do I start the secondary survey?

<u>After</u>

- Primary survey is completed
- ABCDEs are reassessed
- Vital functions are returning to normal



Components of the secondary survey

- History
- Physical exam: Head to toe
- Complete neurologic exam
- Special diagnostic tests
- Reevaluation



History

Allergies

Medications

Past illnesses / Pregnancy

Last meal

Events / Environment / Mechanism



Mechanisms of Injury





Head

- External exam
- Scalp palpation
- Comprehensive eye and ear exam
- Include visual acuity

Pitfalls

- Unconsciousness
- Periorbital edema
- Occluded auditory canal



Maxillofacial

- Bony crepitus
- Deformity
- Malocclusion

 Potential airway obstruction

Pitfalls

- Cribriform plate fracture
- Frequently missed



Neck (Soft Tissues)

Mechanism:Blunt versus penetratingSymptoms:Airway obstruction, hoarsenessFindings:Crepitus, hematoma, stridor, bruit





- Delayed signs and symptoms
- Progressive airway obstruction
- Occult injuries



Chest

- Inspect
- Palpate
- Percuss
- Auscultate
- X-rays





Abdomen

- Inspect / Auscultate
- Palpate / Percuss
- Reevaluate
- Special studies





Perineum

Contusions, hematomas, lacerations, urethral blood

Rectum

Sphincter tone, high-riding prostate, pelvic fracture, rectal wall integrity, blood

Vagina

Blood, lacerations





Pitfalls

Pelvis

- Pain on palpation
- Leg length unequal
- Instability
- X-rays as needed



Excessive pelvic manipulation Underestimating pelvic blood loss



Extremities

- Contusion, deformity
- Pain
- Perfusion
- Peripheral neurovascular status
- X-rays as needed





Musculoskeletal System



- Potential blood loss
- Missed fractures
- Soft tissue or ligamentous injury
- Compartment syndrome



Neurologic: Brain

- GCS
- Pupil size and reaction
- Lateralizing signs
- Frequent reevaluation
- Prevent secondary brain injury



Early neurological consult



Neurologic: Spinal Assessment

- Whole spine
- Tenderness and swelling
- Complete motor and sensory exams
- Reflexes
- Imaging studies



- Altered sensorium
- Inability to cooperate with clinical exam



Neurologic: Spine and Spinal Cord

Conduct an in-depth evaluation of the patient's spine and spinal cord



Early neurological / orthopedic consult



Neurologic



Pitfalls

- Incomplete immobilization
- Neurologic deterioration



Adjuncts to Secondary Survey

Special Diagnostic Tests as Indicated





- Patient deterioration
- Delay of transfer
- Deterioration during transfer
- Poor communication



How do I minimize missed injuries?

- High index of suspicion
- Frequent reevaluation and monitoring





Pain Management

- Relief of pain / anxiety as appropriate
- Administer
 intravenously
- Careful monitoring is essential







Which patients do I transfer to a higher level of care?



Transfer to Definitive Care

Which patients do I transfer to a higher level of care?

Those whose injuries exceed institutional capabilities:

- Multisystem or complex injuries
- Patients with comorbidity or age extremes



Transfer to Definitive Care

When should the transfer occur?



When should the transfer occur?

As soon as possible after stabilizing measures are completed:

- Airway and ventilatory control
- Hemorrhage control (operation)

Transfer to Definitive Care

Transfer Agreements Local Resources

Local Facility

Trauma Center

Specialty Facility



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Summary

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Detailed Secondary Survey Reevaluation Adjuncts

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Definitive Care