



**TRAUMA PROVIDER LEVEL 3
TEST PREPARATION POINTS**



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Initial Assessment Summary

- Initial assessment of trauma patients, which is the first step of the trauma nursing process, includes a primary and a secondary assessment. If life-threatening conditions are present, the nurse should stop assessing and work to correct the problem before proceeding again with the assessment.
- A team approach is best for care of a seriously injured trauma patient
- The A-I mnemonic helps assist nurses during the initial assessment of a trauma patient:
 - Primary Assessment:
 - **A** – Airway with simultaneous cervical spine protection
 - **B** – Breathing
 - **C** – Circulation
 - **D** – Disability (neurologic status)
 - **E** – Expose/environmental control (remove clothing and keep the patient warm)
 - Secondary Assessment:
 - **F** – Full set of vital signs/focused adjuncts (includes cardiac monitor, urinary catheter, and gastric tube)/family presence
 - **G** – Give comfort measures
 - **H** – History and Head-to-toe assessment
 - **I** – Inspect posterior surfaces

Airway and Ventilation Summary

- Assessing and managing an airway and ventilation is an essential part of both primary and secondary assessments.
- The emergency nurse must quickly recognize life-threatening airway and ventilation problems and provide interventions if appropriate and necessary
- Early identification of all injuries demands a collaborative team effort.
- Determining the patient's need for definitive airway management and advanced ventilator support is a major consideration for members of a trauma team.
- Reassessing airway and ventilatory status is a continuous process; thus, the nurse should be alert to changes so that they can ensure optimal patient outcome

Shock Summary

- Shock results from the inadequate perfusion of tissues. This leads to a decrease in the supply of oxygen and nutrients necessary to maintain the body's metabolic needs.
- There are four types of shock:
 - Hypovolemic
 - Cardiogenic
 - Obstructive
 - Distributive
- Hypovolemic shock is the most common type of shock and it is a result of inadequate intravascular blood volume.
- The organs and some structures of the body respond to shock in a compensatory fashion. If those compensatory mechanisms fail and treatment isn't initiated, organ, tissue, and cellular ischemia ensure.
- Adhering to the six phases of trauma nursing helps ensure an organized approach to the assessment and management of compromises to a patient's airway, circulation, and breathing.

Brain and Cranial Trauma Summary

- Head injury is the leading cause of deaths related to trauma.
- Irreversible brain injury development can be prevented through appropriate and early intervention.
- Secondary brain injury can result from cerebral hypoxemia, ischemia, cerebral edema, hypercarbia, hypotension, or increased ICP.
- Facilitating oxygenation, ventilation, and adequate circulatory status is a priority in treating patients with head injury. Other priorities include optimizing CPP and controlling ICP.
- Maintaining adequate ventilation and CBD are crucial to preserving neurologic function and preventing secondary injury.
- In order to maintain CPP, stabilize blood pressure and treat any rise in ICP with a team approach.

Ocular, Maxillofacial, and Neck Trauma Summary

- Ocular, maxillofacial, and neck injuries can range anywhere from minor to extreme.
- Knowing about potential complications, frequently assessing for signs and symptoms of those complications, and intervening in the appropriate way can prevent morbidity and potential mortality.
- Pain relief as well as addressing patient and family concerns will help prevent fear and anxiety.
- The goals are to prevent or limit further injury, reduce pain, fear and anxiety, and facilitating an appropriate follow up.
- Trauma nurses should discuss eye injury prevention strategies with patients, as most are preventable.

Thoracic Trauma Summary

- Chest trauma can result in life-threatening injuries due to compromises in breathing and circulation.
- Nurses should be knowledgeable about anatomy, mechanism and pattern of injury, and the physiologic consequences of disruption of pulmonary and cardiovascular systems.
- Early identification requires a collaborative approach to be able to conduct the appropriate diagnostic and therapeutic interventions.
- A major consideration of trauma team members should be determining if a patient needs to be transferred to a trauma center or if they need operative management.

Abdominal Trauma Summary

- Abdominal trauma is often associated with injury to other regions of the body, including the chest.
- Due to the high vascularity of solid organs and the presence of major vessels, abdominal trauma can produce hemorrhage and hypovolemic shock.
- Since patients with abdominal injuries may not present obvious signs, so frequent reassessment is an essential component of the trauma nursing process.
- Unrecognized abdominal trauma is a common cause of death that is ultimately preventable.
- A trauma nurse is part of a larger team who recognizes the nature of multisystem trauma and the necessity of an organized and standardized approach to care.
- The nurse who is familiar with abdominal anatomy, mechanisms and patterns of injury, and the pathophysiologic consequences of injury as a basis for symptoms of abdominal trauma is crucial.

Spinal Cord and Vertebral Column Trauma Summary

- Blunt and penetrating injuries to the bony vertebral column can lead to fractures, subluxations, or dislocations.
- Injury to the spinal cord can result in either incomplete or complete spinal cord injuries.
- Anatomic transection of the cord is uncommon, yet physiologic cord damage is often shown by motor, sensory, and sympathetic deficits in the nervous system.
- Trauma nurses should be knowledgeable about pattern of injury, including the forces applied to the vertebral column and the flexion, extension, and rotation resulting from those forces.
- The best approach for treating a patient with a spinal cord injury is a collaborative team approach. The goal of this approach should be to ensure adequate circulation and ventilation.

Musculoskeletal Trauma Summary

- Injury to the extremities are not typically the first priority in care for patients with multiple trauma; however, there is a high incidence of injuries to both the lower and upper extremities that can result in functional disability, loss, or both, and long-term rehabilitation.
- The risk of neurovascular damage ranging from motor, sensory, or vascular deficits to paralysis, hemorrhage, or shock is increased by the proximity of vessels and nerves to musculoskeletal structures.
- If the pelvis is disrupted or fractured, significant blood loss may occur due to the concurrent injury to the blood vessels in the pelvic cavity.
- Nurses should use a team approach to quickly correct any life-threatening compromises to optimal circulation.
- During the secondary assessment, nurses should assess the extremities for any signs of fracture or dislocation.
- Nurses should intervene early to splint a suspected fracture and reassess neurovascular function prior to and after splinting.
- Quick recognition and management of a suspected musculoskeletal injury through pain control, splints, traction, or external fixation often produce improved functional patient outcomes.

Surface and Burn Trauma Summary

- Surface trauma is any disruption in the integumentary system. It can be skin or a soft-tissue injury.
- Burns, lacerations, abrasions, avulsions, contusions, punctures, hematomas, and degloving injuries are all types of surface trauma. They are often encountered in an acutely injured patient.
- Soft-tissue injuries can involve muscles, tendons, cartilage, ligaments, vessels, and nerves.
- Surface trauma can be either the primary injury or a concurrent injury.
- No matter the extent nor the depth of a thermal burn, nurses should adhere to the principles outlined in an initial assessment to correct any life-threatening compromises to airways, breathing, or circulation.
- To determine the severity of a burn, examine the depth, extent, and location of the burn. Additionally, take the age of the patient into consideration as well as their preexisting health conditions.
- After ensuring airway clearance and adequate ventilation, begin intravenous fluid replacement if the patient's burn exceeds 20% TBSA.
- Follow guidelines for considering transfer of patients to a comprehensive burn unit.
- The trauma nursing process will affect the patient's response to the injury, as there can be a long, painful, and stressful recovery ahead.
- The nursing process is intended to prevent or correct pathophysiologic changes that may result in serious sequelae, such as shock, pulmonary failure, or infection.

CHAPTER 11: SPECIAL POPULATIONS: PREGNANT, PEDIATRIC, AND OLDER ADULT TRAUMA PATIENTS

Pregnant, Pediatric, and Older Adult Trauma Patients Summary

- Caring for special populations that have experienced trauma requires knowledge of their unique anatomic and physiologic differences.
- Instances of trauma in special populations should be treated differently than typical occurrences of trauma.
- Assessment, intervention, and evaluation should be guided by the unique response to traumatic injury.

Disaster Management Summary

- Color-coded triage disaster categories:
 - Emergent (red) → Life-threatening injuries
 - Urgent (yellow) → Major illness or injury that needs treatment within 30 to 60 minutes
 - Non-urgent (green) → Walking wounded, but can self-treat
 - Expectant (black) → Dead or expected to die
- The DISASTER paradigm:
 - Detect
 - Incident Command
 - Scene Security and Safety
 - Assess Hazards
 - Support Required
 - Triage and Treatment
 - Evacuation
 - Recovery
- Disaster management is complex and multifaceted. It requires advanced preparation, training, and a systems-level view of the community, hospital, and its staff.
- Disaster management involves the input and participation of local, state, and federal authorities and agencies.
- Nurses are an integral part of disaster management, especially planning, implementation, and ultimately, response.

1. Definitive control of the airway is achieved by endotracheal intubation.
2. ABC refers to Airway, Breathing, and Circulation
3. A compromised airway may occur due to blockage of the airway or neck injury.
4. Hypothermia in the Emergency Department (ED) can be treated with crystalloid fluids at 102.2 degrees F and a warmed treatment area.
5. Definitive hemorrhage control refers to possible surgery, stabilizing of the pelvis, and angioembolization.
6. Rates of fluid administration are measured by the length and diameter of the catheter.
7. Oxygenation can best be improved by use of an oxygen reservoir mask with a minimum flow rate of 11L/min.
8. Pulse oximetry is measured at 95% saturation is a strong indicator of adequate peripheral arterial oxygenation.
9. Pulse oximetry is less reliable in patients with CO poisoning, anemia, and hypothermia.
10. Bag-mask ventilation is more effective when administered by two people.
11. The most common cause of shock in trauma patients hemorrhage.
12. The cardiac output system is determined by multiplying the heart rate by the stroke volume.
13. The administration of appropriate fluid resuscitation solution can help reverse a state of shock, prevent progressive cellular damage, and prevent additional swelling.
14. Examples of warmed isotonic electrolyte solution used in initial fluid therapy are lactated Ringer's and normal saline.
15. The 3 for 1 Rule is a guideline that refers to replacing each 1mL of blood loss with 3mL of crystalloid fluid.

16. Gastric dilation is particularly common in children.
17. Vital signs in patients with a rapid response to initial fluid therapy return to normal.
18. Blood preparation for a patient categorized with a transient response is type -specific.
19. Metabolic acidosis can result from continued hemorrhage or lack of tissue perfusion.
20. Tachypnea causes respiratory alkalosis.
21. Patients categorized with minimal or no response to initial fluid resuscitation probably have severe blood loss (>40%), need more blood and fluids, and may need surgical intervention.
22. In the case of severe blood loss, if type-specific blood is unavailable, then type O blood is indicated.
23. The sequence for conducting an abdominal exam is inspection, auscultation, percussion, palpation.
24. Pertinent questions in patient history due to a vehicle crash are speed of the vehicles involved, use of restraints, airbag deployment, and, the type of impact.
25. The need for a resuscitative thoracotomy in the ED should be made with a surgeon.
26. A lethal pulmonary contusion is not sudden and is a common chest injury.
27. Possible signs of a tracheobronchial tree injury are tension pneumothorax (with a mediastinal shift), SubCut emphysema, coughing up blood.
28. Myocardial contusion is diagnosed by inspecting the myocardium.
29. Esophageal rupture is treated by thoracotomy and draining of the pleural space mediastinum.
30. Secondary survey is usually necessary to identify simple pneumothorax, pulmonary contusion, traumatic aortic disruption.

31. Secondary identification of life-threatening thoracic injury involves a thorough physical exam, chest x-rays, ECG, pulse oximetry, and ABG measurements.
32. For a penetrating abdominal trauma the advantage of a CT scan is to diagnose certain pelvic and retroperitoneal injuries.
33. Rapid adjunct studies for diagnosing abdominal hemorrhage are FAST and DPL.
34. Laparotomy is indicated in with fascial penetration with intraperitoneal bleeding or peritonitis.
35. The main organs affected by blunt pelvic and abdominal trauma are the liver, kidneys, and spleen.
36. X-rays that indicate tears in the diaphragm are an elevated hemidiaphragm or a hemothorax.
37. Pancreatic trauma can be determined by a repeated double-contrast CT.
38. Lateral compression fractures occur in 60-70% of pelvic fractures.
39. AP pelvic fractures can be due to falls over 12 feet.
40. The Monro-Kellie Doctrine describes the relationship between intracranial volume and pressure.
41. Normal ICP resting status is 10 mmHg.
42. The Glasgow Coma Scale assesses eye, motor, and verbal responses.
43. A GCS score of 3-8 is a severe brain injury.
44. Signs of a skull fracture may include a CSF leak, ecchymosis, or seventh or eighth nerve dysfunction.
45. Minor brain injury is a GCS score of 13-15.
46. A MTBI includes disorientation, amnesia, and loss of consciousness.
47. Patients with an MTBI require a CT scan if they are over age 65, their GCS score drops below 15, or they have multiple episodes of vomiting.

48. Mannitol in a 20% solution is given to reduce elevated ICP.
49. Spinal cord injuries above T1 result in quadriplegia.
50. Examples of incomplete spinal cord injury are any sensation or voluntary movement including toe-flexion.
51. A patient with possible spine or spinal cord injuries should be immobilized until x-rays are taken.
52. Continuous immobilization of the cervical spine includes the use of backboards, a semi-rigid cervical collar, bolstering materials, tape and straps.
53. Visible signs of a pelvic fracture with potential hemorrhage are bruising and swelling that increases in the perineum or ongoing bruising in the scrotal region.
54. Pelvic hemorrhage and instability can temporarily be controlled with internal traction and external counter pressure.
55. Major arterial injury can be initially managed with direct pressure fluid resuscitation.
56. Crush syndrome can lead to acute renal failure or disseminated intravascular coagulation (DIC).
57. Injuries that may threaten a limb include open wound near joints, traumatic amputation, or vascular injury.
58. Open wounds and fractures should be considered related.
59. Joint injuries are not usually limb threatening, not usually life threatening and not usually revealed by x-ray.
60. Early clinical signs of a thermal airway inhalation injury are burns to the face, neck, or head; carboxyhemoglobin levels over 10%; or hoarseness.
61. A full-thickness burn is a third-degree burn.
62. The Rule of Nines is used to estimate the size and depth of burns.
63. Burns that cover either the front or back of the trunk represent an 18% body surface burn.

64. Partial-thickness burns appear wet and blistered.
65. Patients with HbCO levels between 40%-60% have carbon monoxide (CO) poisoning.
66. CO exposed patients should get 100% oxygen flow through a non rebreather mask because the CO affinity for hemoglobin is 240 times greater than that of oxygen and has a half-life of 4 hours when the patient is breathing only room air.
67. A reliable measurement of circulating blood volume in patients with burns is hourly urine output.
68. The general urinary output goal per hour in adult burn patients is 0.5 to 1.0 mL per kg of body weight.
69. The fluid resuscitation guidelines for burn victims is 2-4 mL Ringer's lactate solution within the first 24 hours of injury.
70. Fluid resuscitation requirements depend on age, body weight, and patient response.
71. Normal urinary output in infants measures 2mL per kilogram of body weight per hour.
72. During a pediatric needle and tube thoracotomy procedure small test tubes and a tunneling technique should be used.
73. The preferred route of venous access in children is a peripheral percutaneous route.
74. Compared to the adult brain the pediatric brain is anatomically different.
75. The GCS score for pediatric head trauma has a modified verbal component.
76. Children are at greater risk of impact seizures, secondary brain injury, and hypothermia.
77. Brain injury in children is worse in children under age 3 and better than in adults.
78. Delay in restoration of normal pediatric blood volume worsens initial injury and increases the chances of secondary brain injury.

79. SCIWORA stands for Spinal Cord Injury without Radiographic Abnormalities.
80. Examples of differences in pediatric spinal anatomy include flat facet joints, that normal growth can appear as a fracture in an x-ray, and more flexible joints.
81. Geriatric trauma patients experience more cervical spine injuries and more frequent subdural hematomas.
82. Osteoarthritis can cause canal stenosis.
83. Hypothermia in geriatric patients may be caused by sepsis or endocrine disease.
84. Dramatic changes to the skin in elderly patients can cause hypothermia, delays in wound healing, and infection.
85. Elderly patients experience fractures most commonly in the long bones, wrist and hip.
86. Treatment of elderly patients should include attention to nutrition, drug interactions, chronic diseases.
87. The uterus is intra-pelvic until about the 12th week of gestation.
88. By the 36th week, fundal height reaches the costal margin.
89. Second trimester abdominal trauma can cause amniotic fluid embolism and disseminated intravascular coagulation.
90. During pregnancy the bowels becomes positioned cephalad into the upper abdomen.
91. In the third trimester, maternal pelvic trauma increases the risk of fetal skull fracture and abruptio placentae.
92. Changes in blood volume and composition during pregnancy are increased blood volume, WBC, and decreased blood pressure.
93. By late pregnancy hypo-capnia is common.
94. Peri-mortem cesarean section is not usually successful.

95. The placenta receives 20% of maternal cardiac output.
96. Criteria that indicate inter-hospital transfer are head or spinal cord trauma, pulmonary contusion, and severe burns.
97. Co-morbidity factors that may require inter-hospital transfer are age, insulin-dependent diabetes, and immune-suppression.
98. Factors to consider in an inter-hospital transfer are time between injury and definitive care and the level of care and resources available at the local hospital.
99. Documents that go with the patient during transfer are the treatment record and any labs and films.
100. Transfer to a verified trauma center should not be delayed to obtain lengthy diagnostic studies, give a tetanus shot, or to dress wounds.