Pre-Test

To complete the pre-test below, circle the correct answer.

1. Most preventable deaths following severe trauma occur during which phase of care?

   A. Initial resuscitation
   B. Operating room
   C. Pre-hospital
   D. Rehabilitation
   E. Surgical ICU

2. In which one of these clinical scenarios is an immediate definitive airway most strongly indicated?

   A. Fall from 3 ft (1 m) and Glasgow Coma Scale (GCS) score 13
   B. Fall from bed, GCS score 13, and repeated vomiting prior to arrival
   C. House fire, partial thickness burns involving the entire face, soot within the nares and mouth, and a hoarse voice
   D. Altercation, stab wound to right upper abdomen, and BP 98/65
   E. MVC, painful sternal fracture, and SpO_2 92%

3. A 20-year-old male arrives at the hospital approximately 30 minutes after being stabbed in the chest. There is a 3-centimeter wound just medial to the left nipple. BP is 70/33 and HR is 140. Neck veins are distended. Breath sounds are normal. Heart sounds are diminished. Which of the following would be most useful in diagnosis and management of the injury?

   A. 12-lead ECG
   B. CT scan of the chest
   C. FAST exam
   D. Initiation of vasopressors
   E. Left tube thoracostomy

4. A 35-year-old female is transported to the emergency department after a 30 ft (10m) fall. She has a decreased level of consciousness and a GCS score of 12 (E3, V3, M6). Copious blood and vomitus are present in the mouth with airway obstruction. Of the following, what is the most appropriate management for this patient's airway?

   A. Administer oxygen via bag-valve mask with positive pressure
   B. Apply cervical spine immobilization and await bronchoscopy equipment
   C. Insert a nasopharyngeal airway
   D. Perform endotracheal intubation with spinal motion restriction
   E. Rotate the head to the left to clear the airway

5. A 30-year-old female arrives to the emergency department following a motor vehicle crash. Initial BP is 90/60 and HR is 122. IV fluid resuscitation increases BP to 118/88 and decreases HR to 90. A few minutes later, BP suddenly decreases to 96/66. The most likely cause of this hemodynamic change is:

   A. Ongoing blood loss
   B. Open pneumothorax
   C. Neurogenic shock
   D. Compartment syndrome
   E. Traumatic brain injury

6. A 45-year-old male fell 10 feet (3 meters). He reports difficulty breathing and right chest pain. He is speaking clearly but in short sentences. The BP is 125/75, HR is 85, RR is 30, and SpO_2 is 90% without supplemental oxygen. Of the following, the next best step in assessment and management is:

   A. Emergent endotracheal intubation to establish a definitive airway
   B. Chest x-ray followed by FAST
   C. Inspection, palpation, and auscultation of the chest
   D. Administration of narcotic pain relief
   E. Volume resuscitation

7. A severe pulmonary contusion is most likely to cause:

   A. Hypoxic respiratory failure
   B. Respiratory acidosis (hypercarbic respiratory failure)
   C. Metabolic Acidosis
   D. Metabolic Alkalosis
   E. Hypotension

8. A 60-year-old female is involved in a high speed motorcycle crash. Due to a GCS score of 7 (E2, V1, M4), the paramedics performed a rapid sequence intubation using sedative and paralytic medications. The presence of end-tidal CO_2 and bilateral breath sounds were confirmed. Vital signs following intubation were BP 100/60, HR 110, and SpO_2 96% with 100% oxygen and bag ventilation. Upon arrival to the hospital 10 minutes later, the vital signs are BP 90/40, HR 135, and SpO_2 73%. There are no breath sounds bilaterally when bag ventilation is performed. The hypoxemia is most likely due to:

   A. Bilateral pneumothorax
   B. Esophageal intubation
   C. Dislodgment of the endotracheal tube during transport
   D. Hypotension with hypoperfusion
   E. Malfunctioning pulse oximeter equipment

9. A 30-year-old male is shot in the left shoulder and chest at close range. BP is 80/40, and HR is 130. Fluid resuscitation is initiated. BP increases to 122/84 and HR decreases to 100. RR is 28 breaths per minute. Left breath sounds are decreased. A left tube thoracostomy is performed, draining 200 mL of blood. An air leak is not present. The most appropriate next step is to:

   A. Transfuse two units of O-negative blood
   B. Measure blood pressure again
   C. Repeat physical examination of the chest
   D. Obtain a CT scan of the chest and abdomen
   E. Wait for a chest x-ray to be completed

10. A 70-year-old male pedestrian was struck by a car. BP is 145/90, HR is 72, RR is 24, and SpO_2 is 91% with 5-L nasal cannula. Glasgow Coma Scale (GCS) score is 15. Chest x-ray demonstrates multiple right rib fractures. CT of the abdomen and pelvis is normal. ECG demonstrates normal sinus rhythm with no conduction abnormalities. Management should include:

    A. Bronchoscopy to exclude tracheobronchial injury
    B. Multimodal analgesia with respiratory and cardiac monitoring
    C. Placement of a right chest tube
    D. Serial troponin levels and ECGs
    E. Thoracic splinting, taping of the chest wall, and bedrest

11. A 19-year-old male presents with a stab wound to the back, just inferior to the tip of the left scapula. Hemodynamics and breath sounds are normal. A pneumothorax is not present on chest x-ray. The next best step in the management of this patient is:

    A. Admission to the hospital for observation without further studies
    B. Evaluation for intra-abdominal injury by physical exam, FAST, and CT scan
    C. Discharge after 6 hours if a delayed pneumothorax is not present on repeat chest x-ray
    D. Immediate insertion of a left chest tube
    E. Exploratory thoracotomy to evaluate the diaphragm

12. A 40-year-old obese patient with altered mental status following a MVC is to be transported for CT scans. GCS score is 7 (E2, V1, M4). Before transfer for the studies, the most appropriate management is to:

    A. Administer more sedative medications to reduce movement during CT scans
    B. Insert a nasal airway and place a face mask for supplemental oxygen
    C. Insert a nasogastric tube to prevent emesis
    D. Obtain a definitive airway
    E. Request a lateral cervical spine X-ray

13. A 40-year-old woman presents to a rural emergency room following a gunshot wound. There are two non-bleeding wounds in the right chest, one anterior and one lateral. The voice is clear. Right breath sounds are not detected. Left breath sounds are clear. BP is 100/60, HR is 120, RR is 30, and SpO_2 is 88% with 100% face mask oxygen. The next best step in management is:

    A. Wait to obtain a CXR
    B. Perform RSI with a video laryngoscope
    C. Transfer immediately to the trauma center
    D. Perform right tube thoracostomy
    E. Transfuse 2 units of blood

14. An 85-year-old falls down a flight of stairs. Extensive bruising of the face and head is present. BP is 90/70, HR is 120, and RR is 26. In this clinical scenario, the vital signs are most consistent with:

    A. Acute alcohol intoxication
    B. Traumatic brain injury
    C. Hypovolemia from hemorrhagic shock
    D. Neurogenic shock from cervical spine injury
    E. Septic shock

15. A 50-year-old male presents after being struck by an automobile as a pedestrian while shopping. Multiple injuries are present. This is the tenth incident in a year at the same urban intersection. What could a clinician do to effectively reduce the incidence of further events at this location?

    A. Clinicians should focus on patient care and leave intersection evaluation to the transportation department.
    B. Advocate for installation of timed lights, a flashing crosswalk, and pedestrian and vehicle warning signs.
    C. Blame the pedestrians for not being careful
    D. Ask law enforcement to issue more citations for pedestrian crossings
    E. Advocate for a barrier to pedestrian routes at the intersection

16. The most common cause of morbidity and mortality associated with rib fractures is:

A. Bleeding from intercostal vessels
B. Bronchial injury
C. Bleeding from the lung
D. Loss of pulmonary function due to lung laceration
E. Pneumonia

17. Which of the following is a key component of the initial phase of a Massive Transfusion / Hemorrhage Protocol (MTP / MHP)?

A. Administration of blood products in a 1:1:1 ratio (packed red blood cells:plasma:platelets)
B. Administration of crystalloid fluids until the BP stabilizes
C. Administration of tranexamic acid (TXA) after 6 units of blood
D. Permissive hypotension
E. Administration of vasopressors to maintain BP

18. A 45-year-old man presents with severe burns (more than 20% surface area) following a house fire. Prior to intubation, the patient confirms no other injury and reports a weight of 100kg. After endotracheal tube position is confirmed and IV access is obtained, BP is 100/60, HR is 125, and SpO_2 is 98% with 50% oxygen by ventilator. Initial IV fluid rate is:

A. 500 cc/hr
B. 400 cc/hr (4cc/kg)
C. 200 cc/hr (2cc/kg)
D. Not started until exposure and exam for exact burn surface area
E. Dependent on inferior vena cava size on ultrasound

19. Which of the following injuries would be most likely to be associated with fluid on a Focused Abdominal Ultrasound for Trauma (FAST)?

A. Aortic intimal injury
B. Carotid dissection
C. Pancreatic body injury
D. Renal Injury
E. Splenic injury

20. A patient presents with inability to move any extremity after diving head-first into a shallow swimming pool. Other expected findings are:

A. Hypertension
B. Narrowed pulse pressure
C. Peripheral vasodilation
D. Tachycardia
E. Unequal pupillary size

21. A standard communication tool used when transferring patients from one facility to another is S-xABCDE-BAR. The "S" and "BAR" components of this acronym stand for:

A. Safety, Behavior, Anxiety, and Rendezvous
B. Services, Barriers, Agency, and Route
C. Situation, Background, Assessment, and Recommendation
D. Social, Boundary, Atmosphere, and Relationship
E. Stability, Breathing, Airway, and Resuscitation

22. A brain Computed Tomography (CT) demonstrating of absence and / or compression of cisterns, midline shift exceeding 5mm, and loss of grey-white matter differentiation is most consistent with:

A. Elevated Intracranial Pressure
B. Hypotension
C. Hypoxemia
D. Massive exsanguination
E. Neurogenic shock

23. Which of the following is true regarding trauma systems?

A. Trauma systems strive to provide coordinated and comprehensive care to injured patients.
B. The primary goal of a trauma system is to transport an injured patient to the closest hospital as soon as possible.
C. Trauma systems should defer injury prevention activities to the local hospital.
D. Trauma system activities are separate from public health system activities.
E. Trauma systems ensure that all injured patients are transferred to a trauma center regardless of injury severity.

24. During resuscitation and exposure of the trauma patient, it is important to prevent the three components of the "lethal triad". They are:

A. Acidosis, coagulopathy, and hypothermia
B. Agitation, rhonchi, and hypothermia
C. Angina, constriction, and hypothermia
D. Anxiety, bleeding, and hypothermia
E. Disability, edema, and hypothermia

25. Appropriate management of severe hyperthermia (>40oC) includes:

A. Administration of chilled IV fluids
B. Cold water immersion or application of ice packs to axilla and groins
C. Decreasing room temperature to below 66oF / 19°C.
D. Initiating extracorporeal circulating blood cooling
E. Placement of bilateral tube thoracostomies and chest irrigation with room temperature IV fluid.

26. Which of the following emergency procedures may be indicated for limb salvage after full thickness, circumferential extremity burns?

A. Catheter directed thrombolysis
B. Escharotomy
C. Fasciotomy
D. Traction splint application
E. Tourniquet application

27. Which of the following statements is true regarding Rh immunization and trauma in pregnancy?

A. Rh positive patients are administered Rh immunoglobulin to minimize antibody development.
B. Rh immunoglobulin can be deferred in Rh-negative patients if testing is negative for fetal-maternal hemorrhage.
C. Rh immunoglobulin can be administered up to 1 week after injury.
D. Rh positive status is the most common blood type in the general population.
E. Transfusion of low titer O positive blood carries at least a 50% risk of Rh sensitization.

28. A 20-year-old female presents after a motorcycle crash. Hypotension was present at the scene. One liter of IV crystalloid was initiated enroute to your facility. The primary survey is without significant abnormalities. Systolic BP decreases from 115 to 95 and HR increases from 110 to 130 after the fluid is completed. The patient reports severe anxiety and feels cold. The next most appropriate step is management is:

A. Arrange for ICU admission and warm blankets
B. Perform a detailed secondary survey
C. Administer low dose benzodiazepine for anxiety
D. Repeat the primary survey
E. Administer norepinephrine

29. Bias against individuals based on advanced age:

A. Cannot be mitigated and is not as important as gender and social status bias.
B. May lead to under-triage, resulting in increased morbidity and mortality.
C. Is as commonly acknowledged as other types of prejudice and discrimination.
D. Is common in trauma care but does not impact treatment.
E. Should be interpreted in the context of value to society.

30. A 38-year-old female presents to the ED with pelvic pain after a motor vehicle collision. During ambulance transportation from the scene, BP was normal, but HR was elevated. On hospital arrival, BP is decreased, and HR remains elevated. A pelvic x-ray demonstrates asymmetry and a widened symphysis.
Of the following, what is the next most appropriate step?

A. Transfuse 2 units of FFP
B. Apply a pelvic binder / sheet
C. Emergent pelvic angiogram
D. Emergent chest abdomen pelvis computed tomogram
E. Application of bilateral femoral traction

31. Facility capabilities, including personnel, equipment and expertise, should be assessed during which phase of care?

A. EMS or prehospital handoff

B. Prearrival huddle

C. Primary survey

D. Secondary survey

E. Tertiary survey

32. Regarding blunt thoracic trauma in the pediatric trauma patient, which of the following statements is most accurate?

A. Significant organ injury can occur without rib fractures.

B. Pediatric trauma patients have a higher likelihood of bilateral rib fractures than adults.

C. Operative intervention is more likely following pediatric thoracic trauma than adult thoracic trauma.

D. Sternal fractures are often present following pediatric trauma.

E. Flail chest wall segments are a frequent result of pediatric thoracic trauma.

33. A 98-year-old woman is being transported to the hospital following a ground level fall. Emergency responders report the BP is 163/78, HR is 68, RR is 22, temperature is 36.2°C, and GCS score is 14. She reports a headache. The only physical external injuries are bruises on the left temporal area. Past medical history includes hypertension and a stroke 2 years ago with no residual neurologic deficits. Regarding this patient, which of the following is most accurate?

A. The likelihood of a serious head injury is low

B. The patient may be taking multiple medications including beta blockers and anticoagulants which may directly affect the clinical presentation and outcome.

C. As vital signs are normal and symptoms and signs are mild, transport should be diverted to a local urgent care facility with minimal resources.

D. Baseline functional status is not predictive of long-term outcome if she receives appropriate care.

E. GCS score is unreliable in the presence of preexisting cognitive impairment or dementia.

34. Regarding the principles of injury prevention, what are the components of the "Three E's"?

A. Equitable, Education, Endearment

B. Education, Engineering/Environment, Enforcement

C. Environment, Equivalent, Education

D. Establishment, Endearment, Engineering

D. Evaluation, Education, Excessive

35. A woman in the late second trimester of pregnancy presents with hypotension due to hemorrhagic shock after an MVC. Of the following, what is the earliest most appropriate step?

A. Fetal delivery by emergency Cesarean section

B. Rapid transfusion of emergency release O-positive blood if O-negative is not available

C. Fetal ultrasound to assess gestational age

D. Initiation of vasopressors to increase blood flow to the fetus

E. Large bore vascular access obtained only inferior to the diaphragm

36. The components of an AMPLE history during secondary survey include:

A. Allergies, Maneuvers, Pertinent signs, Limb pain, and Exposure
B. Allergies, Maturity, Pregnancies, Last medication, Events
C. Allergies, Medications, Past medical history, Last oral intake, Events
D. Allergies, Mobility, Past surgeries, Last travel, and Education
E. Allergies, Motion, Past events, Last tetanus, and Experience

37. The secondary survey is performed after the primary survey.
What are the components of the secondary survey?

A. Detailed family history, recent events, lower extremity exam, pregnancy test
B. Detailed medical history, event description, comprehensive physical exam, laboratory findings
C. Detailed surgical history, last full meal, hand and foot exam, drug screen
D. Focused medical history, event summary, focused physical exam, glucose
E. Focused medical history, allergies, back exam, pelvic x-ray

38. Which of the following statements is most accurate regarding a mass casualty incident (MCI)?

A. To define an incident as a "mass casualty incident" (MCI), 20 or more people must be injured at the same time.
B. During a mass casualty incident, patients are treated in order of arrival.
C. When multiple injured patients are present, it is appropriate to use all resources to try to save an individual patient before other patients are treated.
D. Mass casualty incident principles apply anytime the number of casualties exceed available healthcare resources
E. Once patients arrive at the hospital, there is no risk of injury to healthcare staff.

39. Which of the following is the most reliable method to confirm endotracheal intubation?

A. Presence of breath sounds bilaterally
B. Absence of borboygmi on epigastric auscultation
C. Detection of exhaled CO_2 via capnography
D. Appearance of fog in the endotracheal tube
E. Chest X-ray demonstration of the endotracheal tube tip proximal to the carina

40. Which one of the following statements is the true regarding shock following injury?

A. Neurogenic shock is the same as spinal shock.
B. Neurogenic and hemorrhagic shock may both be present at the same time.
C. The diagnosis of hemorrhagic shock requires the presence of a systolic blood pressure less than 100.
D. Once one etiology for shock is diagnosed, evaluation for additional types of shock is not indicated.
E. Blunt cardiac injury is insufficient to cause cardiogenic shock.