

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

TRAUMA TREATMENT GUIDELINES

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INITIAL TRAUMA CARE

Prehospital trauma care is best performed by an integrated team of providers, starting with dispatch and ending at a trauma center. See Trauma System Guidelines, which is to be implemented anytime a trauma patient is identified with obvious, or even possible, multi-system trauma. Any patient with injuries, which have the potential to cause hypotension/shock, must be treated aggressively regardless of what current vital signs may show. Any patient who is injured and has a persistent resting tachycardia is assumed to be in compensated shock until proven otherwise.

Goal scene time less than 20 minutes for Major Trauma. Evaluate resources for Multiple Casualty Incident; expect any person who cannot ambulate on scene to require an ambulance.

Pediatric considerations: Head injury is the leading pediatric cause of death. Symptoms include upper airway obstruction due to loss of muscle tone, vomiting with aspiration and seizures. Head-injured children may experience increased intracranial pressure during intubation attempts. BVM ventilation may be safer for such patients. Consider the possibility of child abuse in all pediatric trauma patients.

MEDICAL FIRST RESPONDER

1. Survey scene
 - A. Scene Safety
 - B. Additional resources: Law Enforcement, HazMat, fire suppression, extrication, aeromedical evacuation, MCI trailer
2. Initial assessment (Should require less than 2 minutes to complete)
 - A. AIRWAY:
 - 1) Assess, secure and maintain an adequate airway. Refer to the airway management protocol.
 - 2) Always assume a neck injury and take cervical spine precautions at all times.
 - a. Trauma above the clavicles
 - b. Unresponsive or unable to cooperate with examination, especially children
 - c. Any significant mechanism of injury
 - d. Minor mechanism in patients > 65 yrs old or with bone diseases
 - 3) Insert Combitube if indicated and trained to do so. An experienced provider should manage the airway of a trauma patient with head or neck injuries.
 - 4) Anticipate vomiting, have suction ready
 - B. BREATHING:
 - 1) Quickly look, listen, and feel for breathing
 - 2) Visually check the chest. Look for chest rise, obvious deformity, subcutaneous air, and other abnormalities
 - 3) Check breath sounds to see if there is loss of breath sounds on one side indicating pneumothorax
 - 4) Administer supplemental oxygen with high flow oxygen
 - 5) Assist ventilations as necessary
 - 6) Place an advanced airway if unconscious, no gag reflex, and trained to do so
 - 7) Stabilize flail segments manually
 - 8) Cover sucking chest wounds with occlusive dressing, taped on 3 sides
 - C. CIRCULATION:
 - 1) Assess pulse for presence and quality. Check capillary refill, skin color, moisture and temperature.

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- 2) Perform CPR as needed. Cardiac arrest due to trauma is rarely survivable.
 - 3) Control all significant bleeding with direct pressure. Apply and inflate MAST as a splint for pelvic or lower extremity trauma only (if available).
- D. C-SPINE / DISABILITY:
- 1) A rigid collar should be placed although spinal precautions have been taken since initial patient contact. Initiate or assist with spinal immobilization.
 - a. Pediatric car seat considerations:
 - i. A child may be immobilized in their own car seat if not structurally damaged or unstable, although the car seat will ultimately require replacement if involved in a significant impact.
 - 2) Perform a brief neurological exam. Check and document:
 - a. Level of consciousness using the AVPU system.
 - i. A= Alert
 - ii. V= responds to Verbal Commands
 - iii. P= responds to painful stimulus only
 - iv. U= Unresponsive
 - b. Pupil size, shape, reaction to light
 - c. Movement of extremities
 - 3) Do not remove impaled objects unless interfering with the airway. Support and immobilize in place.
 - 4) Evaluate potential injuries relative to the mechanism of injury
- E. EXPOSE the patient:
- 1) Detailed secondary assessment. Use common sense to maintain warmth and immobilization.
3. Rapid Trauma Assessment:
- A. Especially note neuro status, injuries to head, chest, abdomen, pelvis, extremities
 - B. Splint as needed and as time allows
 - C. Complete vital signs
 - D. LOAD and GO situations require recognition and minimal on the scene stabilization such as cervical spine care and airway management. See State Trauma System Guidelines.
 - 1) Activate your local trauma plan.
 - 2) Request helicopter. Intercept at landing zone or hospital.
 - 3) Request ALS unit for scene care while awaiting helicopter
 - 4) Proceed to closest hospital immediately if airway not controlled
4. Rapid Extrication and Transport:
- A. Trauma patients will frequently require surgery as the only chance for survival
 - B. Field time must be minimized to enhance possibility of survival
 - C. All scenes are different, but do not delay transport of critical patients to apply a bandage or splint. Treat en route to the hospital as much as possible.
 - D. Attempt to keep scene times to less than 20 minutes for Major Trauma

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Assess resources and indications for ALS intercept for airway, IV or analgesia, as available. Do not delay transport for interventions if LOAD & GO decision.
2. Cardiac arrest due to trauma is rarely survivable. Consult **MEDICAL CONTROL** for patients with no signs of life.
3. Initiate rapid transport
4. Perform thorough, detailed examination as indicated en route
5. Perform a blood glucose test on any patient with an altered level of consciousness (LOC) or seizure

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6. Apply cardiac monitor if indicated and trained to do so
7. Contact the hospital as soon as possible. Include only pertinent information:
 - A. ETA
 - B. Number of victims
 - C. Age(s)
 - D. Mechanism of injury
 - E. Major injuries
 - F. Restrained if MVC?
 - G. Ever unconscious?
 - H. Ever hypotensive?
8. Pregnancy-see special considerations
9. Glasgow Coma Scale
 - A. Record the best response out of 15 points
 - B. Coma = <9 and indicates need for airway management. Even a tree can be a 3.

Adult	Score	Pediatric
<u>Eye opening: 4 pts</u>		
Spontaneous	4	Spontaneous
To voice	3	To voice
To pain	2	To pain
None	1	None
<u>Verbal response: 5 pts</u>		
Oriented	5	Appropriate/babbles
Confused	4	Cries but consolable
Inappropriate words	3	Persistent crying/screaming
Incomprehensible words	2	Grunting/moaning with pain
None	1	None
<u>Motor response: 6 pts</u>		
Follows commands	6	Follows/spontaneous
Localizes to pain	5	Localizes to pain
Withdraws to pain	4	Withdraws to pain
Flexion posturing	3	Flexion posturing
Extension posturing	2	Extension posturing
None	1	None

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV/IO access if indicated
 - A. Large bore and two sites are preferred for Major Trauma. Avoid sites distal to deformities or on injured extremities.
 - B. If demonstrating signs of shock, give a fluid bolus 20 ml/kg up to 500 ml. Reassess and repeat x2.
 - C. Warmed fluids preferred to avoid inducing or worsening hypothermia
2. Endotracheal intubation for comatose patients, if trained to do so

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. ALS assessment. Assure that all BLS care has been performed.
2. Needle decompression of tension pneumothorax if indicated. Contact **MEDICAL CONTROL** unless pulses are lost.
3. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

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PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Cricothyrotomy if needed and unable to ventilate or intubate
2. Narcotic analgesia: Morphine or Dilaudid equivalent.
3. Versed sedation if combative or sustained head trauma and fighting immobilization.

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TRAUMA - ABDOMINAL PAIN

MEDICAL FIRST RESPONDER

1. Perform Initial Trauma Assessment
2. Pregnant? See Trauma-Pregnancy.
3. Focused assessment of the abdomen
 - A. Visualize for obvious injury, blunt vs penetrating
 - B. Stabilize any impaled objects
 - C. Palpate, noting tenderness, guarding, rigidity, distention, masses
4. Evisceration
 - A. Cover exposed tissue with moist saline dressing
 - B. Do not attempt to replace into abdomen

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Rapid transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia: Morphine or Dilaudid equivalent.

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TRAUMA - AMPUTATION

MEDICAL FIRST RESPONDER

1. Perform Initial Trauma Assessment
2. Control bleeding:
 - A. Direct pressure, elevation and splinting
 - B. Use pressure points as necessary
 - C. Do not apply a tourniquet unless all other measures to control bleeding fail
3. Partial amputation
 - A. Splint in anatomic position if possible, otherwise in position found
 - B. Elevate involved extremity
4. Care for the severed part only after the patient has been stabilized. If blood loss has been significant and shock is present, notify incoming ambulance of need for rapid transport.
5. Care for the severed part as below:
 - A. Rapidly search for all amputated parts and bring them to hospital.
 - B. Wrap the part in sterile gauze, sheet or towel.
 - C. Wet the wrapping with normal saline.
 - D. Place the wrapped, moist part in a plastic bag.
 - E. Place this bag in a second bag which is filled with ice.
 - F. Do not soak parts nor put into direct contact with ice.

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Transport with ongoing assessment

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access. Run at TKO unless treatment for Shock indicated.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia: Morphine or Dilaudid equivalent.

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TRAUMA - BURNS

MEDICAL FIRST RESPONDER

1. **Scene Safety**
2. Perform Initial Trauma Assessment
3. Remove patient from the source and stop the burning process. Remove involved clothing.
 - A. Thermal Burn: Apply copious water
 - B. Chemical Burn: Brush off visible dry chemical before flushing vigorously for 15 mins
 - C. Tar Burn: Cool tar with water but do not attempt to remove
 - D. Electrical Exposure: Assess wounds. Recognize possible cardiac dysrhythmia.
4. Airway:
 - A. Apply high-flow oxygen
 - B. Any soot, swelling, stridor or hoarse voice indicates airway involvement
5. Breathing:
 - A. Possible CO or cyanide poisoning with flame exposure
 - B. Possible fume exposure with chemicals
 - C. Recognize Pulse Oximetry readings may be falsely elevated. Treat symptoms.
 - D. Assist ventilations as needed
6. Circulation:
 - A. Assess and treat for Shock
 - B. If Shock is present, look for other causes such as associated Trauma.
 - C. Remove all rings, jewelry and restrictive clothing from effected areas
7. Burn Area
 - A. Estimate involved area by Rule of 9's.
 - B. The area of the patient's palm = 1% BSA. Especially applicable in children.
 - C. <10% BSA, apply moist dressing
 - D. >10% BSA, apply dry dressing/burn sheet to avoid hypothermia or shivering
 - E. Patients with significant burns benefit from additional cover to prevent hypothermia
8. Critical Burn: Notify incoming ambulance of the following Load & Go situations
 - A. Burns to head/face with respiratory distress or stridor (upper airway obstruction)
 - B. Age less than 5 or greater than 55 with 2nd/3rd degree burns over 10% BSA
 - C. Any patient with 2nd/3rd degree burns over 20% BSA
 - D. Any patient with 3rd degree burn over 10% BSA
 - E. Burns associated with Major Trauma
 - F. High voltage electrical burns
 - G. Circumferential burns
 - H. Burns to genital area
 - I. Also consult Major Trauma Guidelines in reference

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Rapid transport and early communication. For Critical Burn expect transfer to Burn Unit.
2. Assess airway
 - A. Any soot, swelling, stridor or hoarse voice indicates airway involvement
 - B. Consider ALS treatment for possible intubation
 - C. Thermal burns may be associated with Carbon monoxide poisoning, apply high-flow oxygen
3. Circulation

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- A. Treat for Shock if present
- B. ALS intercept if available

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

- 1. Airway
 - A. Intubate for respiratory failure if trained to do so. An experienced provider should attempt intubation with airway burns present.
- 2. Breathing
 - A. Assess for bronchospasm and treat with Albuterol nebulizer
- 3. Establish IV/IO access for significant burn and give fluid bolus 20 ml/kg up to 500 ml. IV may be established through burned tissue if necessary.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

- 1. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg
- 2. Diagnostic telemetry for significant burns
- 3. Consider CPAP for possible Carbon monoxide poisoning

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

- 1. Narcotic analgesia: Morphine or Dilaudid equivalent.
- 2. Cricothyrotomy if indicated and unable to ventilate or intubate

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TRAUMA - CARDIAC ARREST

Traumatic cardiac arrest is almost universally fatal. However, cardiac arrest in the setting of minor trauma may indicate initial cardiac or medical origin of incident requiring ACLS intervention.

MEDICAL FIRST RESPONDER

1. Scene Safety
2. Assess for indications to withhold CPR. If none, initiate CPR.
3. Apply AED and shock as advised
4. Notify responding agency immediately of condition and mechanism of injury (blunt vs penetrating)
5. Insert Combitube if trained to do so. Maintain c-spine stabilization.
6. Prepare for immobilization and rapid transport

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Reassess for indications to withhold CPR
2. Apply cardiac monitor, if trained to do so. Print rhythm strip for reference.

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV/IO access if indicated.
 - A. Large bore and two sites are preferred for Major Trauma. Avoid sites distal to deformities or on injured extremities.
 - B. Fluid bolus 20 ml/kg up to 500 ml. Reassess and repeat x2.
2. Endotracheal intubation if trained to do so.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. ALS assessment
2. Diagnostic telemetry
3. Contact **MEDICAL CONTROL** to discuss viability
 - A. Blunt traumatic arrest is almost universally fatal
 - B. Blunt traumatic arrest during transport may respond to immediate intervention
 - C. Penetrating traumatic arrest may respond to immediate intervention
4. Needle decompression of tension pneumothorax if indicated.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Cricothyrotomy if indicated and unable to ventilate or intubate

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TRAUMA - CHEST

MEDICAL FIRST RESPONDER

1. Initial trauma assessment
2. Apply Oxygen or support ventilations
3. Focused chest assessment
 - A. Stabilize flail segment with manual pressure
 - B. Do not remove impaled objects. Stabilize in place.
 - C. Treat sucking chest wound with occlusive dressing taped on 3 sides

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Treat for shock as necessary
2. Expedite transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access
2. Apply cardiac monitor if trained to do so
3. Simple Pneumothorax
 - A. Observe closely
 - B. ALS intercept as available for possible development of Tension Pneumothorax
4. Endotracheal intubation for respiratory failure if trained to do so

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Tension Pneumothorax
 - A. Hypotension with loss of radial pulses or consciousness
 - B. Needle decompression with order from **MEDICAL CONTROL**
 - C. May proceed immediately if pulseless. Notify **MEDICAL CONTROL** ASAP.
2. Diagnostic telemetry
3. If not symptomatic, observe during transport
4. Morphine analgesia if indicated: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.
5. Reassess status and rhythm frequently

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia if indicated: Morphine or Dilaudid equivalent.

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TRAUMA-CHILD ABUSE SUSPECTED

MEDICAL FIRST RESPONDER

1. **Scene Safety**
2. Do not employ confrontational or accusatory statements.
3. Document all factual observations and statements, not opinions.
 - A. Indicators of physical abuse:
 - 1) Infant with altered mental status or new seizure
 - 2) Delayed request for assistance
 - 3) Multiple injuries
 - 4) Unusual pattern of injuries, may resemble objects utilized
 - 5) Unusual patient-caregiver interactions
 - 6) Child abuse is the leading cause of injury-related death in infants < 1 yo.
 - B. Indicators of neglect:
 - 1) Unsanitary surroundings
 - 2) Lack of adequate food
 - 3) Absence of responsible caretaker, i.e. left with young sibling
 - 4) Malnutrition
 - 5) Lack of patient cleanliness or appropriate clothing
 - 6) Lack of appropriate medications
 - 7) Lack of medical devices: eyeglasses, hearing aids, suction equipment
 - C. Suspected Sexual Assault: refer to guidelines, have same gender provider care for patient if possible.
4. Initial assessment and care
5. Preservation of potential crime scene

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Treat any physical or medical condition as identified
2. Expedite transport if scene is unsafe

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

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TRAUMA - DROWNING

MEDICAL FIRST RESPONDER

1. **Scene Safety**
 - A. Removal from water to be performed by a trained rescuer with appropriate equipment
2. Initial trauma assessment and care
3. CPR unless other indications to withhold
4. C-spine stabilization for all diving or fall mechanisms, or if unresponsive.
5. Assess for respiratory failure. Insert Combitube if trained to do so. Expect to require suctioning through gastric port.
6. Assess for Hypothermia

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Any patient with even brief submersion should be assessed by a physician as they may develop delayed pulmonary edema.
2. Assess for Spinal Injury. Treat for Spinal Injury unless able to determine otherwise.
3. Treat for Hypothermia and Shock as necessary
4. Consider CPAP for pulmonary edema and respiratory distress. Consult **MEDICAL CONTROL** as needed.
5. If CPR in progress and patient submerged longer than 1 hour, consult **MEDICAL CONTROL** to discuss resuscitation.
6. Expedite transport.

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Endotracheal intubation if indicated and trained to do so.
2. Albuterol treatment if wheezing present
3. Note: NTG and Lasix contraindicated for noncardiogenic pulmonary edema
4. Establish IV access. Run at TKO only, unless trauma or shock present.
5. Apply cardiac monitor if trained to do so. Print rhythm strip for reference.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Diagnostic telemetry

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Gastric decompression or drainage if intubated and vomiting. Utilize orogastric route if any head or facial trauma present.

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TRAUMA - EXTREMITY

MEDICAL FIRST RESPONDER

1. Initial trauma assessment and care
2. Control bleeding:
 - A. Direct pressure, elevation and splinting
 - B. Use pressure points as necessary
 - C. Do not apply a tourniquet unless all other measures to control bleeding fail
3. Do not utilize injured extremity for BP measurement
4. Focused assessment of injury:
 - A. Deformity
 - B. Swelling, discoloration
 - C. Distal pulses
 - D. Gross sensory examination
 - E. Presence of open wounds over possible fracture sites.
 - F. Remove restrictive clothing and jewelry if possible.
5. Apply manual stabilization
6. Splint in position of comfort. Reassess CMS.
7. Amputation care if necessary

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Treat for shock as necessary
2. Splinting Principles:
 - A. Assess CMS before and after splinting. Document same.
 - B. If neurovascular exam is normal, splint in position found.
 - C. If pulses are absent or distal extremity is dusky or blue, make one attempt to apply traction to re-align bones in anatomic position.
 - D. Any splint should extend to joint above and below fracture, or be secured to the bone above and below the injured joint.
 - E. Consider MAST as a splint for pelvic or femur fractures. Observe for shock.
 - F. Traction splint-femur fracture
 - 1) Contraindicated if knee or hip involvement is suspected
 - G. For partial amputations, attempt to splint in anatomical position.
 - H. If possible, cover open fractures and wounds with sterile saline-soaked gauze.
 - I. Elevate extremity and apply ice.
3. Transport smoothly to ensure patient comfort.
4. Consider ALS intercept for analgesia.

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access if indicated. Do not utilize injured extremity if possible.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia: Morphine or Dilaudid equivalent

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TRAUMA - EYE

MEDICAL FIRST RESPONDER

1. Initial trauma assessment and care
2. Chemical injury:
 - A. Flush with copious amounts of water or NS
3. Blunt or penetrating trauma:
 - A. Do not remove impaled objects and deter patient from doing so
 - B. If possible, cover injured eye with eye shield/cup and also cover opposite eye to decrease movements. Do NOT apply direct pressure to eyes.
 - C. Do NOT manipulate injured eye
 - D. Keep patient calm
 - E. If possible, assess visual acuity in blunt trauma before surrounding swelling obstructs vision
 - 1) Ask patient if they can see print, count fingers or see any objects
 - 2) Note pupil size and reactivity
 - 3) Note any limitation of eye movements

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Any trauma above the clavicles requires a C-spine assessment
2. Continuous flushing during transport for caustic injury
3. Consider flushing small foreign objects with water or NS
4. Treat for shock as necessary
5. Observe during transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access if indicated

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia as indicated: Morphine or Dilaudid equivalent
2. Sedation as indicated: Versed 1-5 mg IV/IM. Titrate to effect.
3. Consider Reglan 0.1mg/kg up to 10mg IV/IM for nausea, as vomiting may increase intraocular pressure.

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TRAUMA - FACIAL

MEDICAL FIRST RESPONDER

1. Initial trauma assessment and care
2. Be prepared to suction airway
3. Apply Oxygen or support ventilations
4. An experience provider should manage the airway in the event of facial trauma
5. A nasal airway is contraindicated
6. Remove impaled object only if interfering with the airway, otherwise stabilize
7. Dental injury:
 - A. Maintain loose teeth in place If not an airway hazard.
 - B. Protect avulsed teeth
 - 1) No not clean or abrade teeth
 - 2) If alert with a stable airway, may have patient place loose tooth in mouth under tongue.
 - 3) May also transport in milk or saline
8. Nosebleed:
 - A. Instruct patient to lean forward (if no C-spine injury), pinch nostrils together and hold for 20 minutes.
 - B. Encourage patient to spit out any blood. Do not allow patient to tip head back.
 - C. May apply cold pack to back of neck.
 - D. No dressings are to be placed inside of nostrils.
 - E. If patient feeling lightheaded, place in recovery position (no C-spine injury)

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Maintain close airway observation
2. Any injury above the clavicles requires C-spine exam
3. Treat for shock as necessary
4. Observe during transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access as indicated
2. Endotracheal intubation for respiratory failure if trained to do so

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia: Morphine or Dilaudid equivalent.
2. Cricothyrotomy if indicated and unable to ventilate or intubate

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TRAUMA - SUSPECTED HEAD OR SPINAL INJURY

Ambulatory patients are not excluded from spinal immobilization. According to the Prehospital Trauma Life Support course (PHTLS), almost 20% of patients who required surgical repair of spine injuries were found walking on scene.

NOTE: Signs of brain herniation are a unilaterally fixed and dilated pupil, unilateral paralysis or weakness, decreasing level of consciousness, posturing, or the Cushing reflex (hypertension with reflex bradycardia). Any hypotension or hypoxia is important and negatively influences outcome.

MEDICAL FIRST RESPONDER

1. Initial trauma assessment and care
2. Apply Oxygen or support ventilations
3. C-spine stabilization. Do not force into alignment if resistance or increased pain encountered.
4. Neurological exam
5. Spinal immobilization if trained to do so.
 - A. Ensure adequate resources
 - B. Secure arms to prevent injury
 - C. Pediatric considerations:
 - 1) Children found in car seats should be immobilized in the car seat if it is undamaged and able to be removed from the vehicle.
 - a. Secure the car seat to the ambulance cot if treatment required
 - b. Secure in the captain's chair if stable and requires only transport
 - c. Children should never be secured in a side-facing seat
 - 2) Preschool age children require 1 inch padding of the torso to maintain neutral spine alignment due to proportionally larger heads.
 - 3) Most children will also require lateral padding prior to applying straps.
6. Insert Combitube for respiratory failure, if trained to do so. Note appropriate size.

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Shock
 - A. Treat for shock as necessary, any hypotension is detrimental to brain injury.
 - B. Isolated head trauma rarely causes hypotension, look for other injuries.
 - C. If patient is paralyzed and/or has hypotension with a normal or low pulse rate, suspect neurogenic shock.
 - D. Compress any other visible bleeding sites. Do not compress possible skull fractures.
 - E. Treat primarily for shock, regardless of head injury.
 - F. Maintain warmth
2. If normal perfusion, elevate head 30 degrees
3. For any signs of increasing intracranial pressure, hyperventilate with 100% oxygen at a rate of 20 ventilations per minute. Early airway management is the key in head trauma.
4. Repeat neurological exam every 10 minutes.
5. Notify receiving hospital ASAP.
6. Expedite smooth transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access
2. Neurogenic shock:
 - A. Assess lung sounds, proceed if clear.
 - B. Fluid bolus 20 ml/kg up to 500 ml NS.

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- C. Reassess and repeat. Avoid hypotension.
3. Endotracheal intubation for respiratory failure only if necessary. An experience provider should manage the airway for patients with head or spinal trauma. Any hypoxia is detrimental.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Diagnostic telemetry
2. Morphine analgesia: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg. Be prepared to provide a complete neurological exam description.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Neurogenic shock:
 - A. Dopamine 5-20mcg/kg/min. Low dose usually effective.
2. Narcotic analgesia: Morphine or Dilaudid equivalent.
3. Versed sedation if combative or sustained head trauma and fighting immobilization.
4. .

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

TRAUMA - NOSEBLEED

MEDICAL FIRST RESPONDER

1. Initial trauma assessment
2. Instruct patient to lean forward (if no C-spine injury), pinch nostrils together and hold for 20 minutes.
3. Encourage patient to spit out any blood. Do not allow patient to tip head back.
4. May apply cold pack to back of neck.
5. No dressings are to be placed inside of nostrils.
6. If patient feeling lightheaded, place in recovery position (no C-spine injury)

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Treat for shock as necessary
2. Observe during transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access if indicated

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

TRAUMA - PREGNANT

Primary care of the mother is most beneficial to the fetus. Very minor trauma (fall from standing height) can cause placental rupture after 20 weeks gestation. Placenta rupture occurs in up to 50% of major trauma.

MEDICAL FIRST RESPONDER

1. Initial trauma assessment and care
2. Special considerations in pregnancy
 - A. The life of the fetus relies on the life of the mother. Resuscitation of the mother is the priority.
 - B. Women of greater than 20 weeks gestation (uterine fundus at the level of the umbilicus) may experience hypotension if placed supine on a long board. Tilt long board 30 degrees to the left to displace the uterus off of the inferior vena cava.
 - C. Inquire about position of seatbelt. Often incorrectly placed above uterus.
 - D. Physiologic changes during pregnancy increase circulation. Any hypotension or shock indicates significant blood loss.
 - E. Pregnant patients maintain physiologic respiratory hyperventilation. If necessary, ventilate at a rate of 30 breaths per minute with a small tidal volume to avoid gastric distention.
 - F. Patient is at increased risk of aspiration. Elevate head whenever possible.

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Very minor trauma (fall from standing height) can cause placental rupture after 20 weeks gestation. If patient refuses transport, encourage her to seek immediate medical evaluation. Consult **MEDICAL CONTROL** for assistance.
2. Treat aggressively for shock as necessary
3. Special considerations in pregnancy
 - A. If MAST applied for pelvic or femur injury, do **not** inflate the abdominal compartment.
4. Expedite transport and notify receiving hospital ASAP to have OB equipment available.

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV access. Treat aggressively for shock if present.
2. Special considerations in pregnancy
 - A. Physiologic changes during pregnancy increase circulation. Any hypotension or shock indicates significant blood loss. Shock will not be apparent until 20% blood loss. At 20% blood loss, the fetus is already threatened.

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Morphine analgesia not contraindicated unless delivery imminent: 0.1 mg/kg up to 5mg IV/IM. Titrate to effect. Max total 20mg.

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Narcotic analgesia not contraindicated unless delivery imminent: Morphine or Dilaudid equivalent.
2. Reglan for nausea 0.1mg/kg up to 10mg IV/IM

SHEBOYGAN COUNTY EMS TREATMENT GUIDELINES

TRAUMA - SEXUAL ASSAULT

MEDICAL FIRST RESPONDER

1. Scene safety. Observe for and protect any evidence for Law Enforcement.
2. Initial trauma assessment and care for any urgent/emergent conditions. Otherwise maintain physical appearance and clothing intact as evidence.
 - A. Do not allow patient to change or bathe. Discourage urination if possible.
 - B. Paper bags or burn sheet should be used for evidence collection. Do not use plastic.
 - C. Do not leave patient or any collected evidence unattended
 - D. Encourage patient to notify police
 - E. Minor patients shall be reported to Law Enforcement or Child Protective Services. Notify ED staff of circumstances.
3. Provide emotional support, reassurance and safe environment.
4. Have same gender crew member attend patient if possible.

BASIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Notify ED staff of circumstances.
2. Provide emotional support, reassurance and safe environment.
3. Have same gender crew member attend patient if possible.
4. Observe during transport

INTERMEDIATE TECH - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

1. Establish IV only if treatment indicated

INTERMEDIATE - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS

PARAMEDIC - PERFORM/CONFIRM ALL ABOVE INTERVENTIONS