McHenry Western Lake County EMS System
Paramedic, EMT-B and PHRN
Optional Continuing Education
2019 #4
Penetrating Trauma

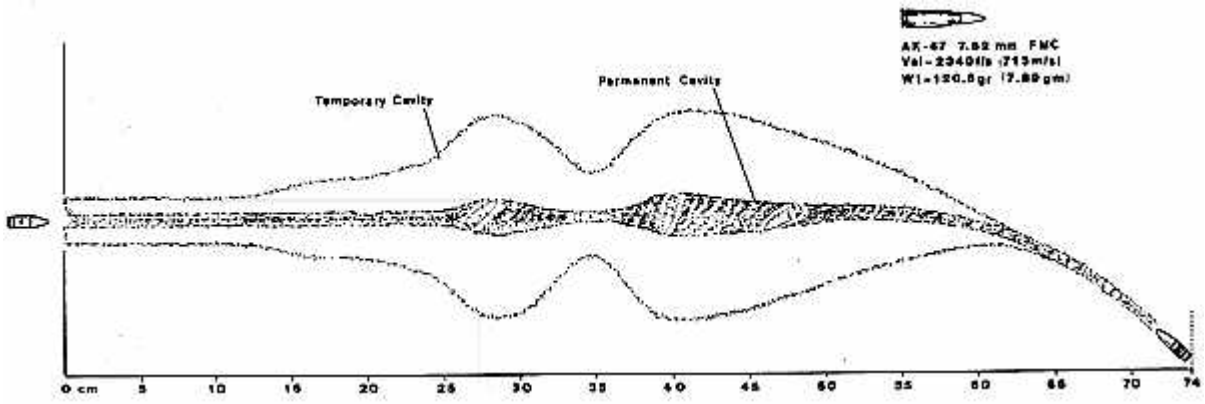
Penetrating trauma may present as some of the most graphic injury patterns you will encounter in EMS. Penetrating trauma is defined as an injury caused by an object breaking the skin and entering the body. These events include gunshot wounds (GSWs) and stab wounds, as well as other types of impalements, and can range in severity from superficial punctures to penetration of major body systems. The greater the speed of penetration, the more severe the injury tends to be.

When responding to these emergencies, safety of the crew and patient must be your first consideration. It must continuously be addressed, keeping in mind the type of incident and the potential for continued violence or additional traumatic injuries that could be directed toward the crew or other individuals on scene.

Cavitation

Aside from the ability to puncture human flesh upon contact, medium and high-velocity items also can cause a cavitation injury. In short, this means that an object creates a concentrated spiral of pressure that pushes tissue away from the piercing. This phenomenon opens up a gap that is much larger than the circumference of the projectile. The displaced tissue eventually settles back into its original position, but not before significant harm has been done. Cavitation is especially dangerous, even deadly, when it impacts brain tissue.

Cavitation also is related directly to the ability of the body tissue to return to its original shape and position.



Permanent cavities are produced by penetrating injuries in which the force of the projectile exceeds the tensile strength of the tissue. Tissues with high water density (e.g. liver, spleen and muscle) or solid density (e.g. bone) are more prone to permanent cavitation.

Kinetics of Penetrating Trauma

The extent of injury from penetrating trauma is proportional to the amount of kinetic energy (KE) that is lost by the missile. As you recall, the kinetic energy of an object is equal to its mass times the square of its velocity, all divided by 2. It should be noted that doubling the mass only doubles the energy, whereas doubling the velocity quadruples the energy. Therefore a small caliber bullet traveling at a high speed will produce more serious of an injury than a large-caliber bullet with less velocity.

Categories of Injuries

While these injuries can occur from a variety of sources, we will focus specifically on weapons and low-, medium- and high-energy or velocity wounds.

Low Energy

Objects or nonballistic weapons like knives or ice picks used from a close distance cause low-energy injuries. While they can be life-threatening, it depends on the type of object used, location, depth of penetration and number of wounds. A single stab wound to the center of the chest with a kitchen knife is a higher life threat than eight stab wounds with a pocketknife to an extremity. While both are penetrating traumatic injuries, due to the mechanism of injury (MOI), we are able to identify a higher life threat with the kitchen knife because of its size and location of the injury.

Medium and High Energy

Bullets or other ballistic weapons typically cause medium- and high-energy, or high-velocity, wounds. Determinants such as the type of weapon, handgun vs. rifle, size of the projectile's caliber and distance at which the weapon was fired are all critical to determining the potential extent of the injuries.

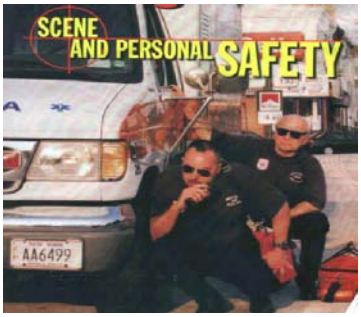
When looking at these wounds, try to envision the pathway the bullets took once they entered the patient. Certain smaller-caliber bullets (.22 and 9 mm) tend to bounce around within the patient, increasing the extent of injury and potential for death. Larger-caliber handguns, like a .45 caliber, are designed to continue straight ahead and actually increase the pathway of injury until the projectile exits the body. This is due to a phenomenon known as cavitation, in which speed causes a bullet to generate pressure waves that result in damage distant from the bullet's path. Resultant tissue injury can be many times larger than the diameter of the projectile.

While it is not critical for EMS to immediately discern between medium- and high-velocity wounds, having this information will assist in the patient's care at the local trauma center. For prehospital providers, the focus remains on scene safety, the ABCs and rapid transport to an appropriate facility.

Assessment

An EMS provider's approach to penetrating trauma is fairly straightforward.

As you approach, begin your scene size-up. If it seems unsafe, don't exit your vehicle.



If you decide to approach, park your vehicle in a manner that facilitates an easy exit from the scene, and then start your general impression of your patients. Evaluate the mechanism of injury, number of patients and any potential hazards, and determine whether additional resources might be needed, such as EMS units to treat/transport multiple patients and police to preserve evidence and, more important, secure the scene from additional attempts to injure you or your patient. Try to determine the patient's approximate age, potential MOI and obvious bleeding or injury even before talking to or touching him. Kneel next to the patient in a way that won't cause him to quickly move his head to look at you and, in the process, exacerbate a cervical injury to the point of further injury, paralysis or even death. Immediately take spinal immobilization precautions, as the penetrating injury may have injured the cervical column or spinal cord. An example would be a patient exposed to the force of an explosion or its resultant projectiles. If a projectile hits the patient in the thoracic-abdominal area, cervical precautions should be taken. If the projectile caused an isolated extremity injury, however, the probability of spinal involvement is minimized. It goes without saying that spinal precautions only need to be taken when there is a high index of suspicion for such injury.

Next, assess the patient's airway. Does the patient have a patent airway? If the answer is no, open the airway with the jaw-thrust maneuver to minimize further spinal injury. If the airway is full of fluid (probably blood or vomitus), suction the patient. Once the airway is clear, keep the airway in the open position, either manually or with adjuncts (oropharyngeal or nasopharyngeal airway). If there is trauma to the maxillofacial area, only oropharyngeal airway should be used

Once the airway has been secured in the open position, assess breathing. If the patient is not breathing, immediately give two breaths and check for a carotid pulse. If there is no pulse follow Traumatic Arrest Protocol. Assist ventilations with a bag-valve mask when indicated . If the patient's respiratory rate is between 8 and 24 breaths per minute, administer a high concentration of O2 via non-rebreather mask or BVM. It's important to know that even though the respiratory rate is between 8 and 24, the patient can still become hypoxic as a result of hypoventilation. Consider tidal volume when determining treatment modalities— ALS or BLS—for injured patients. For that reason, you may also want to consider using a BVM in a patient with a "normal" respiratory rate.

During breathing assessment, inspect and palpate the chest for life-threatening injuries like a sucking chest wound or flail chest. These injuries need immediate intervention, even before assessing circulation. For a sucking chest wound, place an occlusive dressing over each penetration to the torso. Tape on three sides to create a flutter valve. If your assessment reveals a flailed chest or segment of ribs, support it with a bulky dressing. Next, auscultate once on each side of the chest, listening at the mid-axillary position for air exchange. Detailed identification of specific lung sounds will be done later during the rapid trauma assessment. At this point, you are checking for the actual presence/absence of lung sounds and making sure they are bilateral. Assess for signs of a tension pneumothorax. If present and patient is in a perfusing rhythm call medical control for permission to needle decompress per procedure. Prompt treatment of a tension pneumothorax, flail chest or sucking chest wound can improve the patient's ability to compensate from the traumatic event. If the respiratory system collapses, other body systems will start to shut down.

Following the ABC algorithm, look for significant blood loss and other associated signs of hemorrhagic shock. In addition to checking the voids along the posterior side of the patient, estimate blood loss into clothing, car seats, the ground, etc. Expose the patient to locate the origin of bleeding, and bandage the site of penetration. If bandaging does not adequately control bleeding, place manual pressure on the site of penetration. This will slow down blood loss until the patient receives surgical intervention in the hospital. Also check for bilateral radial pulses. If none are found, move toward the center of the patient; check the femoral and then the carotid. If a pulse is present, note the characteristics: Is it thready, weak, bounding or irregular? This will give you a better picture of the patient's ability to compensate for the traumatic event and what stage of shock the patient is in. Some indications that the patient is not compensating well are labored or irregular breathing, falling blood pressure, thready or absent distal pulses, dilated or delayed pupillary response, and pale or cyanotic skin color. Vascular access should be obtained.

Fluids should be administered to maintain a systolic blood pressure of 80 (map 50-60) mmHg. When possible warmed fluid should be used.

. Implement methods to maintain the patient's body temperature and elevate the lower extremities (if not injured) to help the patient compensate for the traumatic injury.

After evaluating the ABCs, you must make a transport decision. Level I or II trauma patients are time-sensitive patients. Attempt to keep scene times 10 minutes or less. Document reasons for scene times longer than 10 minutes on these patients. Transport to nearest appropriate hospital by ground or helicopter where appropriate per our Region triage criteria or on-line medical control

Anything that needs attention in regard to airway, breathing or circulation must be addressed as the problems are found. Once this is accomplished, perform a rapid trauma assessment that includes exposure of all injured areas. Do not get tunnel vision focusing on an obvious distracting wound. Perform a complete rapid trauma assessment, being careful not to overlook a more subtle injury. An example is the patient who was beaten and then stabbed. You may immediately see the stab wound and classify it as non-life-threatening, but further assessment will reveal an abdominal injury sustained during the assault. It is easy to see an open fracture or 10" facial laceration, but identifying other, less visible injuries and determining unexplained blood loss will depend on the thoroughness of your assessment.

All patients with multiple injuries should be completely undressed. This allows you to thoroughly survey the patient and identify injuries; however, don't allow him to become hypothermic—keep him covered, when possible, and move to a warmed ambulance as soon as possible (both geriatrics and pediatrics lose heat rapidly when exposed, particularly if they are wet). If the patient is a victim of violent crime, try not to cut through areas of the clothing that may have entrance or exit wounds. Be aware of law enforcement's evidence collection needs, but do what you need to expose injured areas.

Transport

Should all patients with penetrating trauma go directly to a Level I trauma center? It's important to know the Trauma Triage and Transport Criteria. Traumatic full arrests and patients with uncontrolled airways should be transported to the closest hospital. Clinical indicators combined with time limitations and provider experience will assist in this sometimes-gray area.

Blunt and penetrating trauma have significantly different survivability rates. All patients with penetrating trauma must be evaluated by a physician—ideally, a trauma surgeon in a trauma center. Give advance notice to the receiving facility about the type of injury and the patient's condition. Relay any information regarding the type of implement or weapon used to the receiving facility. For example: "24-year-old male, stabbed multiple times in the torso and abdomen with what appears to be a knife or other sharp object." Keep it simple and to the point.

INITIAL TRAUMA CARE (ITC)

Management of significant trauma requires understanding of kinematics, an accurate assessment of the event, patient's complaints, interpretation of physical findings, & rate of change. Transport to appropriate definitive care.

SCENE SIZE UP: Situational awareness; dynamic risk assessment –Assess/intervene as needed:

- Scene safety: control and correct hazards/threats: (gas, powerlines, animals, people); form plan of approach; remove pt/responders from unsafe environment ASAP; attempt to preserve integrity of possible crime scene evidence
- Mechanism of injury (MOI): anticipate type/severity of injury
- Universal blood/body secretion & sharps precautions; use appropriate personal protective equipment prn
- Number of pts; triage/request additional resources if needed. Weigh risk of waiting for resources against benefit of rapid transport to definitive care. Consider if medium or large scale MPI declaration is needed.
- Take essential supplies/equipment to pt: hemorrhage control; airway & O_2 equipment; spine splinting devices; vascular access/IVF; pain mgt

PRIMARY ASSESSMENT [BLS]

1. **General impression:** ~Age, gender; wt; general appearance, position / surroundings; obvious injuries/bleeding, purposeful movements
2. **Determine if immediate life threat exists** and resuscitate as found; C-A-B-C-D-E: Hemorrhage control first.
3. **Level of consciousness:** AVPU or GCS; chief complaint S&S
4. Re-sequencing priorities if exsanguinating external hemorrhage:

   AIRWAY/SPINE: snoring, gurgling, stridor, silence. Consider possible spine injury
   - **Open/maintain** using position, suction, appropriate adjuncts, & manual spine precautions prn
   - Once airway controlled: Apply appropriate size c-collar + selective spine precautions if indicated
   - Vomiting/seizure precautions as indicated
5. **BREATHING/gas exchange/adequacy of ventilations: Assess/intervene as needed**
   - Spontaneous ventilations; general rate (fast or slow); depth, effort (work of breathing)
   - Air movement, symmetry of chest expansion; accessory muscle use; retractions; lung sounds if vent. distress
   - SpO_2 if possible hypoxia, cardiorespiratory or neurological compromise. Note before & after O_2 if able.
   - $ETCO_2$ number & waveform if possible ventilatory/perfusion/metabolic compromise

   Correct hypoxia/assure adequate ventilations: Target SpO_2: 94%-98% (92% COPD) unless hyperoxia contraindicated
   - **O_2 1-6 L/NC**: Adequate rate/depth; minimal distress; SpO_2 92%-94% (88%-91% COPD)
   - **O_2 12-15 L/NRM:** Adequate rate/depth: mod/severe distress; SpO_2 < 92%; (<88% COPD)
   - **O_2 15 L/ BVM:** Apnea and/or shallow/inadequate rate/depth with mod/severe distress; unstable
     Adults: 1 breath every 6 sec (10 breaths/minute) (Asthma: 6-8 BPM)
   - **CPAP:** Per appropriate SOP
   - If tension or open pneumothorax or flail chest → **Chest Trauma SOP**
6. **CIRCULATION/perfusion**:

   Compare radial/carotid pulses for presence, general rate, quality, regularity, & equality; assess skin color, temp, moisture
   - No carotid pulse : Determine if CPR indicated →**Traumatic Arrest SOP**; if yes, quality CPR (see p. 89)
   - Assess bleeding type, amount, source(s) and rate; **hemorrhage control**:
     - Direct pressure; pressure dressings to injury. If direct pressure ineffective or impractical:
     - Pack wound w/ topical **hemostatic gauze**/ apply direct pressure. Freq. ✓ for bleeding.
     - **Limb w/ uncontrolled bleeding**: **Tourniquet** 2-3 cm proximal to wound; not over a joint; tighten until bleeding stops/distal pulse occluded. If bleeding continues, place 2nd proximal to 1st. Should be visible/well marked (time applied), do not remove. Anticipate pain.
     - **Pelvic fx**: Wrap w/ sheet, pelvic binder, or secure pelvis in upside down KED
   - If suspected cardiac tamponade, blunt aortic or cardiac injury → **Chest Trauma SOP**
   - **Vascular access:** Indicated for actual/potential volume replacement and/or IV meds prior to hospital arrival
     - **IV 0.9% NS** (warm if possible): Catheter size & infusion rate per pt size, hemodynamic status; SOP or OLMC
       If in shock: 14-16 g. WO up to 1 L based on SBP (MAP); +/- radial pulse & coherent mental status.
       Do not exceed BP targets. Excess IVF may lead to uncontrolled hemorrhage, hypothermia, hypocoagulable state, & abdominal compartment syndrome.
     - **Penetrating trauma** to torso: Target SBP 80 (MAP 50-60) (permissive hypotension)
     - **Blunt trauma**: Target SBP 90 (MAP 60-65); Trauma w/ **head inj**: target SBP 110 (MAP>65) or higher
     - Do not delay transport in time-sensitive pts to establish elective vascular access on scene: Limit 2 attempts/route unless situation demands/OLMC order; may place peripheral line when moving; IO while stationary
     - **IO indications**: Critical pts needing urgent IVF/meds: burns, circulatory collapse; difficult/delayed/impossible venous access
     - May use **central venous access devices** already placed based on OLMC
   - Monitor **ECG** if actual or potential cardiorespiratory compromise
7. **Disability**: Rapid neuro exam: GCS; pupils; ability to move all four extremities (S&S ↑ICP or herniation)
   If AMS: blood glucose per System procedure. If < 70: Treat per Hypoglycemia SOP.
8. **Pain mgt** if SBP ≥ 90 (MAP≥ 65): **FENTANYL** standard doses per IMC
   Nausea: **ONDANSETRON** standard dose per IMC [BLS]
9. **E**xpose/**e**nvironment: Undress to assess as appropriate. Keep patient warm.

TRANSPORT DECISION **Continued p. 41**

- Consider need for trauma surgeon scene response per Region IX policy & local procedure; start early notifications
- **Transport to nearest appropriate hospital per Region triage criteria** (SOP p. 42) or OLMC orders
- Scene use of helicopter or alternate transport means based on local System Policy/Procedure

ITC: Secondary Assessment: Cont. spine precautions if indicated; may complete enroute if pt critical

1. Obtain full set of VS: BP (MAP if able) – 1st BP manually; subsequent automated OK; trend pulse pressures; Pulse: rate, quality, rhythmicity Respirations: rate, pattern, depth Temp if indicated
   SAMPLE history: OPQRST of chief complaint/pain using approp pain scale consistent with the pt's age, condition, and ability to understand
   Allergies (meds, environment, foods), **Medications** (prescription/over-the-counter – bring containers to hospital if possible),
   PMH (medic-alert jewelry; medical devices/implants); **Last oral intake**/LMP; **Events** leading to injury
2. **Review of Systems: D**eformities, **c**ontusions, **a**brasions, **p**unctures/penetrations, **b**urns, **l**acerations, **s**welling, **t**enderness**, i**nstability, **c**repitus, and distal **p**ulses, **m**otor/**s**ensory deficits **+ the following** based on chief complaint; S&S; scope of practice, and pt level of acuity
   - **HEAD, FACE, EYES, EARS, NOSE, MOUTH:** Drainage; pupils for size, shape, equality, and reactivity; conjugate eye movements; gaze palsies; visual acuity; eye level (symmetry), open & close jaw; malocclusion.
   - **NECK:** Carotid pulses, jugular veins, sub-q emphysema, c- spines; may temporarily remove anterior c-collar to assess neck
   - **CHEST:** Auscultate lung/heart sounds
   - **ABDOMEN**: S&S of injury/peritonitis by quadrant: contour, visible pulsations, pain referral sites, localized tenderness, guarding, rigidity; evidence of rebound tenderness
   - **PELVIS/GU:** Inspect perineum for blood at urinary meatus/rectum
   - **EXTREMITIES:** Inspect for position, false motion, skin color, and signs of injury
   - **BACK/flank:** Note any muscle spasms
   - **Neuro:** Affect, behavior, cognition, memory/orientation; select cranial nerves (procedure); motor/sensory; ataxia
   - **SKIN/SOFT TISSUE:** Color (variation), moisture; temp, lesions/wounds; sub-q emphysema
3. **Ongoing assessment**: Reassess VS and pt responses to interventions. Every transported pt should have at least 2 sets of VS.
   Stable: At least q. 15 min & after each drug/cardiorespiratory intervention; last set should be taken shortly before arrival at receiving facility
   Unstable: More frequent reassessments; continue to reassess all abnormal VS & physical findings
4. **Report** pertinent positive/negative signs as able; any major changes from primary assessment
5. **Document** Revised Trauma Score parameters on ePCR/EHR
6. An EMS "time-out" to allow for an uninterrupted handover report after hospital arrival is useful in ensuring continuity of care especially if complete written/electronic ePCRs/EHRs are not left/downloaded at time of pt handoff (ACS, 2014).

ADULT GLASGOW COMA SCORE (3-15)	**EYE OPENING**	Spontaneous	4		**Total GCS**
		To voice	3		
		To pain	2		
		None	1		
	VERBAL RESPONSE	Oriented & converses	5		***GCS Conversion pts for RTS** GCS 13-15 4 GCS 9-12 3 GCS 6-8 2 GCS 4-5 1 GCS 3 0
		Confused speech	4		
		Inappropriate words	3		
		Incomprehensible sounds	2		
		None	1		
	MOTOR RESPONSE	Obeys commands	6		
		Localizes pain	5		
		Withdraws to pain	4		
		Abnormal flexion	3		
		Abnormal extension	2		
		None	1		
ADULT REVISED TRAUMA SCORE (0-12)	***Glasgow Coma Score Conversion Points**				
	Respiratory Rate	10-29	4		
		30 or above	3		
		6-9	2		
		1-5	1		
		0	0		
	Systolic BP	90 or above	4		**Total RTS**
		76-89	3		
		50-75	2		
		1-49	1		
		0	0		

Trauma Triage / Transport Criteria (adult & peds)

Trauma pts should be taken directly to the TC most appropriately equipped and staffed to handle their injuries, as defined by the Region's trauma system (below). EMS should bypass facilities not designated as appropriate destinations, even if those facilities are closest to the incident (ACS-COT, 2014). See appendix for listing of all TCs in Regions 8, 9. & 10.

If local agency concerns oppose using these triage & transport criteria, EMS personnel should contact OLMC for orders.

Meets Level I criteria & is >30 min from a Level I: may go to closest Level II for stabilization
Meets Level I or II criteria & is >30 min from a TC: may go to closest non-TC for stabilization or assess need for helicopter.

***Hemodynamic instability:** Sustained hypotension [SBP < 90 (adults) / <70 (peds)] on 2 consecutive measurements, 5 min apart. Attempt to keep scene time ≤10 minutes for time-sensitive patients; document reasons for delay

Step 1 **Physiologic criteria**	**Time sensitive pt**	**Level I** **Trauma Center**	**Nearest Trauma Center** **Level I or II**	**Nearest hospital** Trauma or non-trauma center
				Traumatic arrest
Glasgow Coma Score	13 or less (assoc w/ head trauma)		14 - 15	14 - 15
***Systolic BP**	*< 90 (adults) / <u>≤70</u> (peds)		≥90 (adults) / ≥70 (peds)	
Respiratory rate	< 10 or > 29 (<20 infant) or need for ventilatory support		10 – 29 (≥ 20 infant)	
Step 2: Anatomic Criteria				
Head/neck trauma	**All penetrating skull/eyes/neck** Open or depressed skull fx			
	Blunt: GCS 13 or less		Blunt: GCS 14-15	Blunt: GCS 14-15
Spinal cord injury	Paralysis All penetrating SCI		Suspected isolated SCI; hemodynamically stable	
Chest/back	**All penetrating** (superficial or deep) Tension pneumothorax Chest wall instability or deformity (flail chest)		Blunt & hemodynamically stable	
Abdomen/Groin/Pelvis	**All penetrating** (superficial or deep) Blunt w/ *hemodynamic instability		Blunt & hemodynamically stable	
Extremities/Vascular	2 or more proximal long bone Fx; unstable Penetrating proximal to elbow or knee Crushed, degloved, mangled, pulseless limb Amputation proximal to wrist or ankle:		2 or more proximal long bone Fx - stable Amputation distal to wrist or ankle Penetrating injury distal to elbow/knee	Single long bone injury and hemodynamically stable

Step 3: NO physiologic or anatomic criteria above**,** but **MOI** below **,** transport to **closest trauma center** Level I or II

Falls: Adult ≥ 20 ft (one story = 10 ft) Children <15 years: >10 ft or 2-3 times their height

High risk auto crash
- Intrusion (including roof) > 12 inches at occupant site or > 18" any site
- Ejected (partial or complete) from automobile
- Death in same passenger compartment
- Vehicle telemetry data consistent with high risk of injury

Auto v. pedestrian/bicyclist thrown, run over, or with significant (> 20 mph) impact
Elderly pedestrians struck by MV have more than double mortality rate (16.6% v. 7.4%)

Motorcycle crash > 20 mph

Step 4: Special pt populations: NO physiologic/anatomic criteria above; consider transport to closest trauma or specialty center

Age: Caveats in elderly: Risk of injury & death increases > age 55
- SBP <110 might represent shock after age 65
- Low-impact MOI (ground-level falls) might result in severe injury

Children age < 15 yrs who meet criteria of steps 1 through 3 above should be triaged preferentially to pediatric-capable trauma centers if one is available.

Anticoagulation and bleeding disorders: Pts with head injury are at high risk for rapid deterioration

Burns: (Severe) Without trauma MOI: consider transport directly to burn center *(OLMC);* all mod-severe w/ trauma MOI go to nearest TC

Pregnancy: Fetal gestational age **≥ 20 weeks** (fundus level with navel or above) even if they lack criteria of Steps 1 thru 3 above.

EMS provider judgment (injury from large animal)

DHHS & CDC. (2012). Guidelines for field triage of injured patients, recommendations of the National Expert Panel on Field Triage, MMWR 61(RR-1), 1-20 Available at: www.facs.org/quality-programs/trauma/vrc/resources .

Conclusion

Wounds secondary to penetrating trauma are potentially the most gruesome that EMS providers will see. There are simple steps, however, that will allow providers an easy way to triage, treat and transport these patients in an effective manner.

It's critical for EMS providers to remember that trauma is a surgical injury with limited EMS interventions. Scene time and patient management play the largest roles in determining overall mortality. Understanding mechanisms of trauma and effectively dealing with traumatically injured patients are only some of the weapons in the EMS provider's arsenal. Remember: Penetrating injuries are more than skin deep, literally and figuratively.

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Optional Continuing Education
2019 #4
Penetrating Trauma

Name: _____ Dept: _____ Date: _____

1. Your first consideration when responding for a patient with a penetrating injury must be _____.

2. Explain cavitation.

3. A small caliber bullet traveling at a high speed will produce less of an injury than a large-caliber bullet with less velocity.
   A. True
   B. False

4. Explain why it is helpful for you to try and determine the caliber and velocity of the weapon used.

5. The first step in assessment is
   A. Airway
   B. Breathing
   C. Circulation
   D. Scene safety

6. When should spinal precautions be taken for a patient with a penetrating injury?

7. IV fluids should be given to maintain a SBP of _____.

8. Scene time should be kept a no longer than _____ minutes.

9. When cutting off clothes of penetrating trauma victim, what must you be aware of?

10. You are called to the scene of a 23 year old male who is the victim of a domestic where shots were fired and dispatch tells you that they were informed by family members that the patient has a gunshot wound to his abd. Discuss all aspects of your plan of care for this patient.

If you are NOT a member of the McHenry Western Lake County EMS System, Please include your address on each optional quiz turned into our office. Our mailing address is: Northwestern Medicine – McHenry Hospital EMS, 4201 Medical Center Drive, McHenry, Illinois 60050. We will forward to your home address verification of your continuing education hours.
If you ARE a member of our EMS System, your credit will be added to your Image Trend record. Please refer to Image Trend to see your current list of continuing education credits. Any questions regarding this can be addressed to Cindy Tabert at 224-654-0160. Please fax your quiz to Cindy Tabert at 224-654-0165.