

Bleeding and Shock the Trauma Assessment



Bleeding and Shock

- This session will
 - Define the types of bleeding
 - Causes of internal bleeding
 - Discuss internal and external bleeding
 - Discuss management strategies for the control of bleeding.

B=Bleeding

- A scan for obvious bleeding should take place on approach.
 - ABC or CAB Assessment
 - A= Airway (clear and open)
 - B = Breathing (adequate or inadequate)
 - = Bleeding (Visual scan from head to toe for obvious bleeding)
- Most bleeding is short lived and can be controlled easily.

B = Bleeding

- Bleeding is the loss of red blood cells
- Every red blood cell lost is a reduction in the amount of oxygen supplied to the vital organs
- Perfusion is a vital process
 - Perfusion = Oxygen deliver to vital organs

Trauma Mechanisms

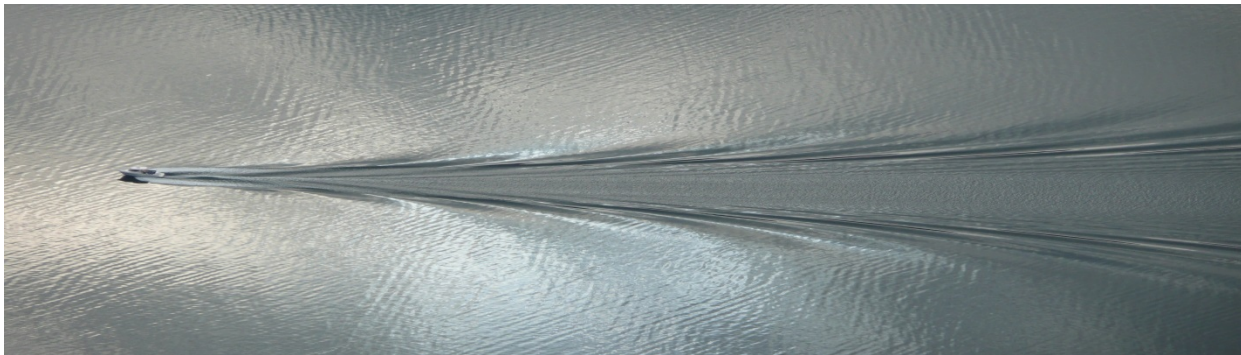
- Bleeding is most often caused by some form of trauma
- Trauma is classified into two broad categories
 - Blunt force Trauma
 - Penetrating Trauma

Trauma Mechanisms

- Blunt Force Trauma
 - Punches, kicks, collisions
 - Hollow organs (stomach, urinary bladder, intestines) fill with blood.
 - Solid organs (liver, kidneys, spleen, ect) can rupture and bleed into body cavities
 - Can bleed within the capsule
 - Tissues are torn due to sheering forces

Trauma Mechanisms

- Shock wave
 - Kinetic forces in blunt and penetrating trauma creates an energy shock wave



- Cavitation

Trauma Mechanisms

- Cavitation
 - The kinetic (shock) wave can produce shearing and tearing forces of the tissues.
 - Nerves
 - Blood vessels
 - Connective tissue

The Trauma Assessment

- How does the Trauma Assessment differ from a medical assessment?
 - Trauma mechanisms are the number one killer of those less than 25 years of age.
- The Trauma Assessment still focuses on the
 - A C
 - B Rather than the A
 - C B

Trauma Assessment

- Airway—Clear of debris, blood, vomitus
- B =
 - Breathing – Adequate rate and depth
 - Penetrating chest injuries are covered with an occlusive dressing
 - Bleeding – All external bleeding is controlled
- Circulation – Adequate heart rate and assess for signs of shock

Trauma Assessment

- Unless the victim is in danger, do not move the victim.
- Where do we stand now on spinal immobilization?
 - If the victim is unconscious
 - If the mechanism is significant
 - If there is penetrating injury
 - If the victim has paralysis or pain
- Evidence based medicine shows spinal immobilization may be harmful and in most cases has no benefit.

Physiological Differences in Children

- The body surface area in children is proportionately larger than adults
- Skin is thinner in children than adults
- the bones of children are more elastic and subject to greater kinetic forces before fracturing
- The organs are proportionately larger and less well protected in children
- Their head is larger
- They are shorter and lower to the ground so trauma is more likely to occur in critical areas.
- The metabolic demands is higher in children than adults.

Trauma Assessment

- Hands on- head to toe (or toe to head in younger victims)
- Look for the life threats
- Treat as you go

B = Bleeding

- Obvious profuse bleeding must be controlled immediately



Bleeding

- Bleeding on the face appears worse than it is.
 - The face has more vessels closer to the surface
- Internal bleeding is difficult to assess and cannot be controlled

B = Bleeding

- Direct Pressure to control bleeding



- Use pressure points with severe bleeding



B = Bleeding

- Hold pressure on the wound for at least 10 minutes.
- Use additional dressings if the cloth becomes soaked.
 - Resist the urge to “check” the wound
 - DO NOT REMOVE THE OLD DRESSING
 - If the wound is on an extremity, elevation can be used in addition to direct pressure.

B=Bleeding

- In absence of a cloth, a bare or gloved hand will work.
- Pressure over pressure points must be **EXTREMELY** firm to cut off the flow of blood.



B = Bleeding

- When applying direct pressure over a severely bleeding wound, direct digital pressure is preferred over the palm of a hand.
- Digital pressure may involve inserting the fingers directly into the wound and occluding the vessels.
- Severe bleeding is to be controlled as soon as it is discovered

B = Bleeding

- The role of tourniquets in bleeding control.
 - If used properly, tourniquets pose only a slight risk of tissue damage.
 - Battlefield evidence based medicine has proven the use of tourniquets to saving lives.



B = BLEEDING

- Severe wounds on the upper arm and thigh may be very difficult to control with tourniquets.
- Specialized training is needed to learn how to use a tourniquet device such as the Combat Application Tourniquet (CAT).
- Pressure points may also be needed to be utilized in addition to tourniquets for larger wounds in the upper portion of the extremities.

Bleeding

- Internal Bleeding:
 - No adequate control measures
 - Difficult to ascertain the blood loss
 - Can occur with either penetrating or blunt force trauma to the immediate or adjacent area
 - Penetrating trauma to the torso may result in little visible bleeding due to being contained inside the body.

Bleeding

- Bleeding wounds are known as “distraction injuries”.
- Do not be distracted by the wound
- Assess the other vital functions as the wound is being managed.
- Assign someone else the responsibility of controlling the bleeding and continue to assess.

Scenario

- A couple of students are playing roughly and one of them has pushed his arm through a glass display case in the hallway of the school. He has a bleeding laceration from the inside of his elbow to the wrist above his thumb.

Bleeding

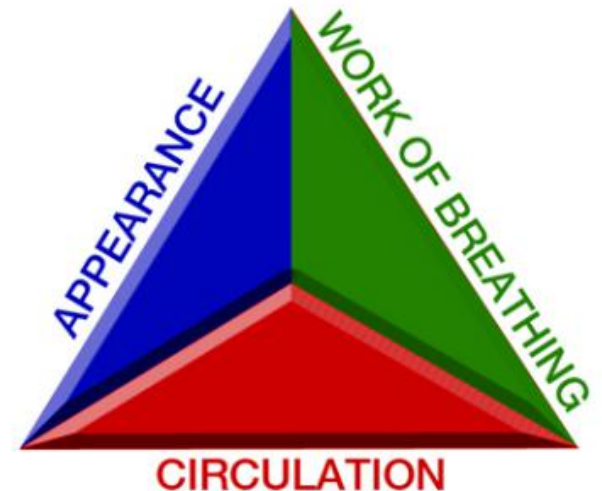
- Let's do the assessment:
- The student is brought to the Health Aid room with some paper towels over the wound attempting to stop the bleeding. He has left a heavy trail of blood on the floor.

AVPU Assessment

- A VPU Assessment ?
- CABDE Assessment
 - Airway = The student is talking. His airway is clear and intact.
 - Breathing = He is spontaneously breathing
 - Circulation = He is pale, cool and moist.
 - He has a radial pulse which is rapid and weak.
 - Disability = He answers questions correctly;
 - Interacts with his environment appropriately;
 - Appears anxious
 - Exposure = He was cut on glass inside a building

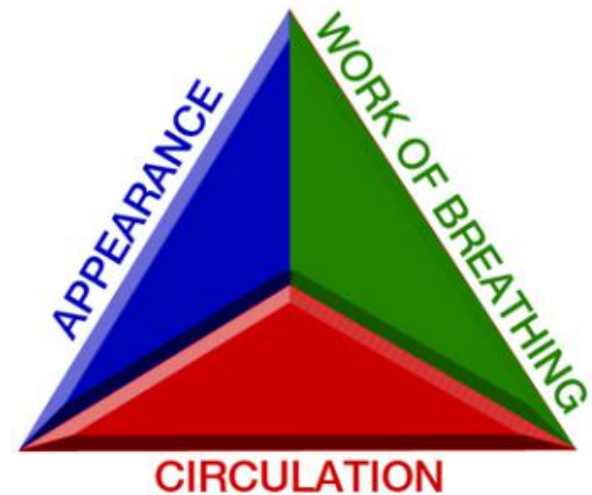
Assessment Tools

- Applying the Assessment Triangle
- Appearance/Activity
 - He appears anxious
 - He interacts appropriately with his environment
 - He appears pale



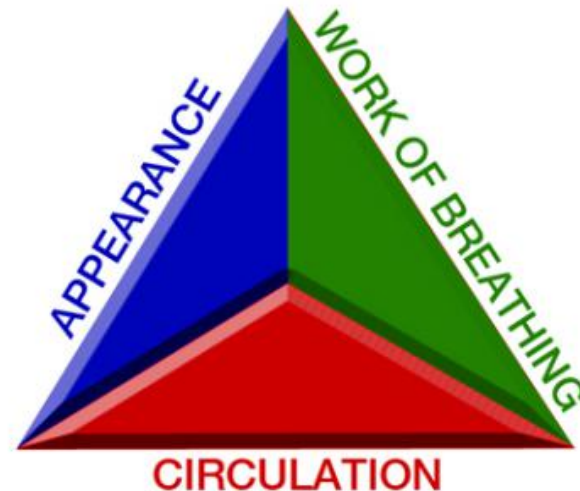
Assessment Tools

- Work of Breathing
 - His respiratory rate is 24 and with effort
 - There are no noises



Assessment Tools

- Circulation
 - He has a radial pulse which is weak and rapid
 - He is pale and moist.
 - His capillary refill time is 2 seconds



Assessment

- SAMPLE Assessment

- s = Signs and Symptoms
 - Large, Gaping, Bleeding laceration
 - Pale, cool, Moist skin
 - Appears Anxious
- A= No known Allergies
- M= No medications
- P =(Past Pertinent) No medical History
 - (Problem) “I was pushed into the case and cut my arm”
- L (Last oral intake) None significant
- E = (Events Leading Up to) Playing in the hallway, broke glass case with his arm.

Assessment Tools

- OPQRST Assessment
 - Onset – Playing in the hallway fell into a display case
 - Provocation/Palliation= None
 - Quality = the pain is sharp
 - Radiation/Referred = None
 - Severity = 8/10
 - Time = About 10-15 minutes ago

C= Circulation--Perfusion –Skin Signs

- Evaluate the skin condition
 - Pale or pink
 - Warm or cool
 - Moist or dry
- When the body is in crisis it begins to prioritize systems and shuts down that which is least important.
 - The first system it sacrifices is the skin

Assessing Perfusion Status: Circulation and Pulses

- Assess where the best pulse can be located
 - Radial pulse = at the base of the thumb
 - Brachial pulse = in the bend of the arm, the inside of the elbow. Difficult to locate.
 - Femoral = in the groin
 - Carotid = on either side of the neck
- Central Pulses (Carotid) and peripheral pulses (found in the extremities) should both be assessed.
- Each extremity should be assessed for the presence of pulses.

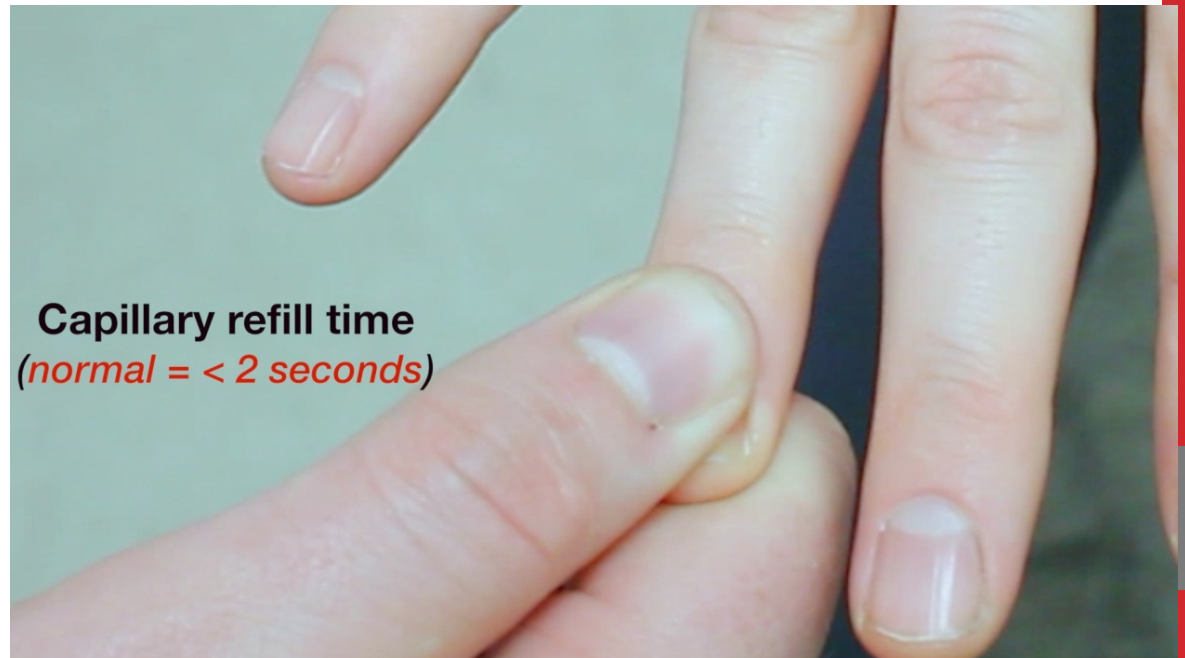
C= Circulation – Perfusion - Skin

Signs

- AS the vital organs (brain, heart, lungs, liver and kidneys) require more blood, the skin begins to “shunt” blood to the core
 - Becomes pale
 - Becomes cool
 - May become moist due to chemical releases
- Pale Cool and Clammy

C=Circulation— Perfusion-- Skin Signs

- Capillary refill
 - Press firmly for one second then release and count the number of seconds until color returns.
 - The forehead, the nailbed, top of the foot
 - In children
the shin or
knee cap



Taking the Trauma Assessment further

- D = Disability. What works, what doesn't
 - = Central Nervous System function.
 - Ability to follow commands
 - Oriented to person, place, and time.
 - Pupil Response

Assessing CNS Disability

TABLE 38-2

Glasgow Coma Scale

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1
Total score:	<i>Best response</i>	15
	<i>Comatose client</i>	8 or less
	<i>Totally unresponsive</i>	3

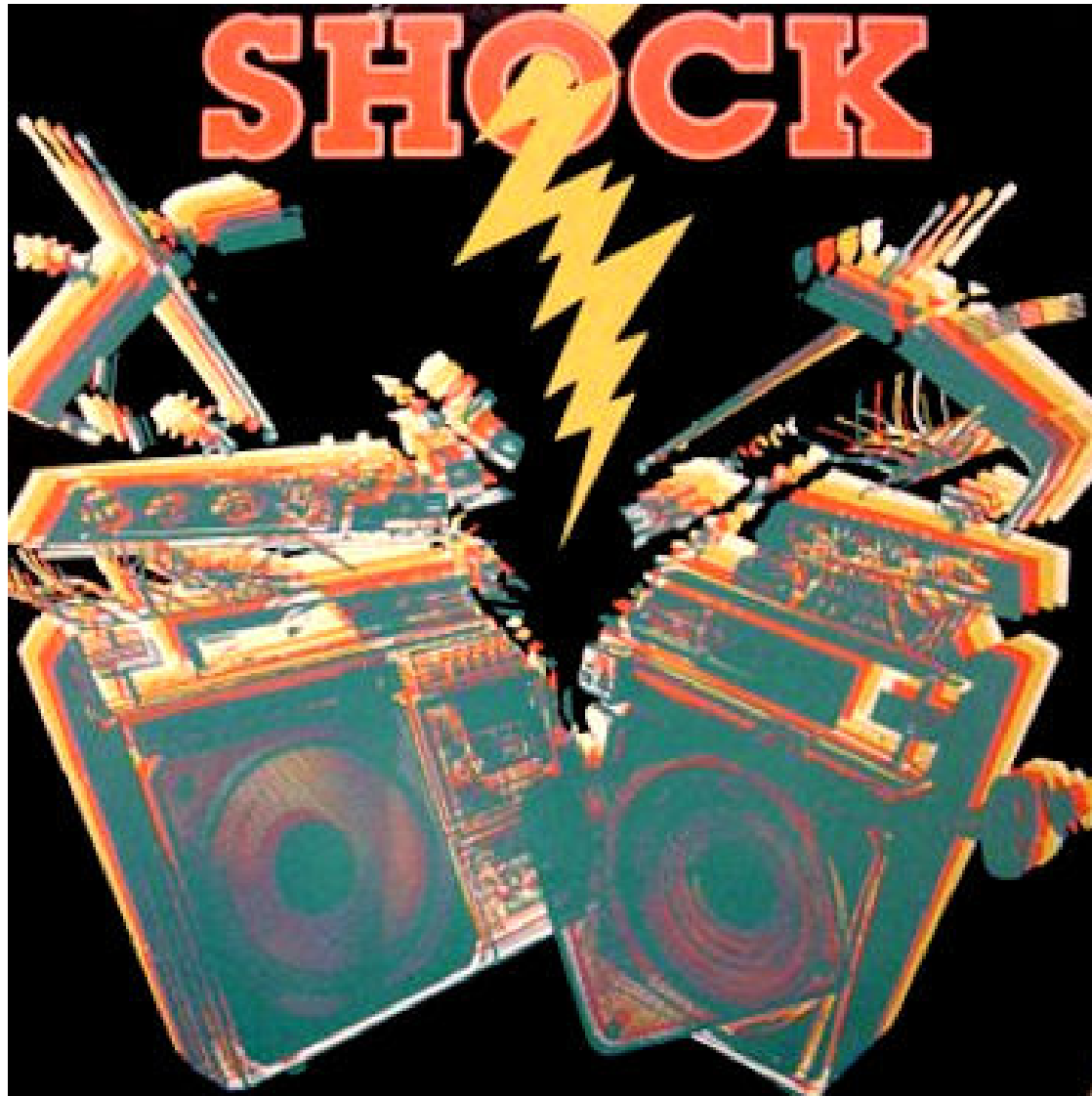
Assessing CNS Disability

- Glasgow Coma Scale
 - Should be done on initial contact after life threats are managed.
 - Should be repeated with the other vital signs
 - A score of 8 or less is serious

Taking the Trauma Assessment Further

- E = Events of the incident
 - Environment
 - Emotional
 - Existing medical conditions

Let's Talk.....



Shock

- The most common recognition of shock is when blood loss is present.
- Even without blood loss, shock can still be present.
- Shock is not in itself a diagnosis of disease but a sign of something else.

Shock -- Causes

- Shock can occur for a variety of reasons.
 - Blood loss
 - Internal or external bleeding
 - Anemias
 - Dehydration
 - Prolonged or severe vomiting and diarrhea
 - Heat illness and lack of fluid intake



I'm thirsty

Shock -- Causes

- Allergic reaction
 - Anaphylaxis
- Overwhelming infectious process
 - Sepsis
- Cardiac Insufficiency
 - Birth defect
 - Cardiac injury
- Metabolic
 - Diabetes
 - Kidney failure



Shock -- Causes

- Insufficient oxygenation
 - Insufficient oxygen in the environment (suffocation)
 - Inadequate ventilation
 - Injury to the chest
 - Asthma, ect
 - Reduced respiratory rate or effort
 - Drug overdoses
 - Central nervous system disorder such as seizures.

Signs of Shock

- In the primary assessment be mindful of the signs of shock

Shock

- A change in mental status may be the first sign of a person in shock
 - May be awake and talking
 - May show signs of restlessness or anxiety , agitation, aggression or combativeness.
 - May be disoriented and confused.
 - Unconscious

Shock

- Signs of shock:
 - Altered mental status
 - Increased respiratory rate
 - Increased pulse rate
 - Pale skin. May also appear cyanotic, cool and moist (clammy)



Shock

- Blood pressure is an unreliable factor in determining shock
 - Blood pressure may be normal or even slightly higher than normal in early shock stages
 - The systolic and diastolic will be closer together (narrowing pulse pressure)

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Shock Stages

Compensated shock	Decompensated shock	Irreversible shock
<ul style="list-style-type: none"> • Pulse rate increases • Respirations increase • Weak pulse • Cool, clammy skin • Anxious, restless, combative • Thirsty, weak 	<ul style="list-style-type: none"> • Very weak or absent pulses • Severe drop in blood pressure • Altered mental status or unconsciousness • Slow breathing to apnea 	<ul style="list-style-type: none"> • Cell death • Organ system failure • Washout • Hemorrhaging all over • Patient dies
<p>Stage I and II hemorrhages</p> <p>500-1250ml blood loss</p> <p>5-25% blood volume lost</p>	<p>Stage III and IV hemorrhages</p> <p>1250-1750+ ml blood loss</p> <p>25-35%+ blood volume lost</p>	<p>Stage IV hemorrhage</p> <p>1750+ ml blood loss</p> <p>35%+ blood volume lost</p>
<p>THIS IS WHERE YOU NEED TO WORK YOUR MAGIC. Stop the bleeding. Oxygenation. Give fluids. Keep the patient warm. Get them to definitive care.</p>	<p>WORK VERY FAST. You MAY be able to get the patient back, but you need to work very fast. Praying helps.</p>	<p>STICK A FORK IN HIM. HE'S DONE.</p>

Managing shock

- Recognize the signs of Shock early.
- Control any obvious bleeding
- Have the student lie down
- Keep them warm
- If there is no suspected spinal or extremity injury, elevate the feet

Back to the Scenario

- Remember the student who came in with the cut on his arm?
 - He is Awake, but is anxious
 - He is breathing but it seems labored
 - His pulse is weak and rapid
 - His skin is pale, moist and cool.
 - His wound is still bleeding heavily
- What is the next steps?

Scenario Conclusion

- Contact 911 now.
- Have him lie down
- Control the bleeding
 - Where is the nearest pressure point to this wound?
 - Would you consider a tourniquet for this situation?
- What else will you do?

Scenario

- A student comes to the health office and complains of feeling weak and dizzy. She sits down and appears to be very drowsy. Her skin feels cool and damp and appears very pale. Her radial pulse is very weak and rapid (thready). She has a history of a viral gastroenteritis for the past two days and has missed school. She has just come from her PE hour.

- Is this student in shock?

Scenario Answer

- The student displays signs of shock and until proven otherwise, she should be treated as if she were in shock.
- Is this student
 - SICK—Emergent?
 - NOT SICK—Urgent
 - NOT SICK—Non-Urgent?