PRIMA 2020 WEBINAR

FAUQUIER COUNTY FIRE RESCUE AND EMERGENCY MANAGEMENT



SERVICE ***KNOWLEDGE*** ***EXPERIENCE***

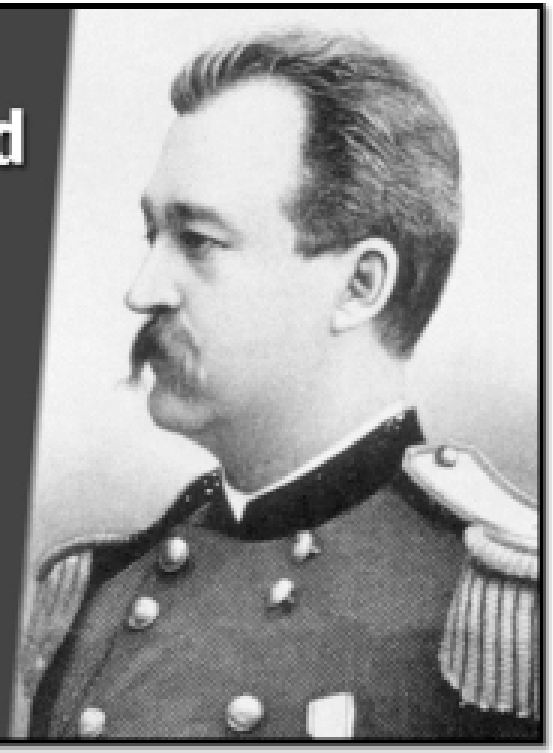
Current Environment

- Class Discussion
- How many active shooter events are there?
- https://www.gunviolencearchive.org/reports/mass-shooting
- SOFT TARGETS
- Usually 0-5 deaths from active shooter

Until Help Arrives

"The fate of the wounded lies in the hands of the ones who apply the first dressing"

Dr Nicholas Senn (1844 – 1908)
Founder of the Association of Military Surgeons of the United States



Until Help Arrives





Until Help Arrives

- Tactical Emergency casualty care TECC
  - Civilian operational medical response framework for high threat events.
  - Evidence-based, best-practiced civilian principles of care.



Until Help Arrives

- TECC
  - Tourniquets



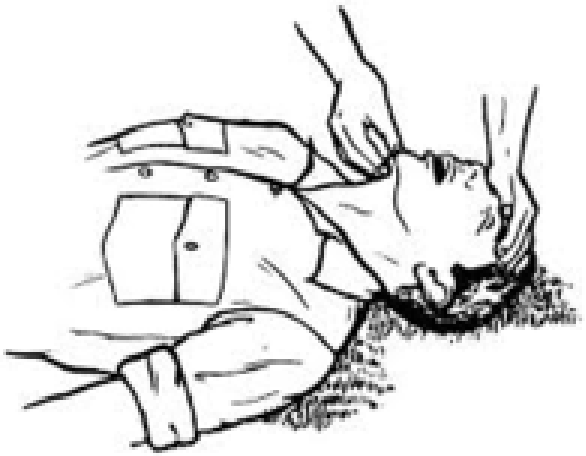






Until Help Arrives

- TECC
  - Basic airway management and positioning



Until Help Arrives

Penetrating chest injuries

Sucking chest wounds





Until Help Arrives

- TECC
  - Mental strategies to prepare
  - Psychological support for wounded
  - Effective and efficient casualty movement





Until Help Arrives

- TECC
  - Death from Trauma induced hypothermia



Good Samaritan Law

- § 8.01-225. Persons rendering emergency care, obstetrical services exempt from liability.
- A. Any person who:
- 1. In good faith, renders emergency care or assistance, without compensation, to any ill or injured person (i) at the scene of an accident, fire, or any life-threatening emergency; (ii) at a location for screening or stabilization of an emergency medical condition arising from an accident, fire, or any life-threatening emergency; or (iii) en route to any hospital, medical clinic, or doctor's office, shall not be liable for any civil damages for acts or omissions resulting from the rendering of such care or assistance.

Until Help Arrives

- The Survival Arc
  - Three Main stages
    - Denial
    - Deliberation
    - Decisive moment

Until Help Arrives

- The Survival Arc
  - The best way to get the brain to perform under extreme stress is to repeatedly run it through rehearsals beforehand.
  - Develop NEW instincts through training
    - Speeds progression through the disaster arc.
    - Gives an anchor in past experiences
    - Hastens and heightens the decisive moment
  - Familiarity and prior success promotes future success
- Box Breathing for autonomic control
  - An increased blood CO_2 enhances the cardio-inhibitory response of the vagus nerve when you exhale and stimulate your parasympathetic system. This produces a calm and relaxed feeling in the mind and body.

Until Help Arrives

- Why is this important
  - Your mental and physiologic response will affect you during crises
  - Your Reaction and how it feels may not be what you may have imagined
  - Understanding your mental and physiologic response can help make you more effective when in a disaster or a high threat situation.

  - **Fight-Flight-Freeze** response is the body's automatic, built-in system designed to protect us from threat or danger. For example, when you hear the words, "look out!"

What will you do?

- **Recognize**
- **R**espond
- **R**escue
- **R**eport

Recognize

- What is happening?

It's NOT Fireworks

- Where is it happening?

- What is your priority?
  - Run, hide, fight?



What will you do?

- **R**ecognize
- **Respond**
- **R**escue
- **R**eport

RESPOND according to your emergency plans.

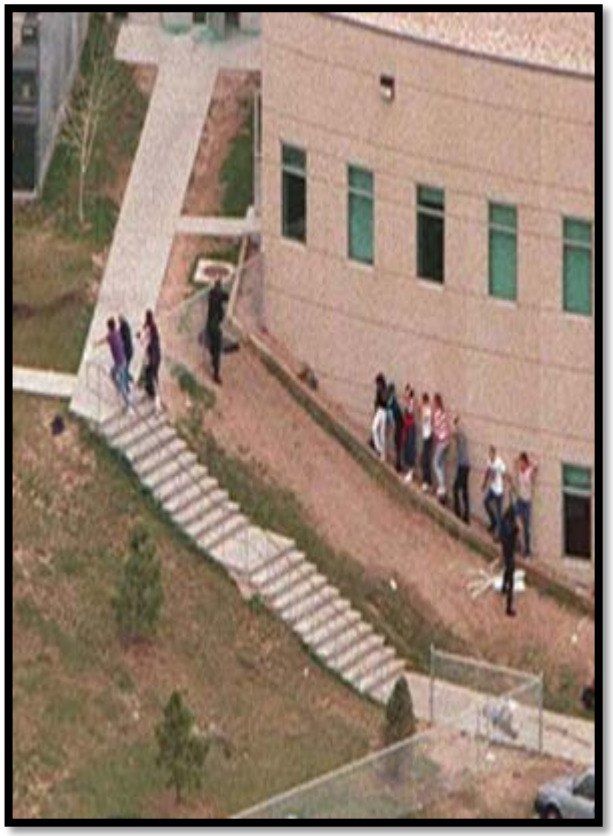
RUN and/or **HIDE** and/or **FIGHT**

Respond

- Create a plan. In your head, or write it down.
- Think about it now so you don't have to think about it when lives are endangered and seconds matter.
- Having a plan will help you respond faster and it will make it easier to sum up the courage necessary to respond.
- Having a plans speeds you through the Survival Arc

Run

- Have a route and plan in mind
- Make notes of alternative exits.
- Evacuate and encourage others to follow.
- Leave belongings behind
- Help others escape, if possible
- Prevent others from entering the area
- Follow instructions of police officers



Hide

- Out of the shooters view
- Do not trap yourself in, if you have an exit
- Have locks on the door
- Barricade the door with furniture
  - Take the time to look in your office and decide ahead of time what furniture you can use
- Barricade with your Body, (lying on floor) behind the door
- If there are windows:
  - Move away if it reveals your location to the shooter
  - Use the windows to communicate to emergency responders.

Fight

- Life or death/ Last resort
- Everyone can be fighter.
  - Risky but may be your only chance for survival
  - Act aggressively
  - Yell
  - Throw items
  - Improvise weapons (chairs, fire extinguishers, books, anything!)



Fight

What will you do?

- **R**ecognize
- **R**espond
- **Rescue**
- **R**eport

Rescue the injured and initiate care

Rescue

- AFTER you have decided your plan of action. (RUN, HIDE, or FIGHT)
- Make sure you and others are SAFE
- Do not create more casualties (including yourself) to attempting to rescue others
- However, risks may be necessary when it is life or death
- **RESCUE** the injured and initiate care

How to (not) Move Patients



Chair Drags and Carries



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Chair Drags and Carries







Forearm Drag/Carry

- Efficient use of body mechanics
- Doesn’t require a lot of strength to drag or carry (especially with two people)
- No equipment necessary
- Works if victim is unconscious



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2 Person Forearm Carry







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Rescue and Treatment
Part 3



Once you are not in immediate harm's way…

- Priority is only stabilization of any life-threatening injuries and rapid evacuation to definitive care if possible

- "SCAB-E" exam
  - S = Situation
  - C = Circulation
  - A = Airway
  - B = Breathing
  - E = Everything Else

SCAB-E exam: Situation

- Maintain situational awareness
- Still in area with risk
  - Be prepared to move patient if risk becomes direct
  - Work quickly but smoothly
- Report/communicate if able
- Access emergency medical kit if available

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- TECC Emergency Equipment





Once you are not in immediate harm's way…

- "SCAB-E" exam
  - S = Situation
  - **C = Circulation**
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SCAB-E exam: Circulation

- Circulation = Bleeding!
- Immediate focus on stopping massive bleeding only



- The “that is A LOT of blood” rule
- NOT “Eww - That looks bad!”

Identification of Life Threatening External Bleeding

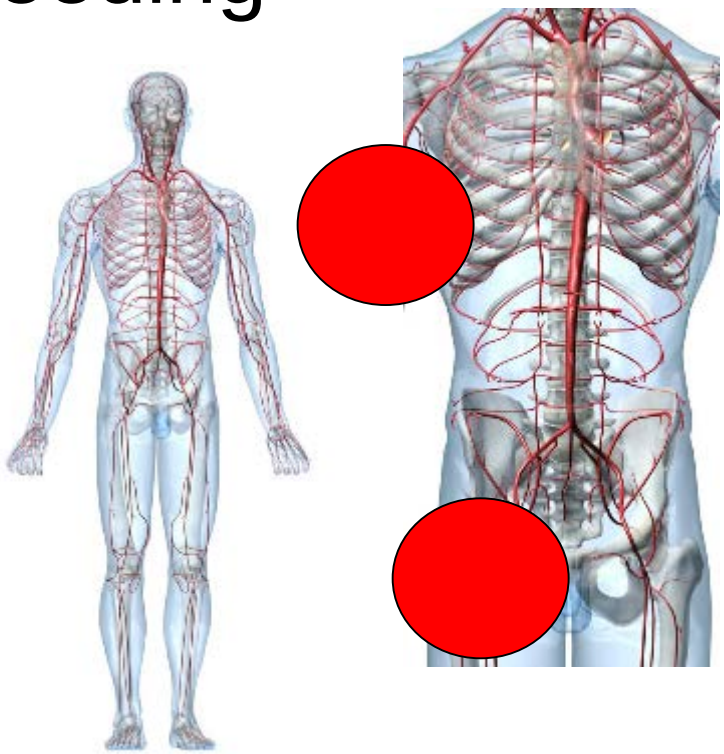
- Early control of severe hemorrhage is critical!!
  - Every second and every drop of blood counts!
- Massive bleeding = massive bleeding
- Ignore for now any wounds that are not significantly bleeding

Control life-threatening bleeding

If severe bleeding, <u>immediately</u> apply direct pressure

- To the wound itself
- To an anatomic pressure point

Consider your options for bleeding control

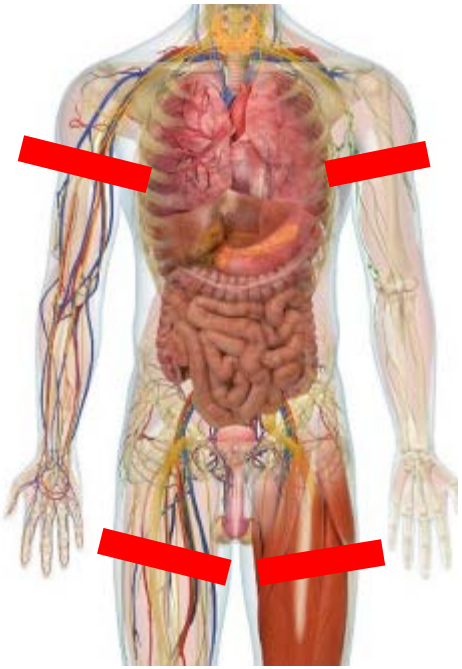


Control life-threatening bleeding

- Direct Pressure PLUS several bleeding control options:
  - **Tourniquet**
  - Wound packing + pressure dressing
  - Hemostatic agents with direct pressure

Tourniquet Application

- 4 locations only
- Over the clothing
  - Empty pockets if possible
- Tighten until unable to tighten further or until the bleeding stops
- If one fails, place second next to the first



Tourniquets

- Tourniquet should be placed for:
  - Total or partial amputations
  - Extremity wounds **WITH** heavy arterial or massive venous bleeding
  - Need for rapid bleeding control due to threat level

Tourniquets

- Compresses the tissue of the limb circumferentially to stop all blood (arterial and venous) flow
  - Newer versions have 1.5-2 inch strap
  - Use some form of mechanical mechanism to tighten
    - Windlass
    - Ratchet
    - Pneumatic
    - Elastic

The Truth about Tourniquets

- Fast and easy to apply
  - Approximately 30 seconds to stop bleeding completely
- Survival is better if applied prior to onset of shock
- Safety profile
  - Safe for children and adolescents
  - Multiple studies show safety if off <2 hours

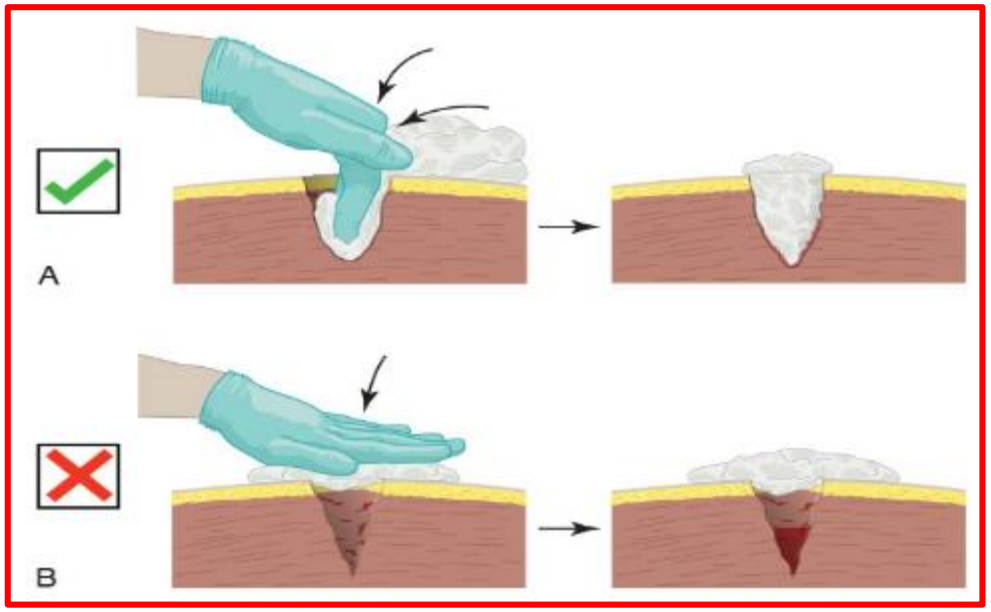
Tourniquet mistakes to avoid

- Do not delay in applying tourniquet
- Not placed correctly (Only four spots!)
- Not tightened enough
- Failure to reassess

Control life-threatening bleeding

- Direct Pressure PLUS several bleeding control options:
  - Tourniquet
  - **Wound packing + pressure dressing**
  - Hemostatic agents with direct pressure

Wound packing



Wound Packing Material

- Can be plain gauze roll or specialty hemostatic gauze, tissue paper, clothing, etc.







Hemostatic Agents

- Chemical impregnated gauze that incorporate chemicals designed to initiate and accelerate the clotting process
  - Seals damaged areas of arteries and veins
- Can be used on anatomic junctional areas and on any extremity wound

Wound packing procedure

1. Expose the clothing around the wound

2. If possible, remove excess blood pooling or loose clots

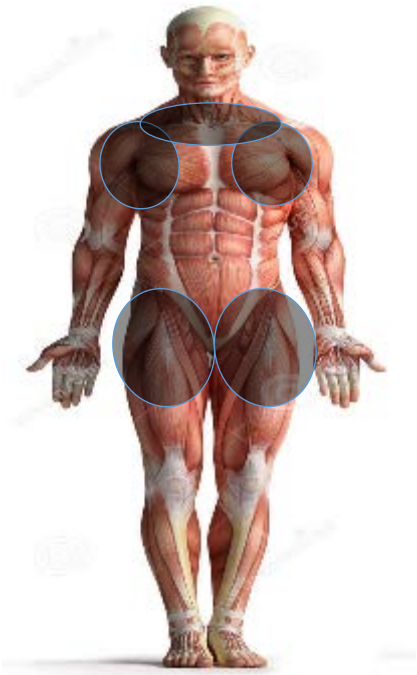
3. Try and locate the site of the most active bleeding

4. Pack plain gauze or hemostatic gauze into wound and directly onto site of bleeding
   - Fill all void spaces
   - “Pack to the pulse, pack to the bone”

Wound Packing

5. Hold direct pressure pressing gauze into wound firmly
   - Up to 3-5 minutes if hemostatic
   - Up to 5-10 if plain gauze
6. After proper amount of time, release pressure but do not remove gauze.
7. If still bleeding, reapply pressure for another couple of minutes.
8. Apply effective pressure dressing.

Junctional Areas



- Groin below the inguinal ligament
- The buttocks and pelvic area (perineum)
- The axilla and shoulder girdle
- The base of the neck



No Wound Packing!!



Pressure Bandages

- Applies constant direct pressure to wound
- Up to 2-3 minutes to apply properly
- Very effective, especially on limbs
  - Takes too long to apply if threat is immediate
- Should always be applied with wound packing if deep wound

Wound Packing Mistakes



Effective if properly applied

- Deep wound not completely packed with gauze (common).

- Ineffective application (common)

- Ace wrap ‘ropes’ during application

- Pressure bandage loosens with movement of casualty

Hemostatic Agents

- Must be applied properly and used in conjunction with direct pressure
  - Place into wound and hold direct pressure for 1-2 minutes minimum (some longer)
- All are potentially less effective if patient is hypothermic
  - Still may be used but should hold pressure for longer
- NOT to be used on wounds on the chest, abdomen, or back

Secure in place with dressing



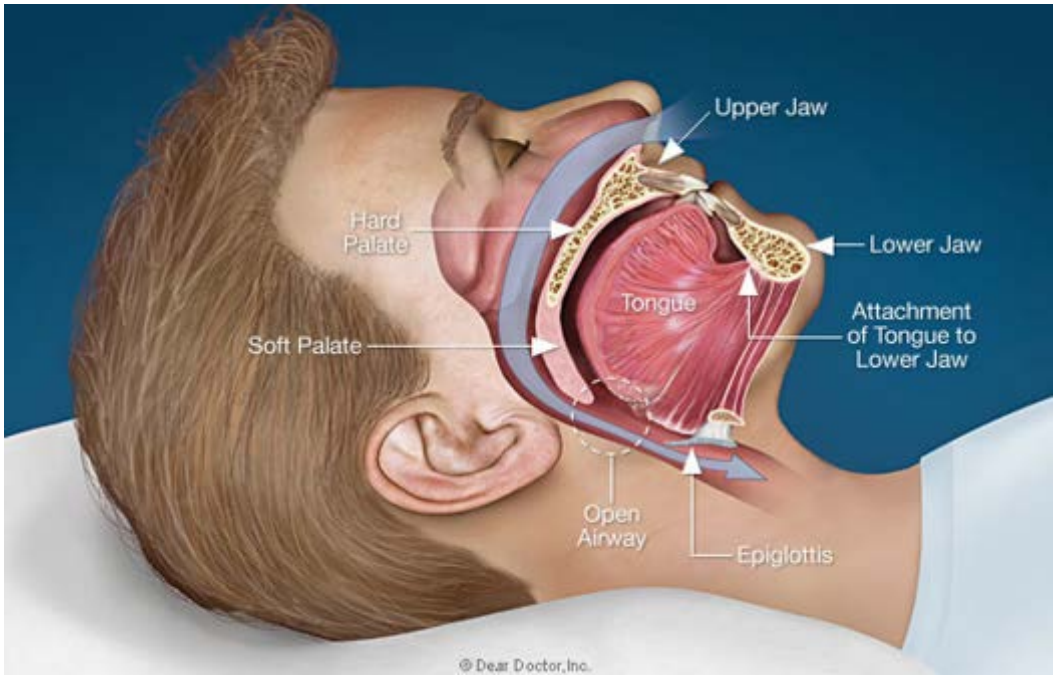


Airway and Breathing Support

"SCAB-E" exam

- S = Situation
- C = Circulation
- **A = Airway**
- **B = Breathing**
- E = Everything Else

Airway anatomy



Airway

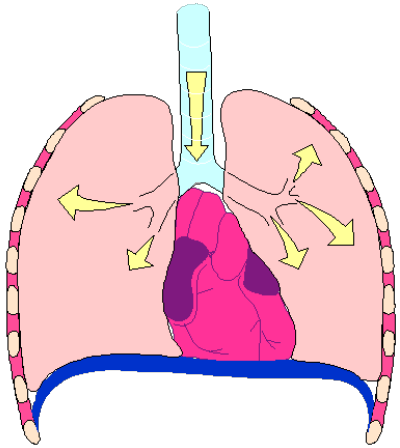
- Place unconscious injured in position to protect airway
  - Keeps tongue forward
  - Allows blood and other fluid to drain from airway
- But… never force a patient into a position if they resist





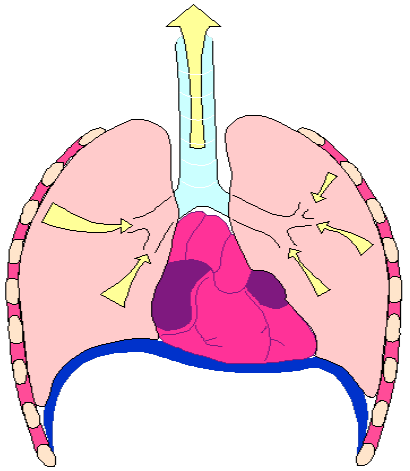


Respiratory Physiology



Inspiration is an active process

1. Chest cavity expands
2. Intrathoracic pressure falls
3. Air rushes in until pressure equalizes



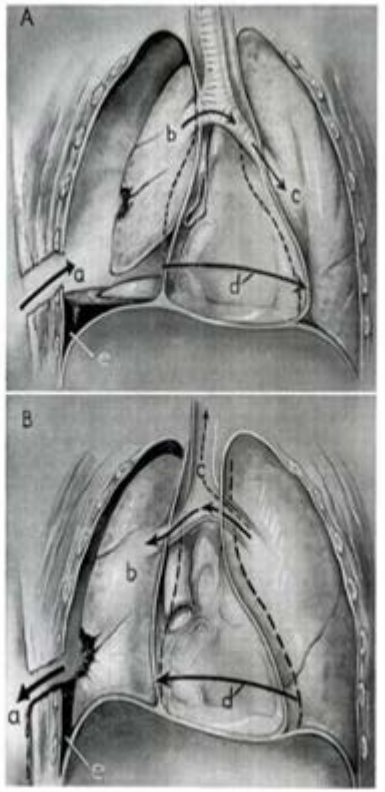
Expiration is a passive process

1. Passive process
2. Chest cavity decreases
3. Intrathoracic pressure rises
4. Air flow out until pressure equalizes

Breathing

- Focus care for penetrating chest wounds by application of vented occlusive dressing to restore integrity of chest wall and improve respiratory mechanics
- 3 sided occlusive dressing will allow air to escape (good) and prevent air from coming in (bad)





Breathing: Applying a chest seal

- Packaged along with a 4x4 gauze pad

Use to clean/dry skin

- Peel off the protective liner to expose adhesive
- Apply to any wound between navel and shoulder
- Place the chest seal vent directly over the wound





Leave wound uncovered if no seal available

Check the back

Options:
If no commercial device is available…



Everything else

"SCAB-E" exam

- S = Situation
- C = Circulation
- A = Airway
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- **E = Everything Else**

Everything else

- Everything Else care includes:
  - Check for additional wounds with brief head to toe assessment
  - Treat for shock and hypothermia
    - Monitor mental status
  - Provide psychological support
  - Evacuate to definitive care as soon as feasible

Everything else Mental Status

- Level of Consciousness = Best brain perfusion indicator
- Can use AVPU scale to evaluate
  - Patient is Alert
  - Patient responds to Verbal stimuli
  - Patient responds to Painful stimuli
  - Unresponsive

Everything else
Control Temperature of Patient

- Even small decrease in body temp can interfere with clotting and increase risk of death
- Injured persons in shock cannot generate body heat effectively
- Hypothermia is easier to prevent than to treat
- Minimize exposure to cold
  - Cover the casualty with anything that will retain heat
  - Radiation, conduction, convection, evaporation…
    - Protect from wind
    - Place the casualty onto an insulated surface if possible
    - If wet, remove wet outer garments and dry skin





Everything Else: Positioning



- Unconscious – Rescue position!
- Abdomen Trauma
  - On back with hips/knees bent
- Position of comfort!! Never force someone to lie flat!!

Everything Else: General Shock Treatment

- Support Airway & Breathing
  - Is airway open, clear, and positioned for good drainage and ventilation
- Support Circulation
  - Fluid rehydration
    - If the patient is not vomiting, water is okay!
- Keep warm
- Positioning (next slide)

Everything Else: Psychological Support

- You are going to be okay”
- Give them a psychological survival hook





Rescue and Treat SUMMARY

Action items for “Rescue and Treat”

1. Maintain situational awareness
2. Control life-threatening bleeding
3. Clear airway
4. Check for and seal any chest wounds
5. Properly position esp. if unconscious or altered mental status
6. Monitor mental status - treat for shock and hypothermia
7. Provide psychological support

Information for medical providers

- Communicate with the medical providers
  - Identify any potential tension pneumothorax
  - Describe the patient's initial mental status and any changes during your care
  - Describe how the patient has responded to your treatments



Remember the 4 R's

- **R**ecognize
- **R**espond
- **R**escue
- **Report**

Report what you know and where you are

Where is your emergency?

Report

- Inside information is vitally important to those who are responding
- Where is the threat?
- Where did you hear gunshots/ screams?
- Where are people running from?
- Where are the victims/ how many?
- Where are you?
- Reporting is the LAST THING you should think about.

Information for medical providers

- Communicate with the medical providers
  - List all known injuries to the patient
  - List all treatments that you applied
    - Locations of tourniquets and when they were applied
    - Wound packing
    - Occlusive chest seals
  - Describe how the patient responded to your treatment.

What to do when LE arrives

Hands up follow instructions
no items in hands





Police Video

- SITUATIONAL AWARENESS
- Take a Training Be Vigilant
  - CPR
  - First Aid

BE THE HELP BEFORE HELP ARRIVES