Preparation and Medical Response for Violent Events


RECOGNIZED
CTECC
EDUCATIONAL CONTENT

STOP THE BLEED℠

- "Stop the Bleed is intended to cultivate grassroots efforts that encourage bystanders to become trained, equipped, and empowered to help in a bleeding emergency before professional help arrives."
- Any course that teaches bleeding control meets the initiative!

Again and again and again….

The ugly truth of complex mass casualty

- **Uninjured or minimally injured citizens are there** in the immediate aftermath. First responders are not.
- **There are not enough of us** to provide immediate care to all of the wounded.
- These citizens are **available and willing to assist**, yet are traditionally marginalized by public safety.
- These citizens **will act** in the immediate aftermath and bystanders **will save lives**.

Become an Active Bystander!!

- "The fate of the wounded lies in the hands of the ones who apply the first dressing"
  - Dr. Nicholas Senn, Founder of the Association of Military Surgeons of the United States

Goal of this course

- To provide you with evidenced-based well proven basic TECC and first aid skills in case you or someone else is injured in a high threat situation
- To make you into a TECC Active Bystander

Tactical Emergency Casualty Care

- Civilian operational medical care framework for medical response during high threat events
- **Based** on **Tactical Combat Casualty Care** but adapted to **civilian data, language, protocols, population,** and **civilian operational constraints**
- Developed and maintained by the 501 3(c) Committee for TECC (www.C-TECC.org)

How to become a TECC Active Bystander

- **Review and understand the medical data**
- Understand your own mental and physiologic response
- Understand what you should do if it occurs

Evidenced-based Medicine

- Let's talk about some evidence and evidenced-based medicine regarding penetrating wounds…

WARNING!! Graphic pictures….

Military Casualty Data

- Systematic review of combat casualty data showed that the majority of fatal combat injuries die within 30 minutes
  - Every minute with uncontrolled injury decreases chance of survival!!!

Causes of death from military ordinance

- Fatalities from military style ordinance are well understood and **some may be preventable**!!

Champion H et al. " A Profile of Combat Injury." Journal of Trauma. 2003

Bleeding to Death From Extremity Wounds

Open and Tension Pneumothorax

Airway Issues and Obstruction

Trauma-induced Hypothermia

Current Initiatives

- Civilian initiatives based on military combat data focus **too much** on **external bleeding control** without considering **other preventable lethal injuries**

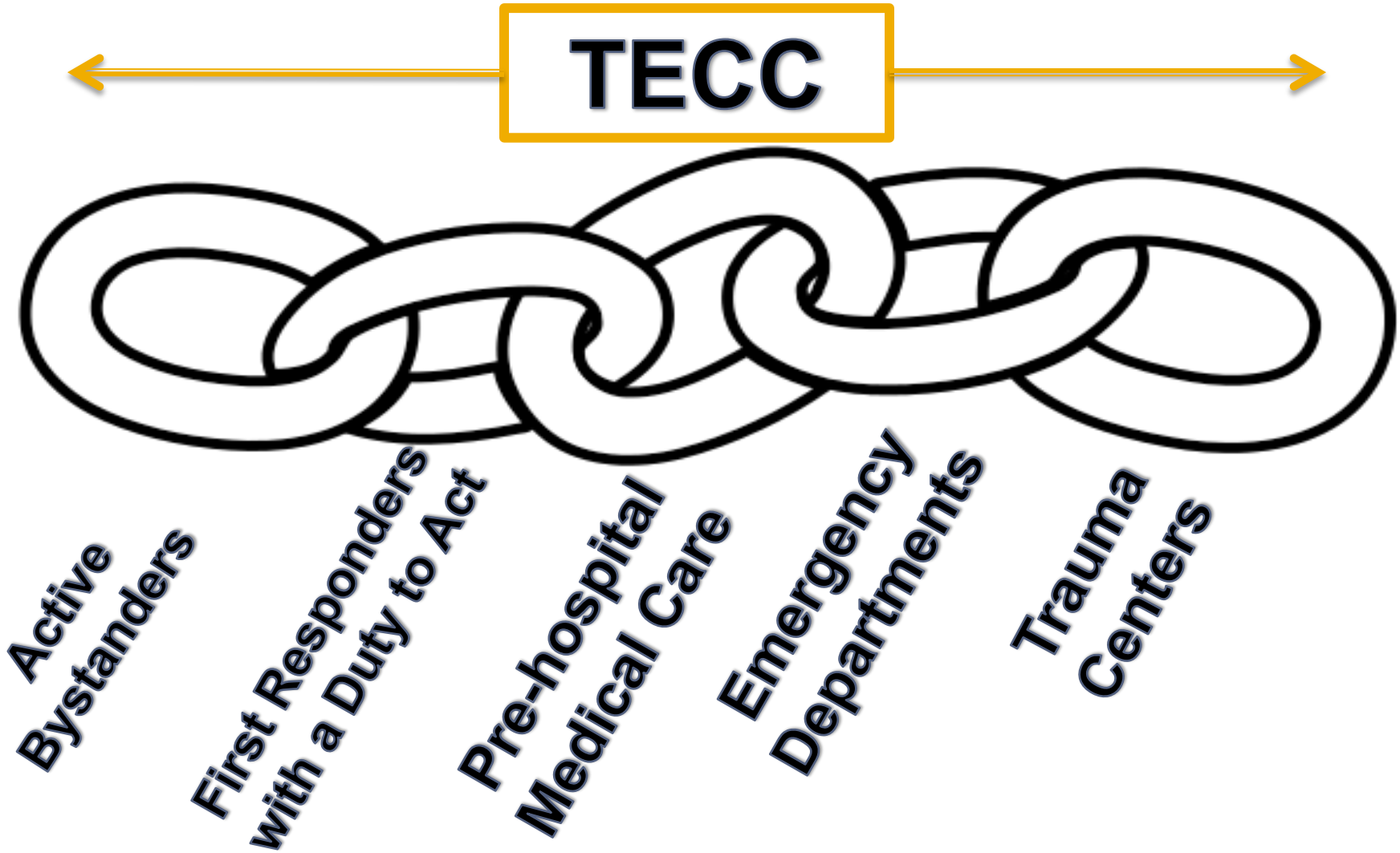
New Message: Stop the Clock!!

Go beyond bleeding
and
"Stop the Clock"
on all causes of
preventable death!!!

Go Beyond Bleeding Control!

- Train to 'Stop the Clock"
  - Tourniquets and bleeding control
  - Basic airway management and positioning
  - Basic strategies for penetrating chest injury
  - Hypothermia prevention
  - Effective and efficient casualty movement
  - Psychological support

Coordinated across the system…



How you can become an Active Bystander?

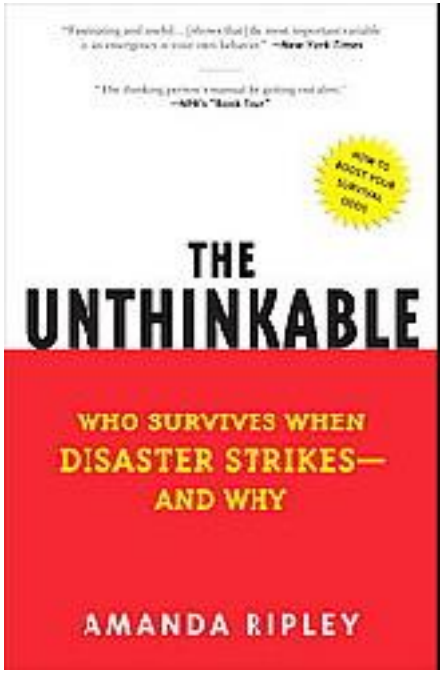
- Review and understand the medical data
- **Understand your own mental and physiologic response**
- Understand what you should do if it occurs

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 high threat situation

Human Behavior in Disasters

- Understanding human behavior and thought process can assist in disaster preparedness
  - Will develop and help to understand our disaster personalities



Behavioral Response to Disaster: The Survival Arc

- Three main stages
  - Denial
  - Deliberation
  - Decisive Moment
- Survivors push through all of theses stages!!

Amanda Ripley, *The Unthinkable*

Behavioral Response to Disaster: The Survival Arc

- So… how can we speed the Survival Arc and get ourselves to the decisive moment for action??

Behavioral Response to Disaster: The Survival Arc

- Simply… Training

  "The best way to get the brain to perform under extreme stress is to repeatedly run it through rehearsals beforehand."

Behavioral Response to Disaster: The Survival Arc

- Develop 'new' instincts through training
  - Speeds progression through the disaster arc
    - Gives anchor in past experience
    - Hastens and heightens the decisive moment
  - Familiarity and prior success promotes future success
  - Box Breathing for autonomic control
  - Examples?

How you can become an Active Bystander?

- Review and understand the medical data
- Understand your own mental and physiologic response
- **Understand what you should do if it occurs**

What should you do?

The 4 R's

What should you do?

Recognize
Respond
Rescue
Report

The 4 R's

- **RECOGNIZE** the threat and get through the arc to the decisive moment
- Respond according to your emergency plans
- Rescue the injured and initiate care
- Report what you know and where you are

Will you RECOGNIZE what is happening?

"Life becomes like molten metal…
Old customs crumble, and instability rules."

What was that? Fireworks??

Amanda Ripley, *The Unthinkable*

Knowledge is power!!

- In an uncontrolled situation, you MUST
  - Recognize what is occurring
  - Maintain awareness of your immediate surroundings
  - Maintain awareness of the overall situation
  - Know what hazards to look for
  - Know how to effectively respond and react
    - Must overcome our natural reactions

The 4 R's

- Recognize the threat and get through the arc to the decisive moment
- **RESPOND** according to your emergency plans
- Rescue the injured and initiate care
- Report what you know and where you are

RESPOND

- Know your emergency plans
  - Knowledge NOT just familiarity!!
- Know where to go and what to do when things break bad
  - Full walk-through
  - Know ALL exits and stairwells
  - Multiple escape routes
  - Know where to lockdown

Workplace Assessment

Know the difference between:

Cover

- Cover will stop a bullet; and cover may also hide you from view

COVER

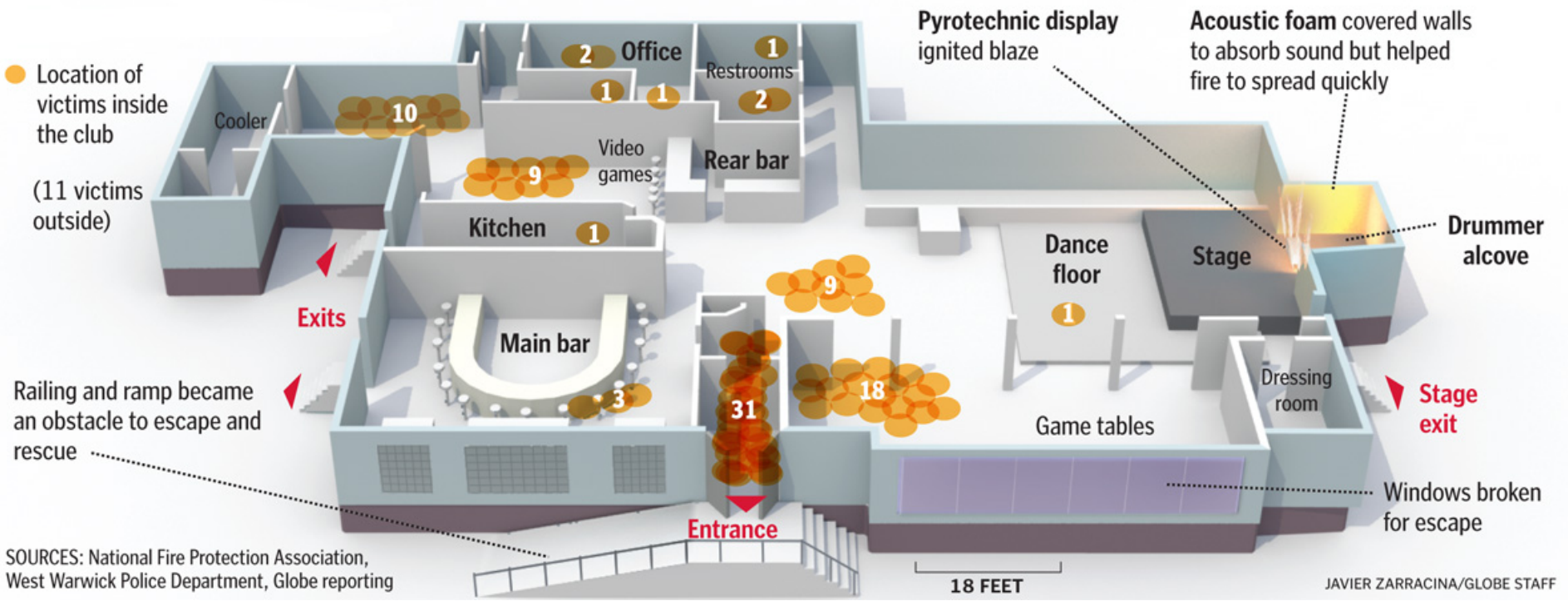
Concealment

- Concealment will solely hide you from view

CONCEALMENT

RESPOND

- Boston Globe



Run / Hide / Fight

- Not linear process!
- RUN and/or HIDE and/or FIGHT

Run / Hide / Fight

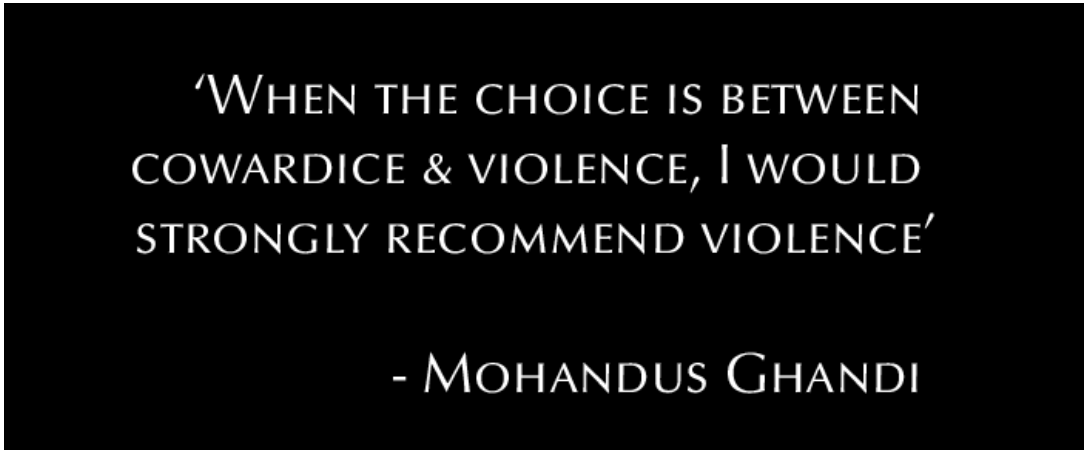
- **Run**
  - If safe to do so, get away from the building to safety
    - Need to know where the shooter is so you don't make your situation worse
  - Have an escape route and plan in mind
  - Leave your belongings behind
  - Help others escape BUT evacuate regardless of whether others agree to follow

Run / Hide / Fight

- **Hide**
  - Out of the direct view
    - Block view if possible
  - Lock the door or block the entry
    - Use chairs or other heavy items
    - Door locks/options
  - Silence cell phones, radios, etc

Run / Hide / Fight

- **FIGHT**
  - Attempt to disrupt/incapacitate the shooter
    - Throw the bad guy off his mental loop
    - Take advantage in 'breaks' on shooting
  - Anything is better than nothing!!
- Commit to your actions. Your life depends on it.



The 4 R's

- Recognize the threat and get through the arc to the decisive moment
- Respond according to your emergency plans
- **RESCUE** the injured and initiate care
- Report what you know and where you are

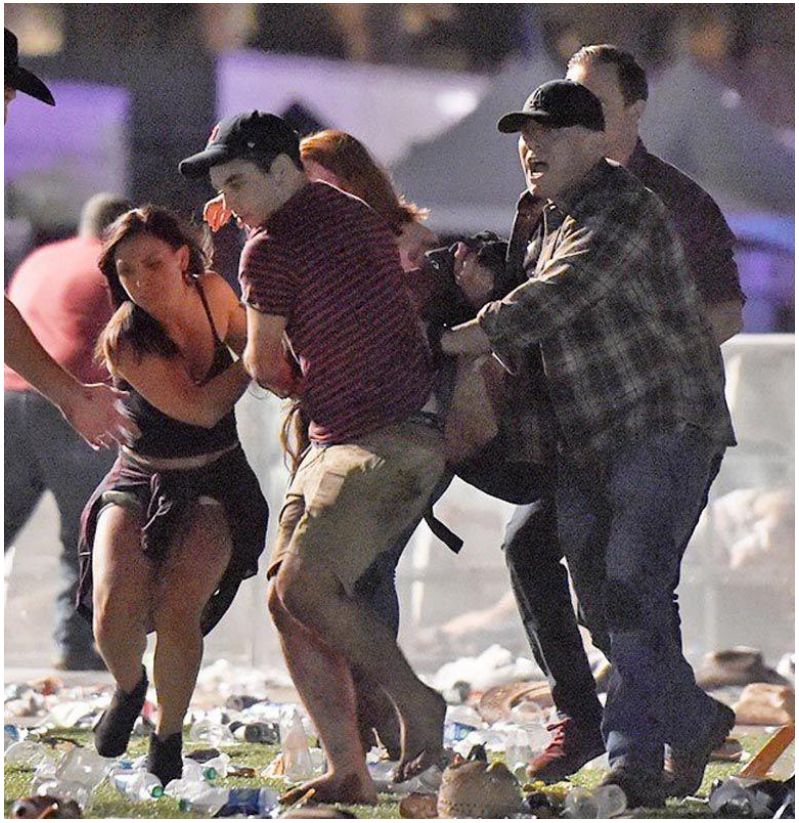
Rescue the Injured and Initiate Care!

1. Take definitive action towards ensuring your and other's safety

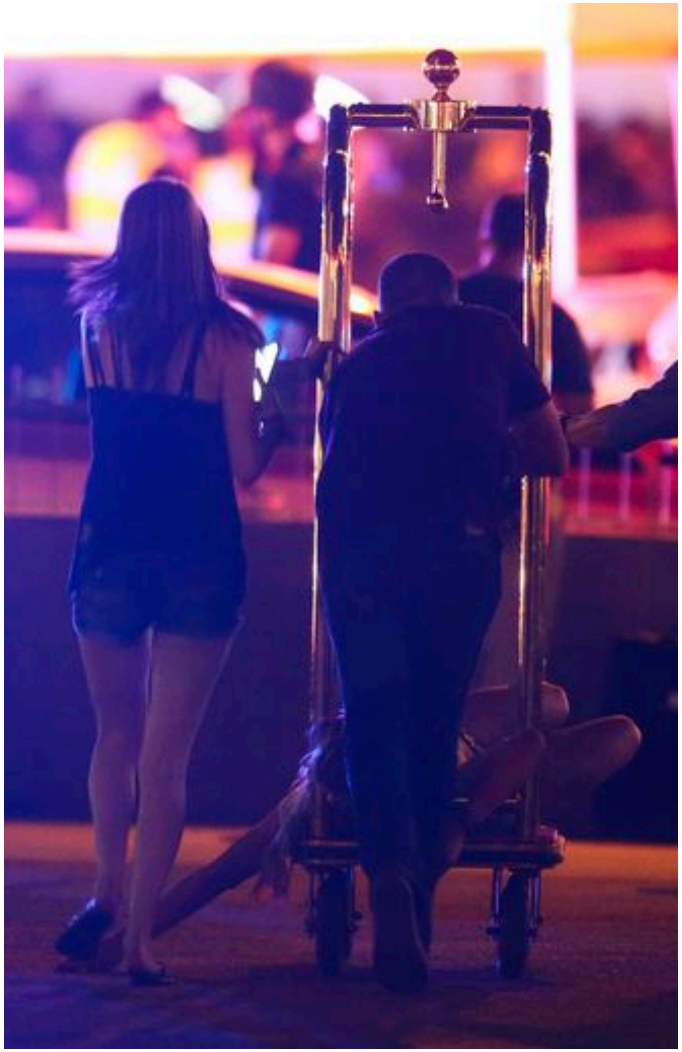
Rescue the Injured and Initiate Care

- Goal: Get any exposed injured persons moved to a safer place and barricade to prevent entry
- Encourage self or buddy-assisted evacuation if possible
- If you have to move someone…
  - Utilize good body mechanics
  - Proper technique is efficient and requires less energy

Inefficient Carries



DRAGS:
Work smarter not harder!!



DRAGS:
Work smarter not harder!!

- One man elevated drag
  - Good for short distances over level surface
- Key techniques
  - Know where you are going
  - Close body positioning
  - Reach under arms and grab wrists
    - Locks arms in place
    - Puts weight onto your forearms
  - Lift and drag

Evacuation Carries and Drags

- Fore / Aft carry
  - Used for rescues in hallways and through doors
    - Distributes weight 60:40
    - Can be rapidly performed
  - Rescuer at head (stronger) carries patient by reaching under armpits and GRABBING WRISTS
  - Rescuer at feet holds patient's legs at the knees
  - Coordinated lift and move

Fore/Aft Carry

Rescue the Injured and Initiate Care

1. Take definitive action towards ensuring your and other's safety
   - Rapid movement of exposed injured persons to safety
   - Barricade to prevent entry
2. **Initiate care for the injured!**

Once you are not in immediate harm's way…

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

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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
- Communicate with others around you
- Access emergency medical kit if available

TECC Emergency Equipment

- Equip buildings with TECC equipment cache in easily accessible and high risk areas
  - Cafeteria, main office, library, etc…

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Pop Quiz: How could they improve?

SCAB-E exam: Circulation

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

Identification of Life Threatening External Bleeding

- Early control of severe hemorrhage is critical!!
  - Every second and every drop of blood counts!
- Not all bleeding… just massive bleeding
  - Pulsing? Free flowing? Doesn't matter… just use the "that is A LOT of blood" rule

Control life-threatening bleeding

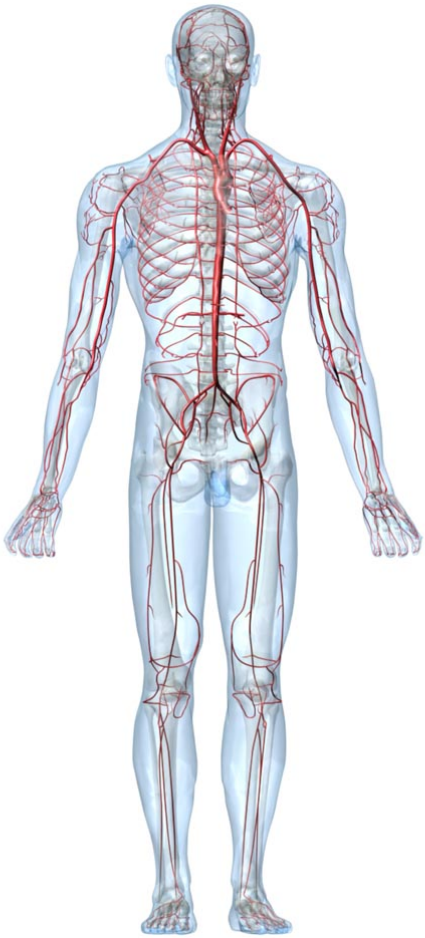
- Ignore for now any wounds that are not significantly bleeding

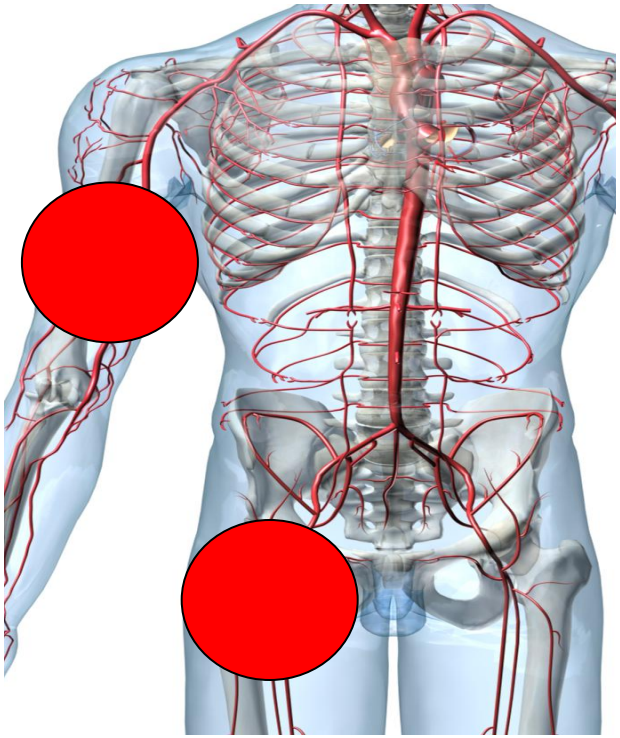
Direct Pressure stops bleeding!!

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

- To the wound itself
- To an anatomic pressure point

Then consider your options for bleeding control



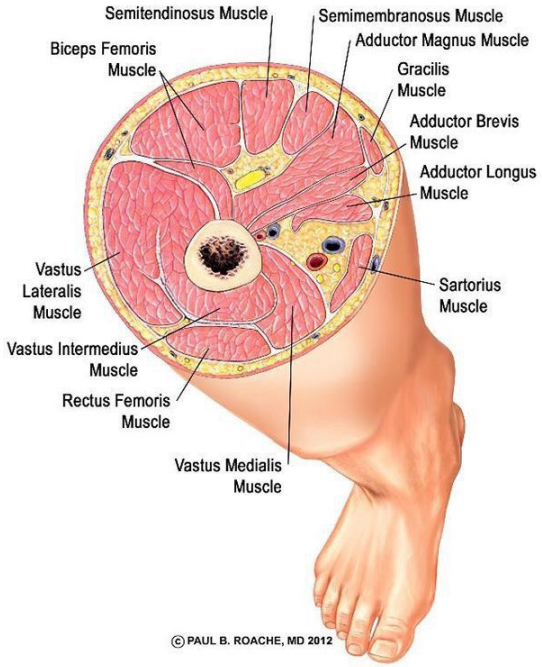


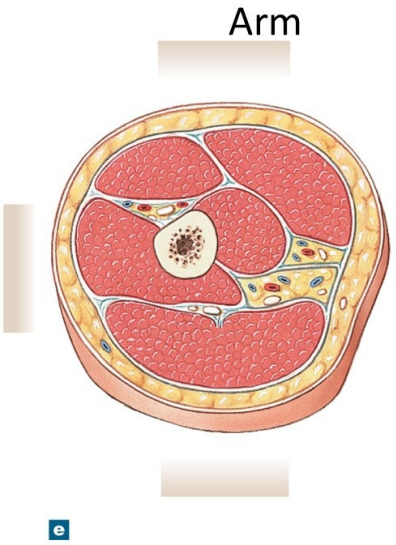
Control life-threatening bleeding

- Direct Pressure!!!
- Then add:
  - **Tourniquet or**
  - Wound packing/pressure dressing or
  - Hemostatic agents with bandage to hold in place

Tourniquets

- Compresses the tissue of the limb circumferentially to stop all blood (arterial and venous) flow





Tourniquets

- Newer versions have 1.5-2 inch strap
- Use some form of mechanical mechanism to tighten
  - Windless
  - Ratchet
  - Pneumatic
  - Elastic

The Truth about Tourniquets

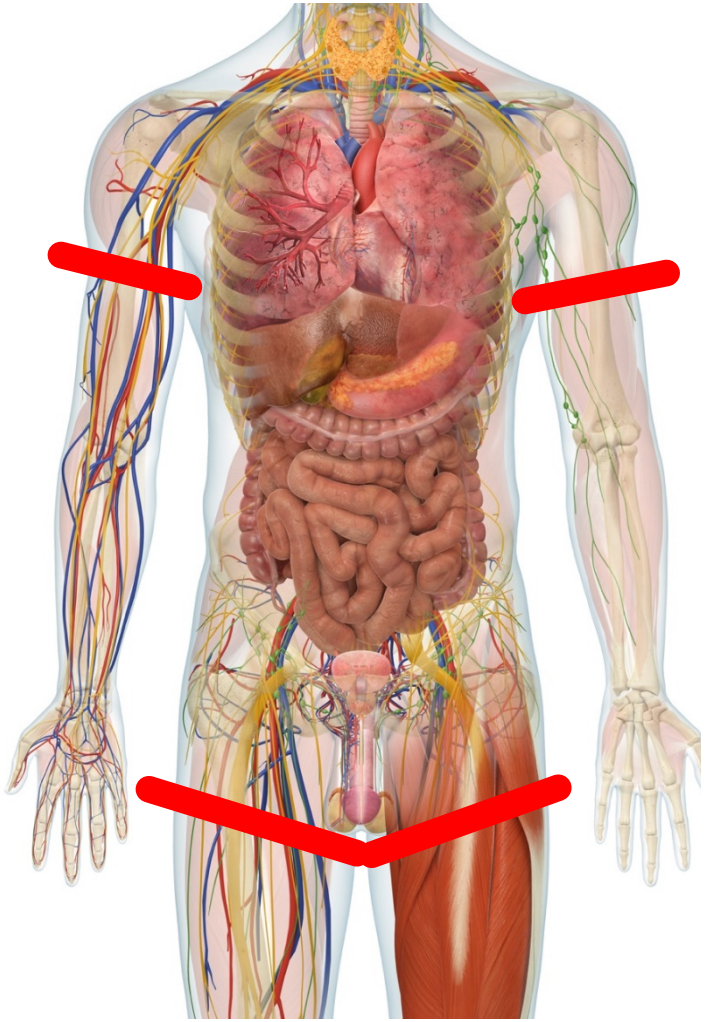
- Fast and easy to apply
  - Approximately 30 seconds to stop bleeding completely
- Survival is better if applied prior to onset of shock
- Safety profile
  - Safe for children and adolescents
  - Multiple studies show safety if off <2 hours

Tourniquet

- Tourniquet should be placed for:
  - Total or partial amputations
  - Extremity wounds **WITH** heavy arterial or massive venous bleeding
  - Rapid extremity bleeding control due to high risk/immediate threat

Tourniquet Application

- Only 4 locations!!
- Over the clothing
  - Empty pockets is possible
- Tighten until bleeding stops
  - Or unable to tighten further
- If one fails, place second next to the first



SAM XT Tourniquet

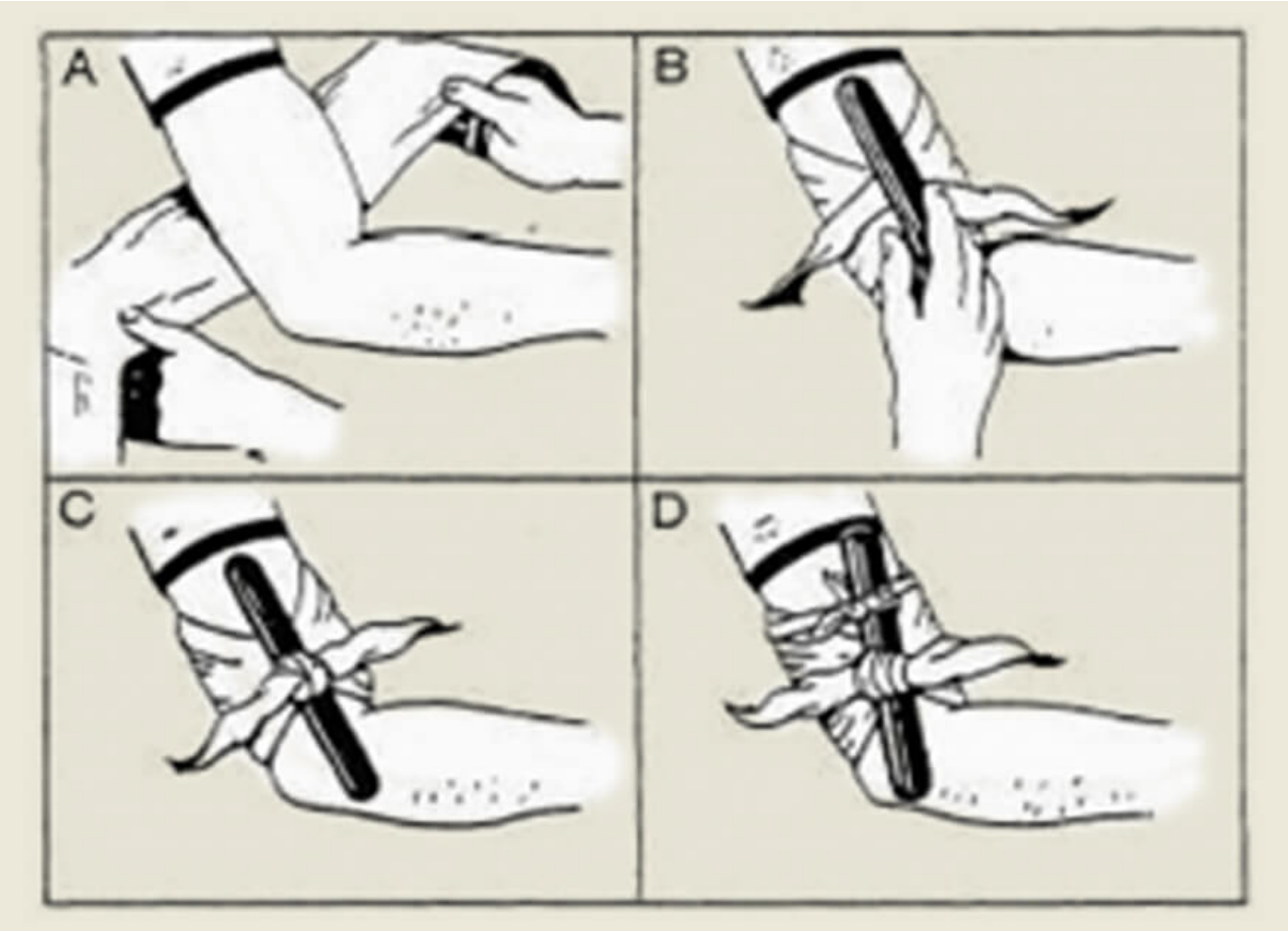
- Easy to apply and secure
- Addresses issue of slack during application
  - 'Clicks' into place when proper pressure strap properly tightened
- 5.5inch to 35 inch circumference of limb

Improvised Tourniquet

- Cravat & Windless
  - Need 2" x 2" Cloth
    - Need stick or other object as windless

- Up to 40% ineffective in studies
  - Painful
  - Difficult to secure

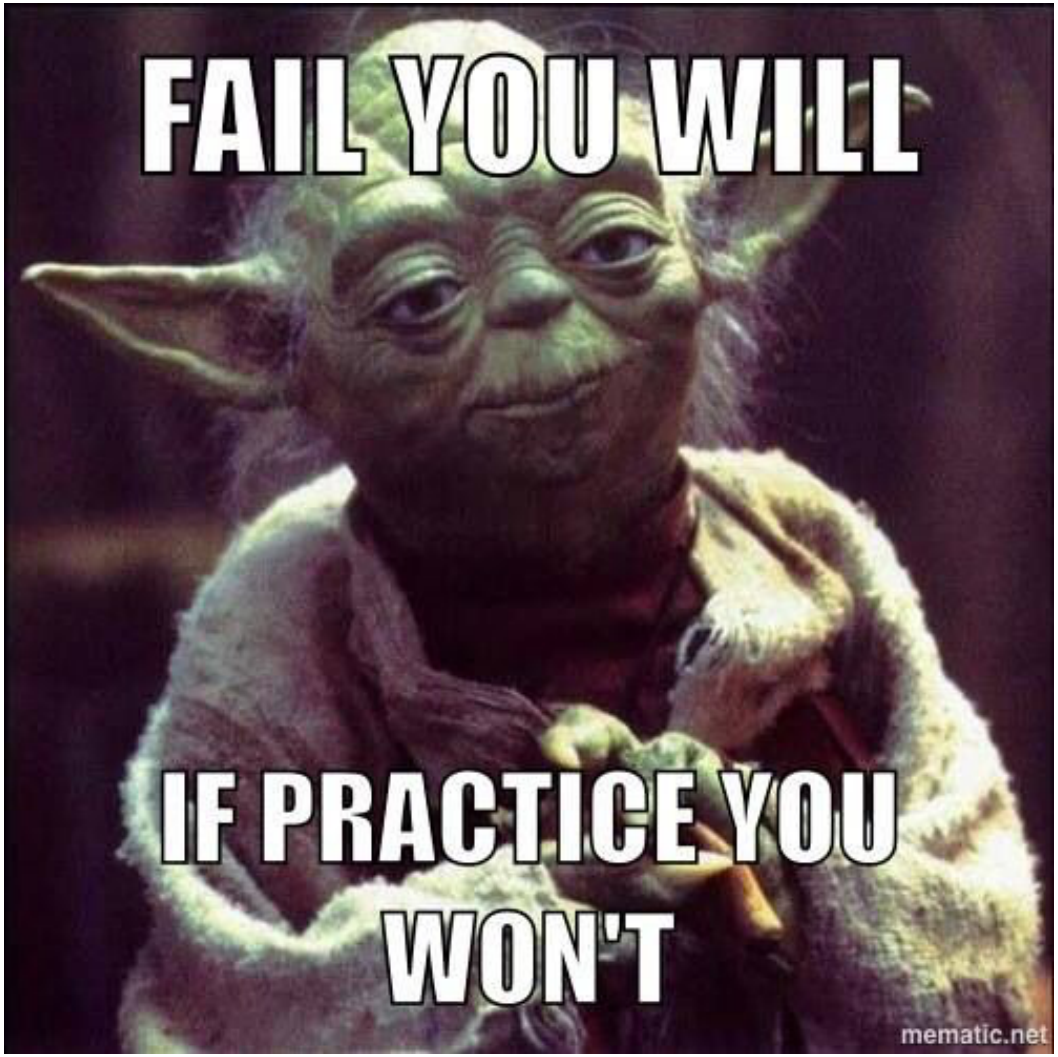
Improvised Tourniquet



Tourniquet mistakes to avoid

- Delay in applying tourniquet
- Not placed correctly
- Not tightened enough.
- Failure to reassess
- Allowing Reperfusion intervals

Practice!!



Control life-threatening bleeding

- Direct Pressure!!!
- Then add:
  - Tourniquet or
  - **Wound packing/pressure dressing or**
  - Hemostatic agents with bandage to hold in place

Wound Packing/Pressure Bandages

- Applies constant direct pressure to wound
  - If deep wound, requires deep wound packing so surface pressure is translated into wound
  - Shallow wounds (wrist/neck/ankle) do not need deep packing
- Very effective, especially on limbs
  - BUT takes too long to apply if threat is immediate

Wound packing material

- Can be plain gauze roll or specialty hemostatic gauze

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

Photo courtesy of Centre for Emergency Health Sciences.
Used with permission from Jems/PennWell Corp.

Wound packing procedure

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 procedure

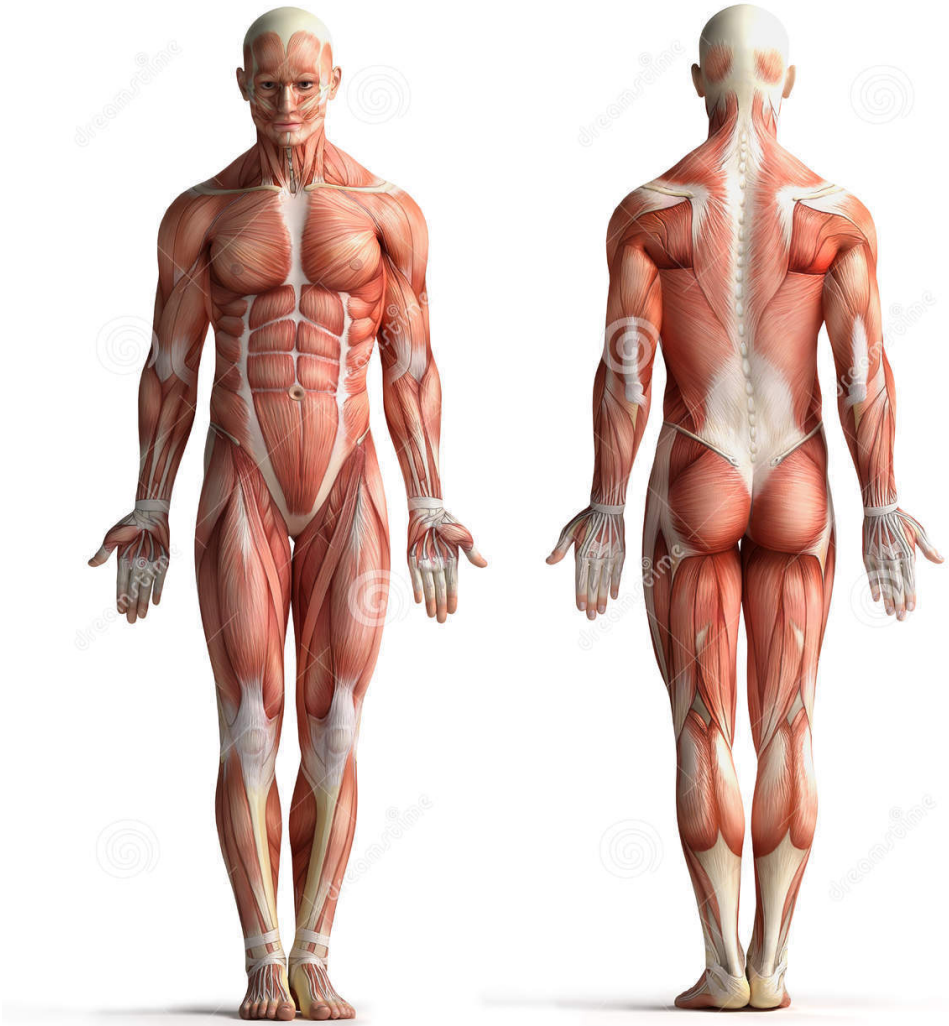
5. Hold direct pressure pressing gauze into wound firmly
   - Up to 3-5 minutes if hemostatic
   - Up to 5-10 if plain gauze

Photo courtesy of Centre for Emergency Health Sciences.
Used with permission from Jems/PennWell Corp.

Wound packing procedure

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.

Anatomic areas for Wound Packing



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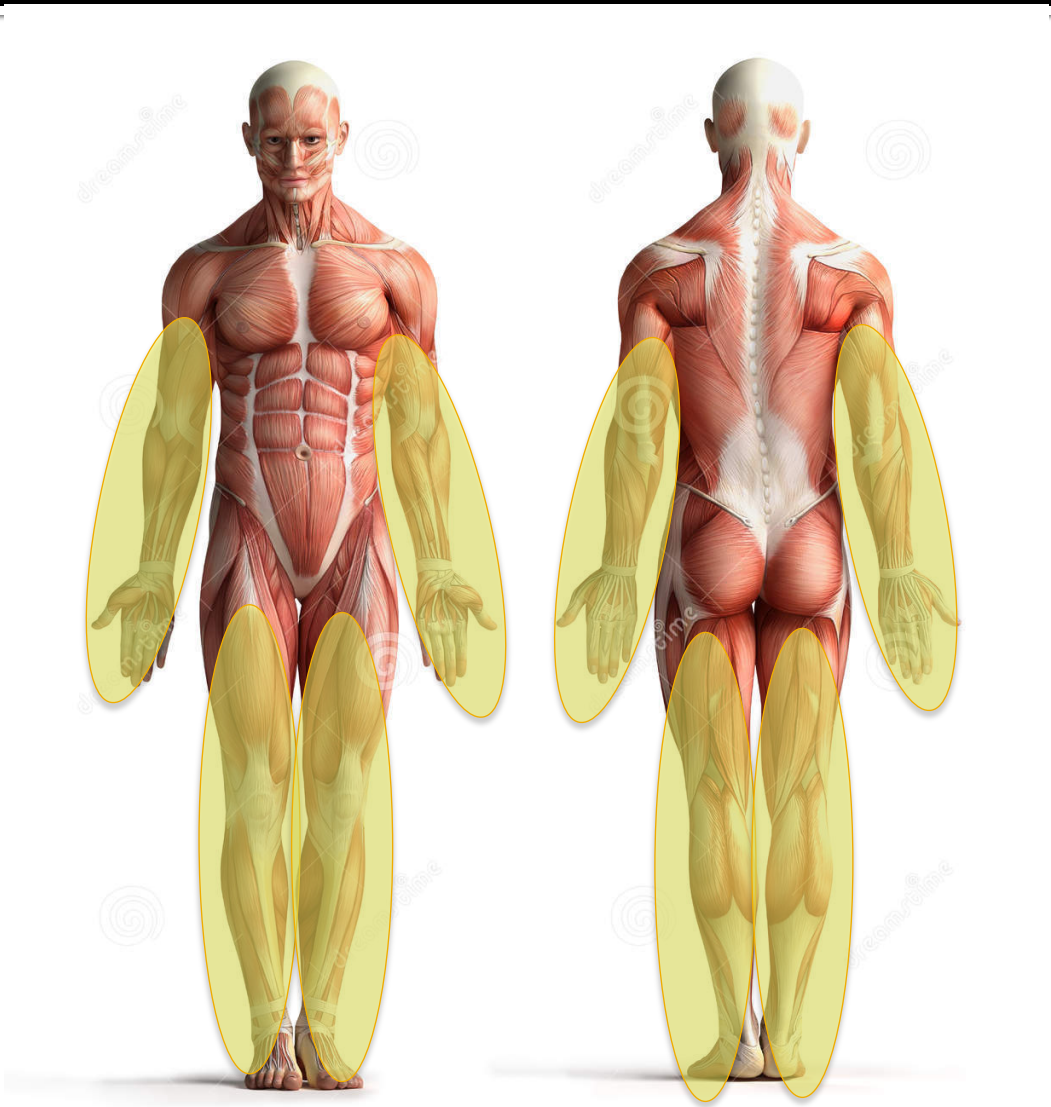
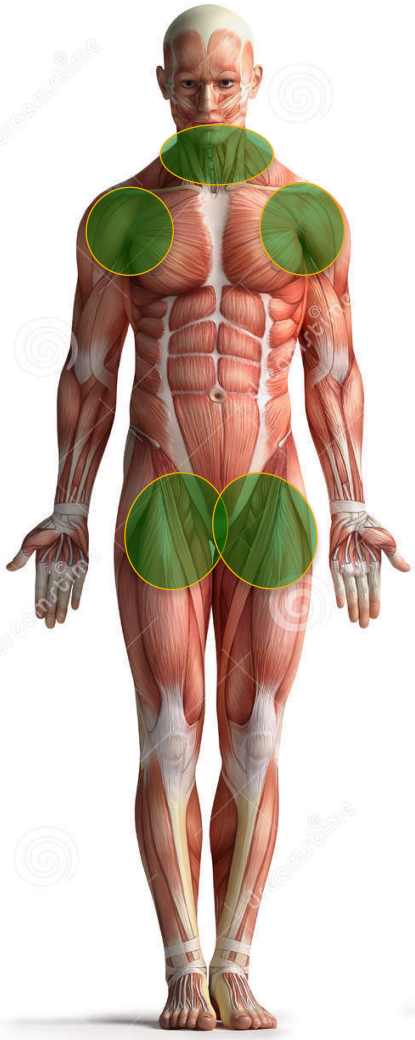
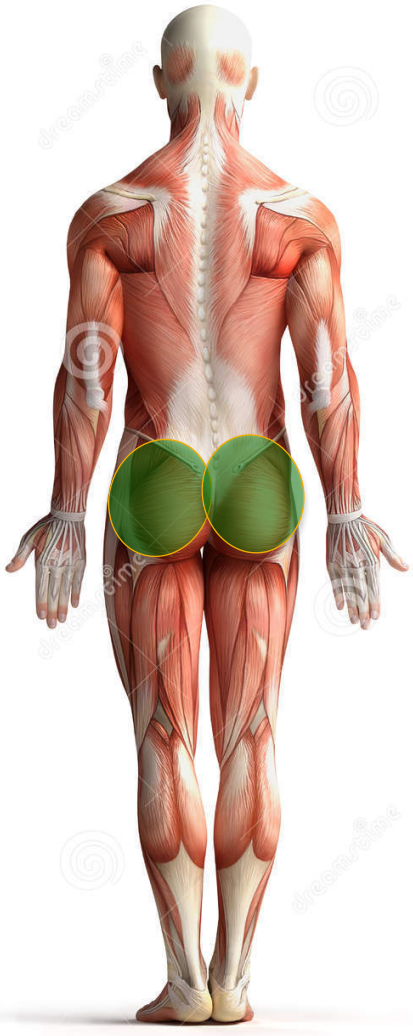


Wound Packing: Junctional Areas



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



No Wound Packing!!

Mistakes from the Front Lines

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

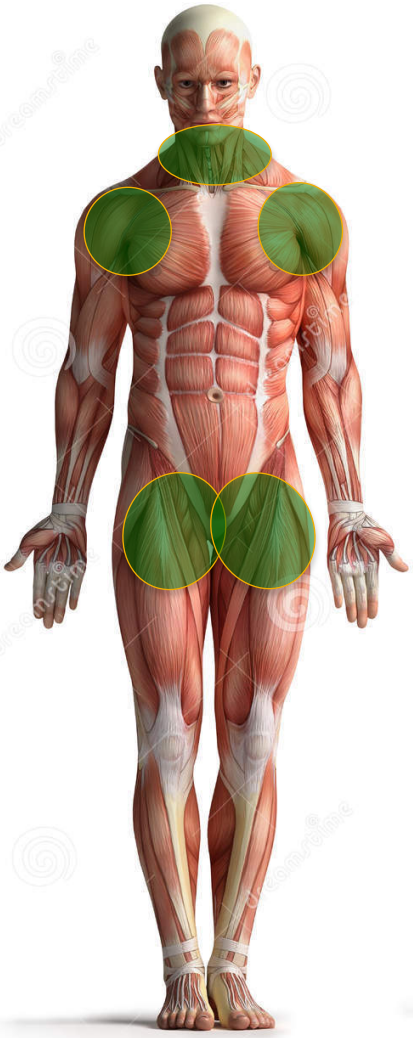
Control life-threatening bleeding

- Direct Pressure!!!
- Then add:
  - Tourniquet or
  - Wound packing/pressure dressing or
  - **Hemostatic agents with bandage to hold in place**

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

Junctional Areas



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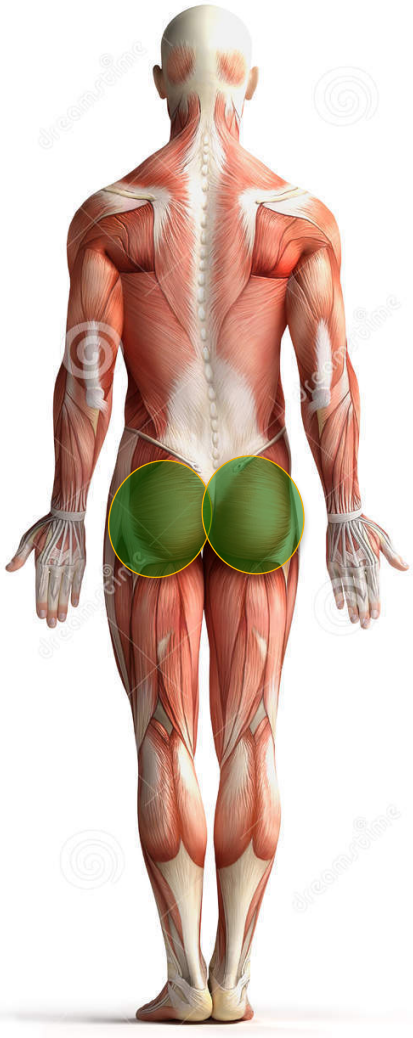
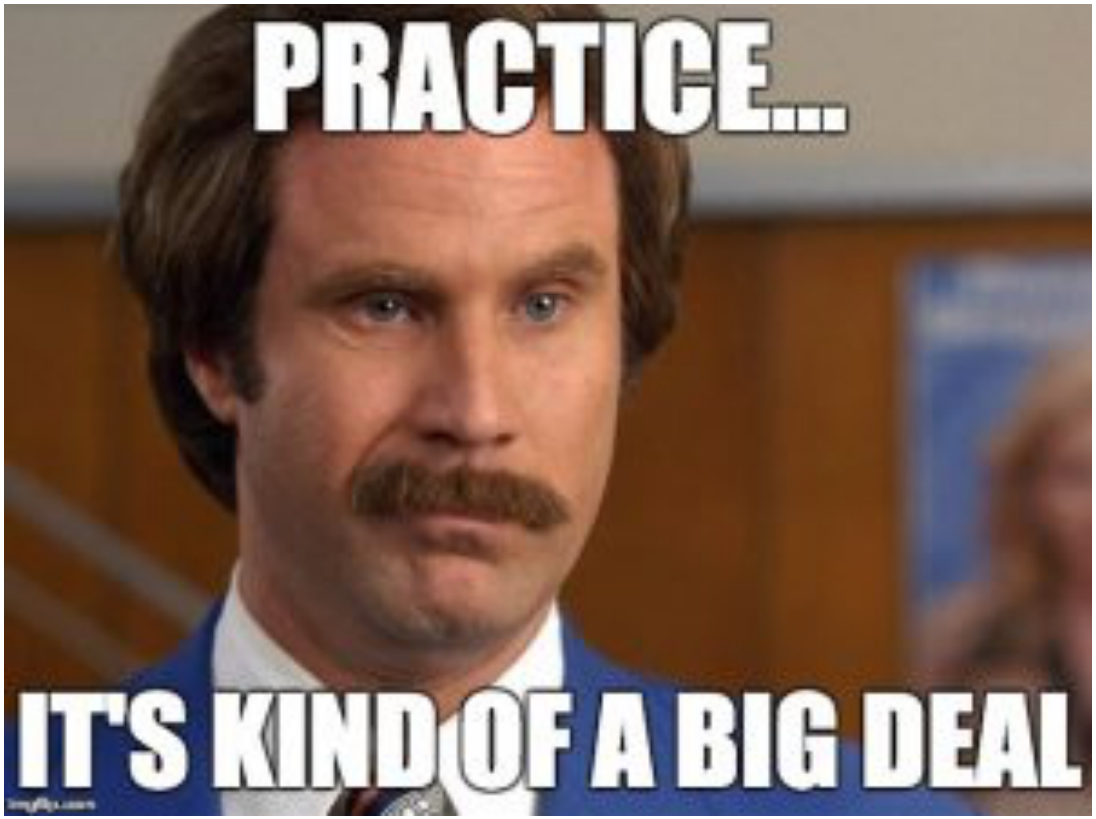


Hemostatic Agents

- 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

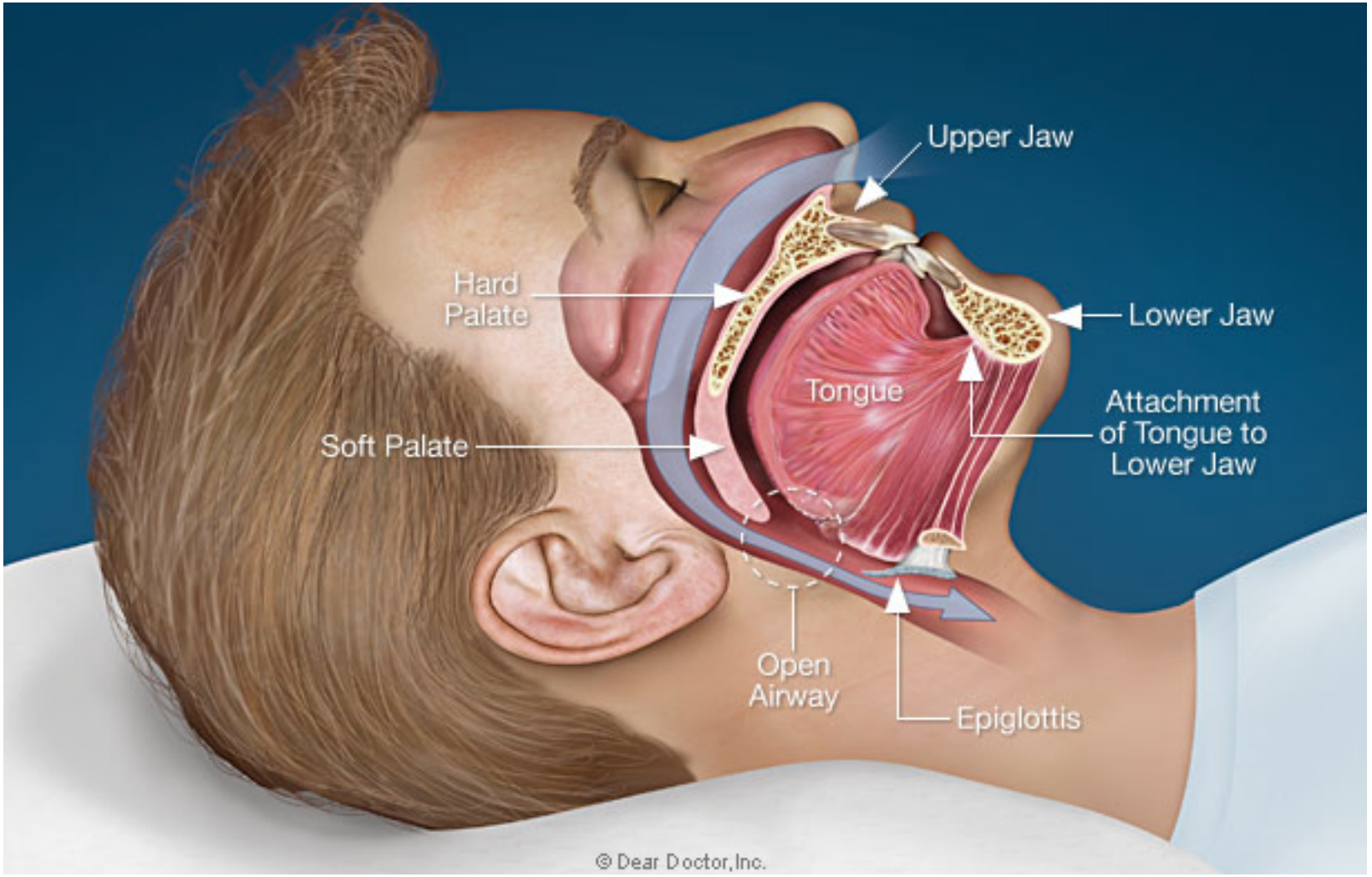
Practice!!



Once you are not in immediate harm's way…

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

Airway and Breathing Management



Airway and Breathing Management

- Use your hand to clear mouth of food, vomit, gum, etc…
- After assessment and initial treatment, unconscious injured in position to protect airway
  - Keeps tongue forward
  - Allows blood and other fluid to drain from airway

- Awake and alert patients should NEVER be forced to lay down

Airway and Breathing Management

- What about the neck and cervical spine??

- MYTH!! If the patient needs to be moved or positioned, move them!!

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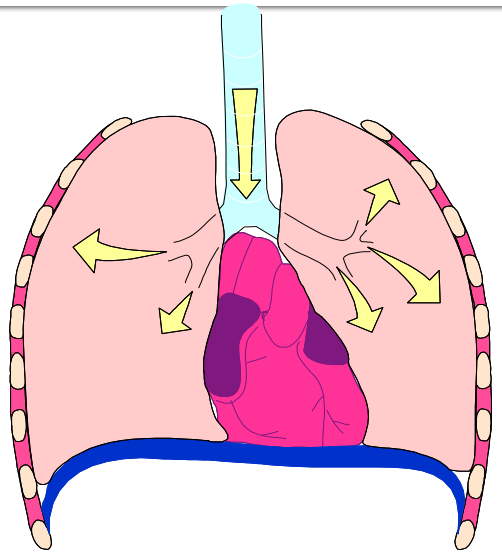
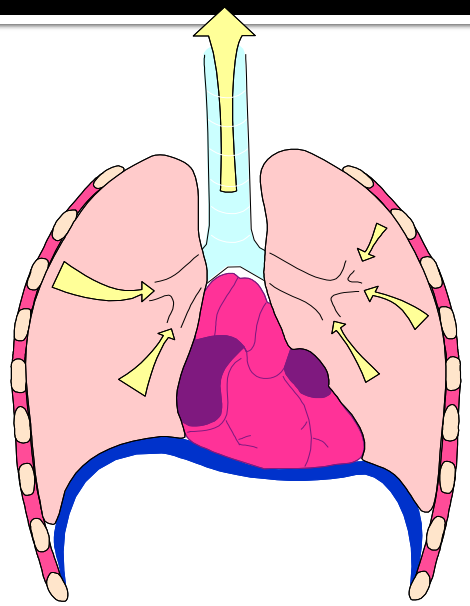
Respiratory System Physiology





Inspiration

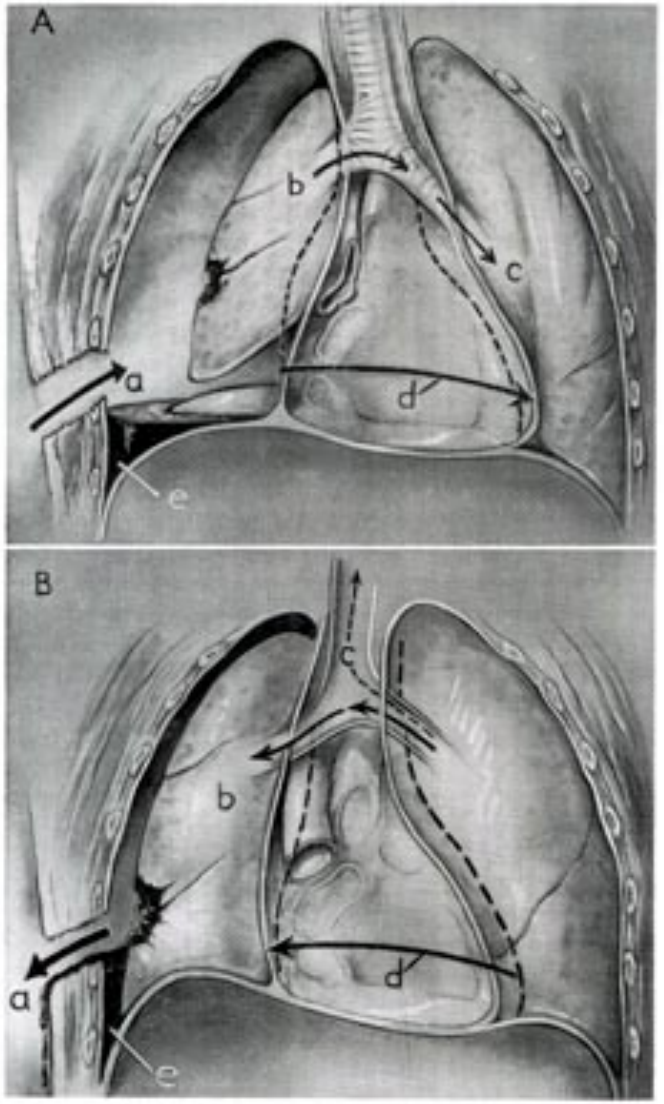
- Active process
- Chest cavity expands
- Intrathoracic pressure falls
- Air flows in until pressure equalizes

Expiration

- Passive process
- Chest cavity decreases
- Intrathoracic pressure rises
- Air flows out until pressure equalizes

SCAB-E exam: Breathing

- Focus care for penetrating chest wounds by application of occlusive dressing to restore integrity of chest wall and improve respiratory mechanics



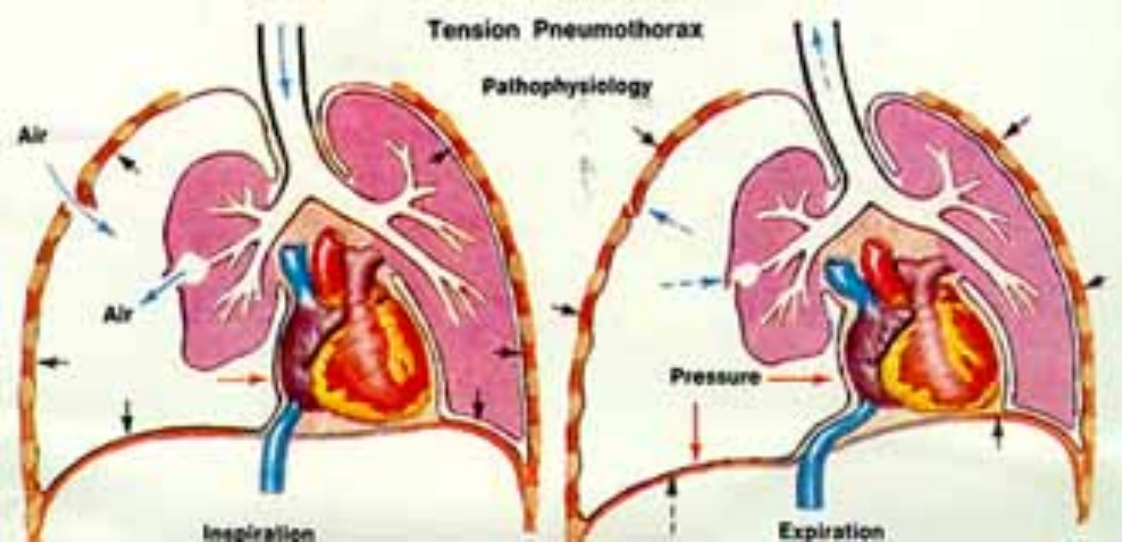
Apply a Chest Seal

- Packaged along with a 4x4 gauze pad
  - Use to clean/dry skin
- Peel off the protective liner to expose adhesive
- Apply directly over any wound between naval and shoulder
- Leave wound uncovered if no seal available

Improvised Non-Occlusive Chest Seal

SCAB-E exam: Breathing

- Constantly reassess breathing rate and effort for air building up inside chest
- Called "tension pneumothorax"



Tension Pneumothorax

- Symptoms
  - Increasing difficulty breathing or gasping
  - Increasing respiratory rate
  - Increasing anxiety and restlessness
  - Turning blue around lips
- Any patient with torso wound and worsening breathing needs:
  - Chest wound 'burped'
  - Prioritized for evacuation

Burping chest wound

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SCAB-E exam: Everything Else

- Everything Else care includes:
  - Check for additional wounds with brief head to toe assessment
  - Asses and monitor mental status
  - Treat for shock and hypothermia
  - Provide psychological support

Best way to monitor for shock

- Mental Status!!

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

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

Control Temperature of Patient

- 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

General Shock Treatment

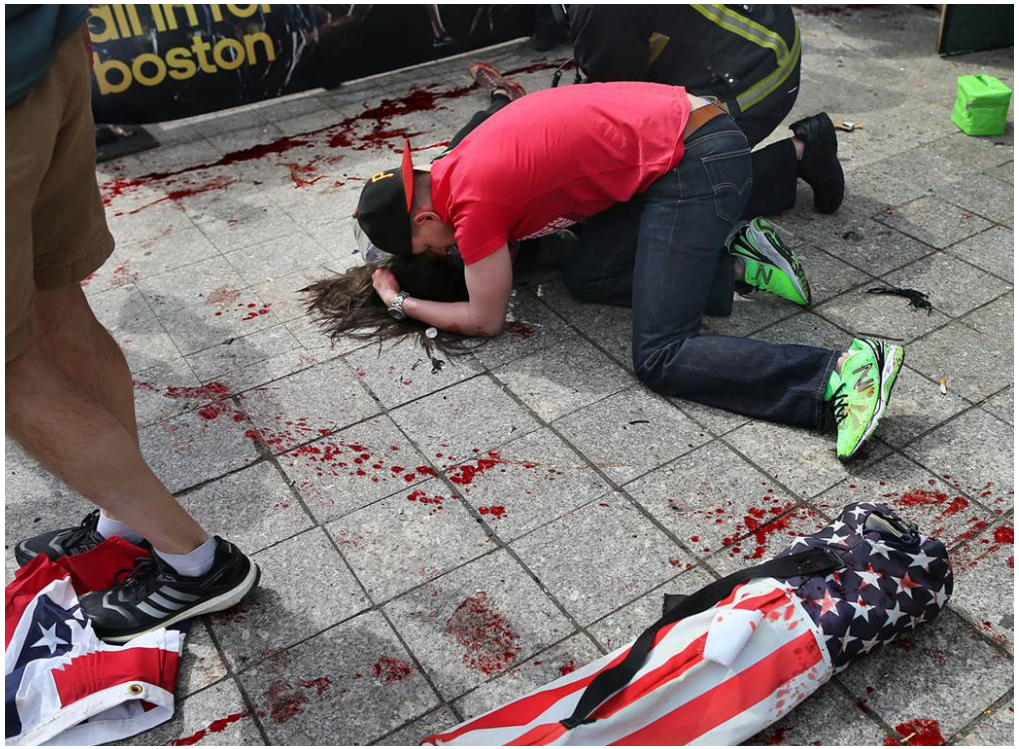
- Support Airway & Breathing
  - Is airway open, clear, and positioned for good drainage and ventilation
- Support Circulation
  - Fluid rehydration
    - If the patient is not vomiting, clear liquids are okay!
- Keep warm
- Positioning (next slide)

Positioning

- Awake, responsive – Position of comfort!! Never force someone who is responsive to lie flat!!
- Unconscious – Rescue position!!

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

The 4 R's

- Recognize the threat and get through the arc to the decisive moment
- Respond according to your emergency plans
- Rescue the injured and initiate care
- **REPORT what you know and where you are**

REPORT: What to tell 911

Where is your emergency?

REPORT: What to tell 911

- Nature of the emergency
  - What, when, where….
  - Speak slowly and clearly
- Know how to describe where you are in the building from someone unfamiliar with layout
  - Know building layout and nomenclature

REPORT: What to tell 911

- If active shooter/active killing:
  - Location and physical description of shooters
  - Type of weapons in possession of shooters
- Other hazards or conditions in building:
  - Fire
  - Smoke
  - Fire alarms
  - Construction/blocked access points….

REPORT: What to tell 911

- Medical information
  - Number of victims at your location and any other location that you know
  - Injuries sustained
    - "Shot in the chest 3 times"

What to do when LE arrives

- Remain calm and follow instructions
- Put down any items in your hands (i.e., bags, jackets)
- Keep hands visible by raising hands and spreading fingers

What to do when LE arrives

What to do when EMS arrives

- Identify yourself as a trained "Active Bystander"
- Report:
  - Injuries sustained
  - Treatments that you have done
  - Response/how the patient is doing

What should you do?

Recognize
Respond
Rescue
Report

So… Will you be prepared??

"There's no harm in hoping for the best as long as you're prepared for the worst."

— Stephen King, *Different Seasons*

"Prepare for the unknown by studying how others in the past have coped with the unforeseeable and the unpredictable."

— Gen. George S. Patton

"Plan for what it is difficult while it is easy."

— Sun Tzu, *The Art of War*