Until Help Arrives

Presented by:

Arlington Community Emergency Response Team (Arlington CERT)

ARLINGTON VIRGINIA

Public Safety Communications and Emergency Management

INTRODUCTION

- Welcome
- Our Instructors
- Class Overview and Breaks
  - Location details: Bathrooms and Emergency Exits

GOALS OF THE UHA PROGRAM

Make Arlington County safer by better preparing our community to be the help until help arrives

- Primary goal: Enable you to assist others who are severely injured in high-threat events
- Secondary goal: Prepare you to deal with other common life-threatening events

OVERVIEW OF TRAINING

- Critical role played by active bystanders in an emergency
- Preview of 4 preventable causes of death
- How your brain works in disasters
- The 4 Rs: Recognize, Respond, Rescue, Report

CASE STUDY: LAS VEGAS

Route 91 Harvest Music Festival, Las Vegas

October 1, 2017

ACTIVE SHOOTER INCIDENTS OCCUR

Frequently Everywhere Quickly

TACTICAL EMERGENCY CASUALTY CARE

- Applies lessons learned from military to civilian use
- Identifies treatments for preventable causes of death
- Includes and goes beyond “Stop the Bleed”

POTENTIALLY PREVENTABLE DEATHS

- Massive bleeding from limbs
- Airway obstruction
- Penetrating chest wounds
- Hypothermia & shock

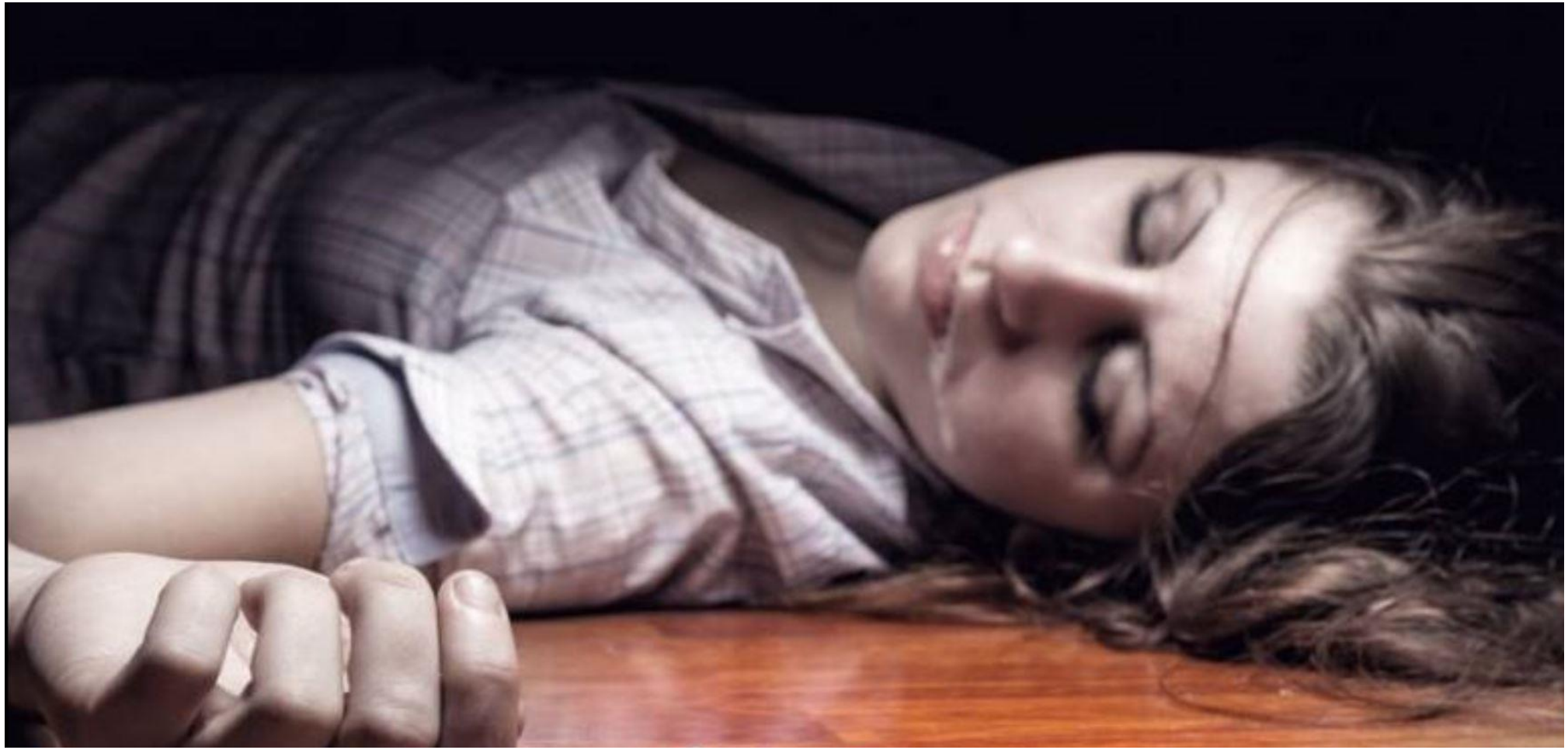
POTENTIALLY PREVENTABLE DEATHS

WARNING

Graphic Images

MASSIVE BLEEDING FROM LIMBS

AIRWAY OBSTRUCTION



PENETRATING CHEST WOUND

HYPOTHERMIA AND SHOCK

CASE STUDY: PULSE NIGHTCLUB

- Out of 49 deaths, 16 were found to be potentially preventable:

- 4 from extremity bleeding
- 1 likely from airway
- 5 from pneumothorax

- The rest were injuries to major organs that were treatable in the hospital

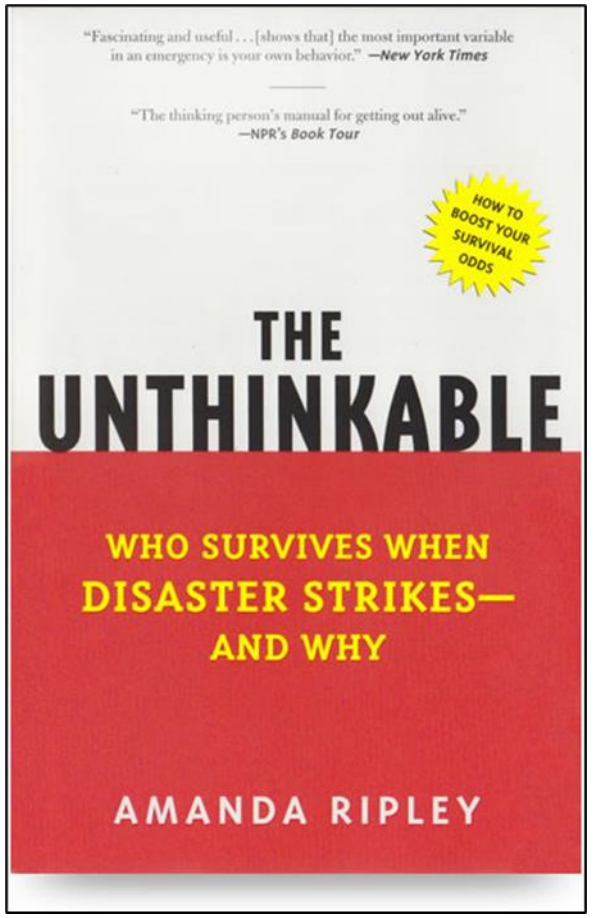
LET'S LEARN SOME SKILLS

- Mentally rehearsing and box breathing
- Run/Hide/Fight
- Effective movement of injured persons
- Treating bleeding, airway obstruction, chest wounds, and hypothermia
- Psychological support of the injured

HUMAN BEHAVIOR IN DISASTERS

- Understanding human tendencies in emergencies can help us react more effectively

- This book summarizes lessons learned from real disasters



SURVIVAL ARC

- **Denial** = Brain doesn't recognize emergency
  - Normalcy bias
  - "I thought it was firecrackers."

- **Deliberation** = "What should we do?"
  - Fear / Milling / Looking for info
  - Checking in with others / Groupthink

- **Decisive Moment** = Take action

BEVERLY HILLS SUPPER CLUB, 1977

- 3rd most deadly U.S. nightclub fire
- 165 died, 200+ injured
- Not enough time to work thru survival arc
- People are less likely to take immediate action when others are watching

BOSTON MARATHON, 2013

- 3 killed, 264 injured, 14 amputations
- Police needed to clear bags
- Bystanders took action and helped save lives

MENTAL REHERSAL

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

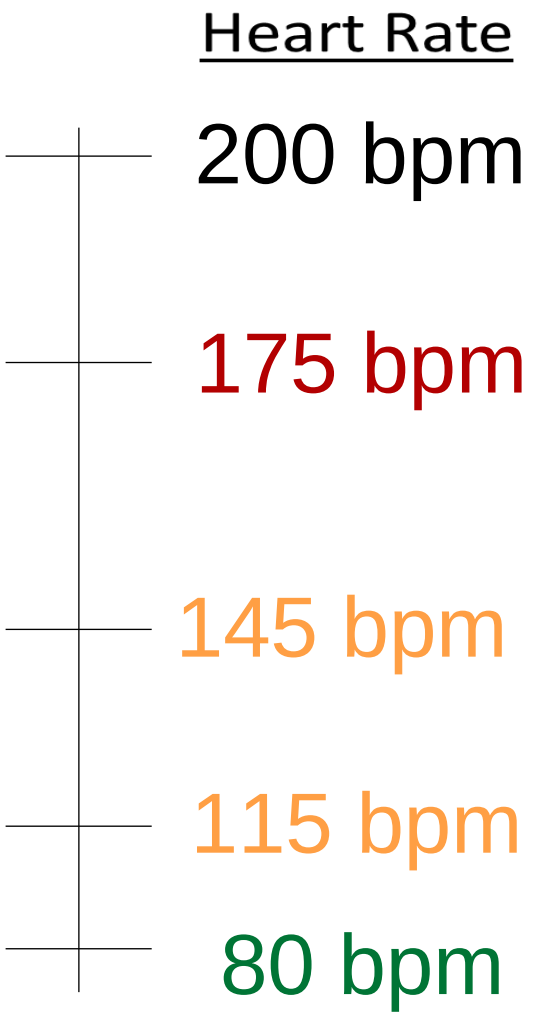
- Speeds progression through the disaster arc
- Hastens and heightens the decisive moment
- Gives anchor in past experience
- Familiarity / "muscle memory" promotes future success

PHYSICAL REACTIONS TO DANGER

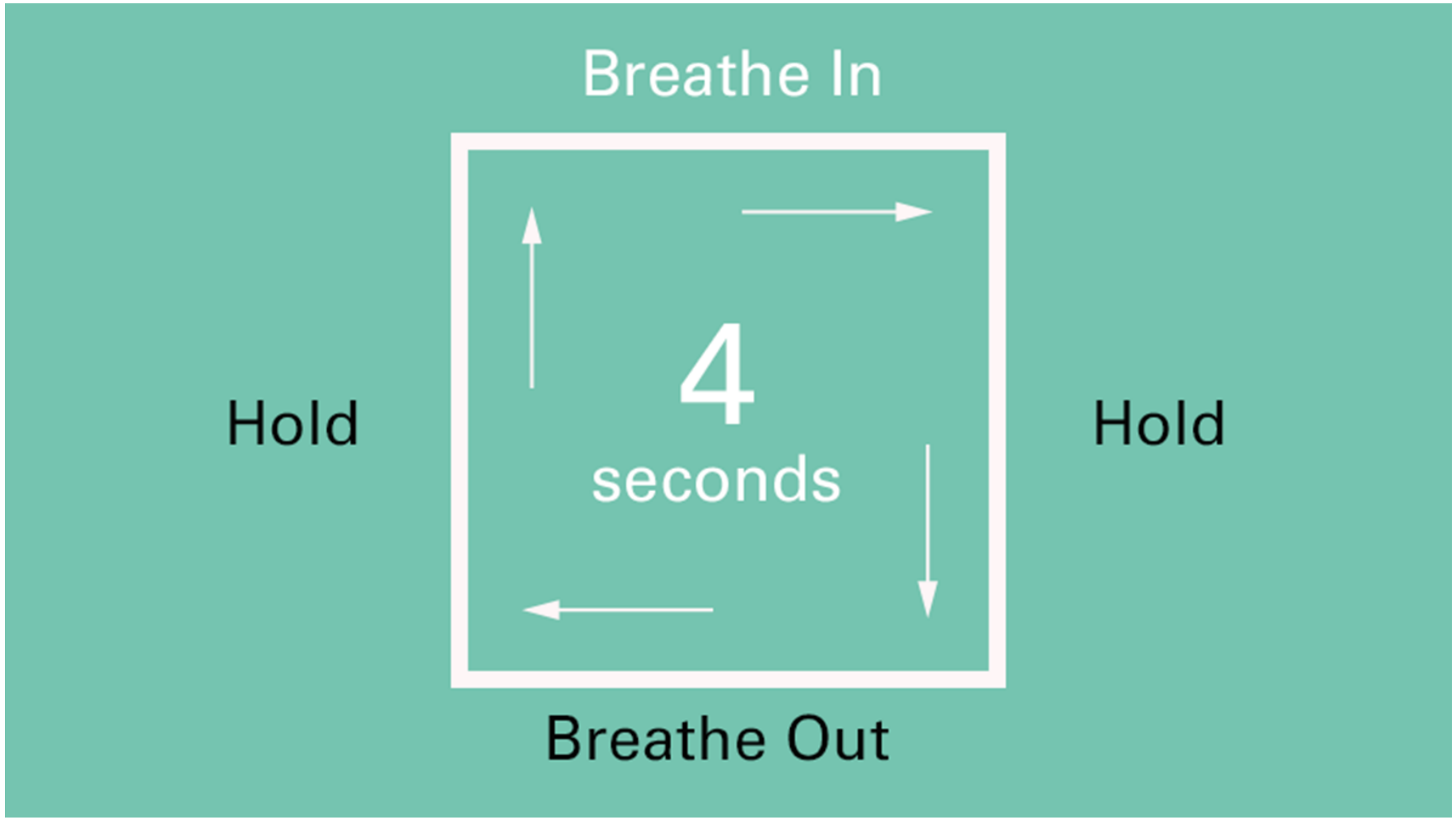
- Heart rate, breathing rate increase
- Adrenaline released and blood shunted to muscles
- Pain sensation decreases (endorphins)
- Other senses can sharpen or narrow
- Tunnel vision
- Time may seem to slow down
- Fine motor control decreases, reasoning declines

PHYSICAL REACTIONS TO DANGER

- Overwhelming Fight, Flight, Freeze
  - Loss of gross motor control
- Cognitive, motor skills deteriorate
  - Tunnel vision
  - Auditory exclusion
- Optimal physical performance
  - Enhanced visual, motor skills
- Resting and alert



PRACTICE: BOX BREATHING



TAKEAWAY IDEAS

- Your mental and physical responses to an emergency
- Will affect you
- May not be what you expect
- Being prepared will make you more effective
- Understanding the survival arc, mentally rehearsing, and box breathing will all help you in an emergency

WHAT TO DO IN AN EMERGENCY

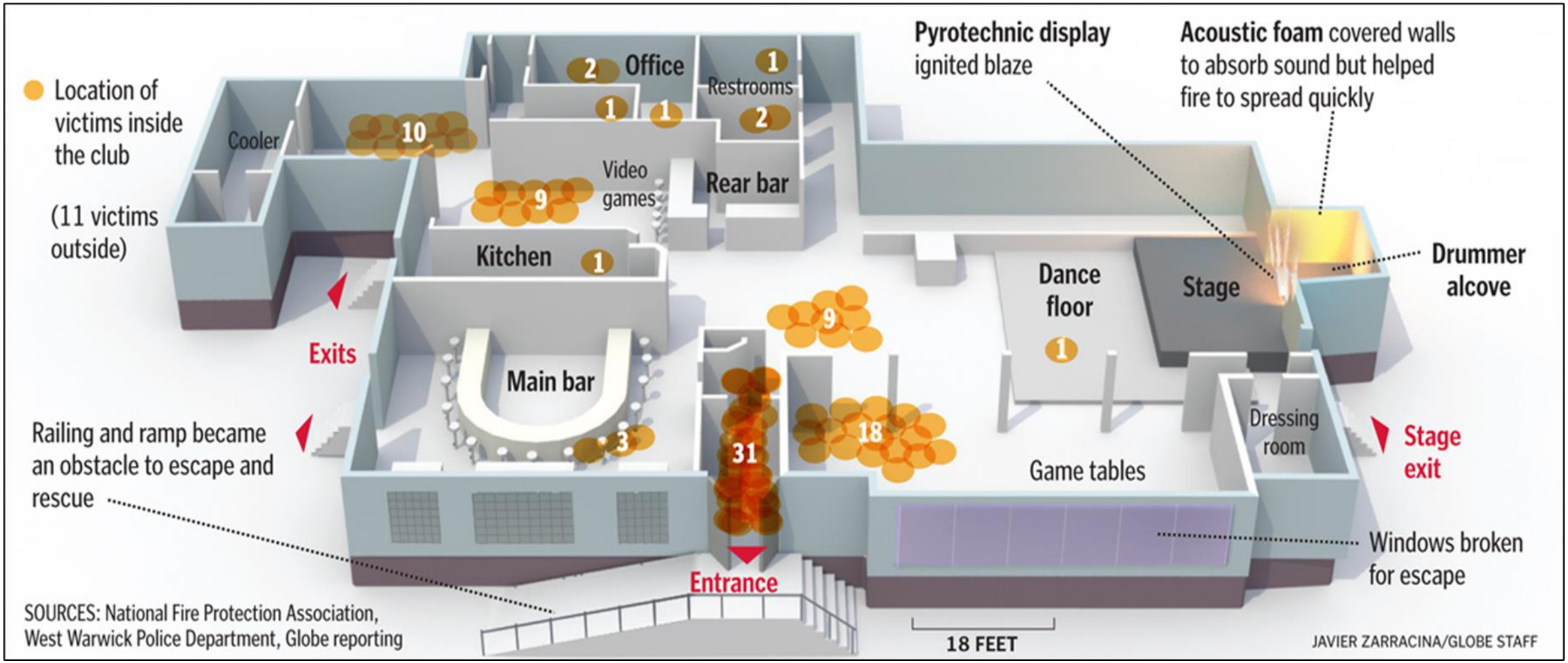
Follow the 4 Rs:

Recognize
Respond
Rescue
Report

RECOGNIZE

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

STATION NIGHT CLUB, 2003



RECOGNIZE

In an emergency:

- 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

RESPOND

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

RESPOND

- Develop emergency plans for:
  - Home, work, school, place of worship
- Always look for two exits out of every building
  - Stores, restaurants, coffee shops, bars, movie theaters…
- Practice Exit Route Tuesdays

DHS RUN/HIDE/FIGHT VIDEO

RUN/EVACUATE

- Have an escape route in mind; be decisive
- Leave belongings behind
- Help others escape, if possible
- Prevent others from entering
- Follow instructions of responders

HIDE / SHELTER IN PLACE

- Lock, barricade door
- Turn out lights
- Stay out of view
- Keep quiet, mute phones
- Use windows to communicate to emergency responders

FIGHT

- If threat is upon you
- Act aggressively
- Yell
- Throw items
- Improvise weapons
- Exploit element of surprise

RESCUE

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

RESCUE AND INITIATE CARE

- **Take definitive action towards ensuring your and others' safety**
- **Rapidly evacuate the injured to safety**
- Initiate care for the injured!

EVACUATE THE INJURED

- Rapidly move any exposed injured persons to a safer place
- Encourage self or buddy-assisted evacuation
- Roll, drag, or carry injured
- Be smart, improvise!

1-PERSON DRAG, 2-PERSON CARRY

1-PERSON DRAG, 2-PERSON CARRY

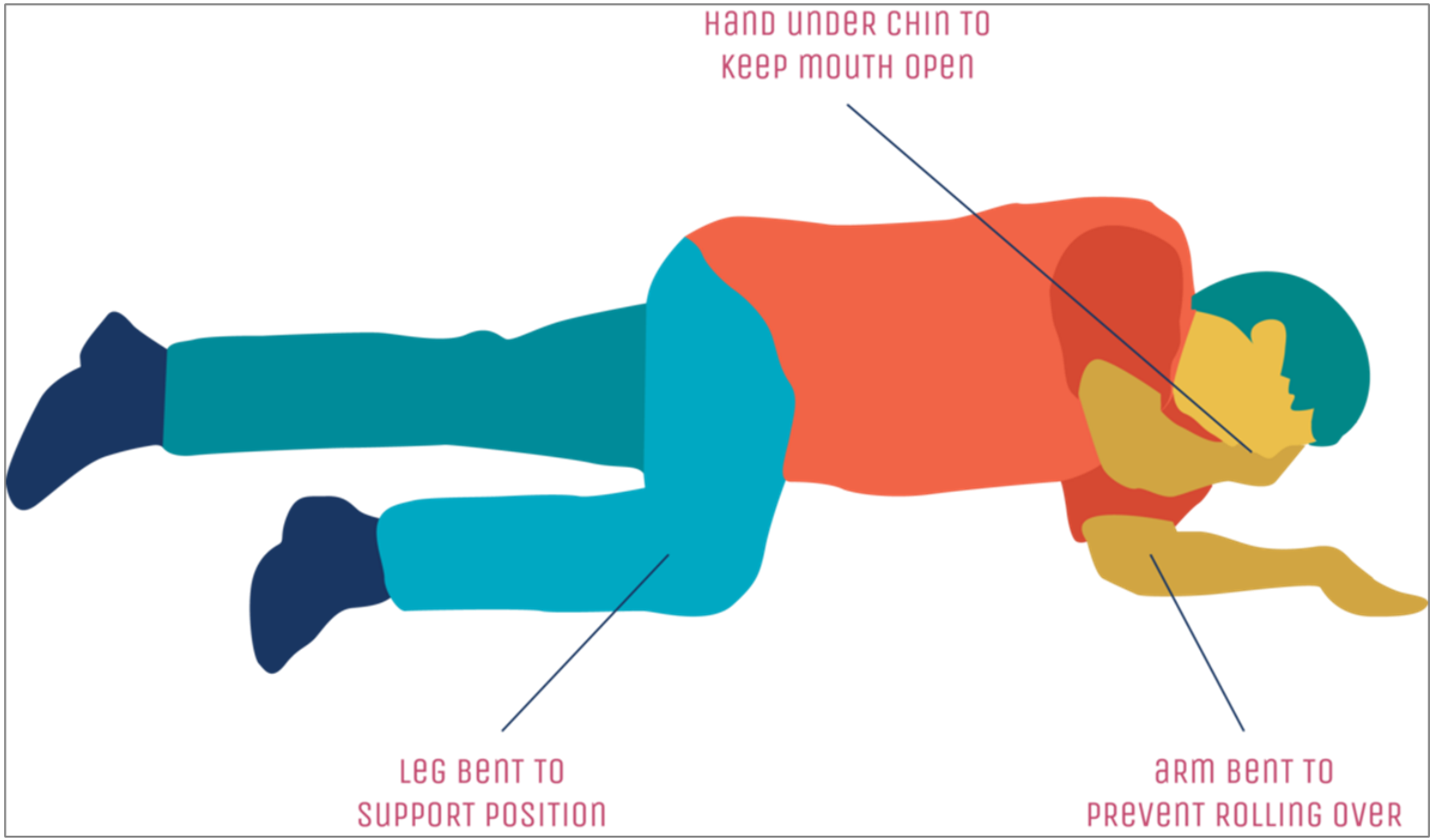
1-Person drag

- Cross patient's legs at ankle
- Sit patient upright. Prop them up with your thigh or knee.
- Reach under their arms and **GRAB OPPOSITE WRISTS**. Lock their arms to their chest.
- Stand up from a squat, keeping your back straight and lifting with your legs. Drag to safety.

2-Person carry

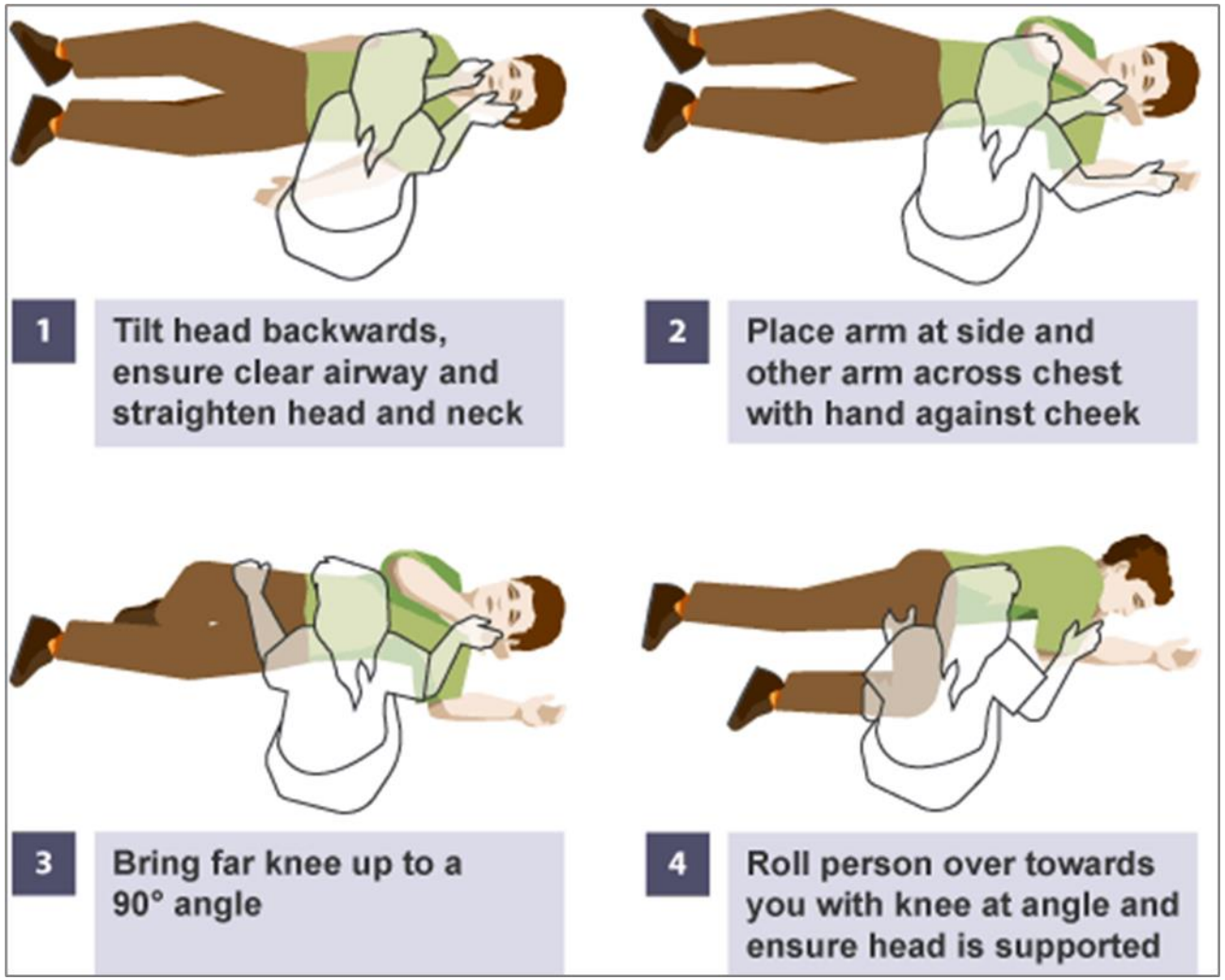
- Stronger person at head, uses same technique as 1-person.
- 2nd rescuer between legs, lift their legs under their knees.
- Person at head commands to lift and put down.
- Front person guides, calls out obstacles.

RECOVERY POSITION



RECOVERY POSITION TIPS

- Keeps tongue forward
- Allows blood, other fluid to drain from airway
- But…never force a conscious person into any position



DEMO AND PRACTICE: LIFTS

Let's Practice!

Demo and Practice One- and Two-Person Lifts, Leaving an injured and unconscious person in the Recovery Position

STRETCH BREAK

Let's Take a Stretch Break!

See you in 5!

RESCUE: INITIAL CARE

- Priorities: Stabilize any life-threatening injuries and rapidly evacuate, if possible
  - Fight the worst first!
- **PRIORITY ORDER: "SCAB-E"**
  - **S = Situation**
  - C = Circulation
  - A = Airway
  - B = Breathing
  - E = Everything Else

TECC KITS

- Some buildings have TECC Kits or Bleeding Control kits in hallways or common areas

- Contain tourniquet, gauze, pressure bandages, etc.

LEGAL CONSIDERATIONS

- Could moving someone paralyze them?
  - Very unlikely! Much better to move them if they are in any danger.

- All states have Good Samaritan laws
  - Protects you for offering good faith assistance within the scope of your training.

RESCUE AND INITIATE CARE

- **Take definitive action towards ensuring your and others' safety**
- **Rapidly evacuate the injured to safety**
- Initiate care for the injured!

SCAB-E: CIRCULATION

SCAB-E

S = Situation

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SCAB-E: CIRCULATION

- Circulation = Bleeding!
  - 5-6 liters of blood in adult body; a lot less for children
  - Loss of 2-3 liters leads to <u>irreversible</u> shock
- Immediate focus: stop massive external bleeding

EXTERNAL BLEEDING

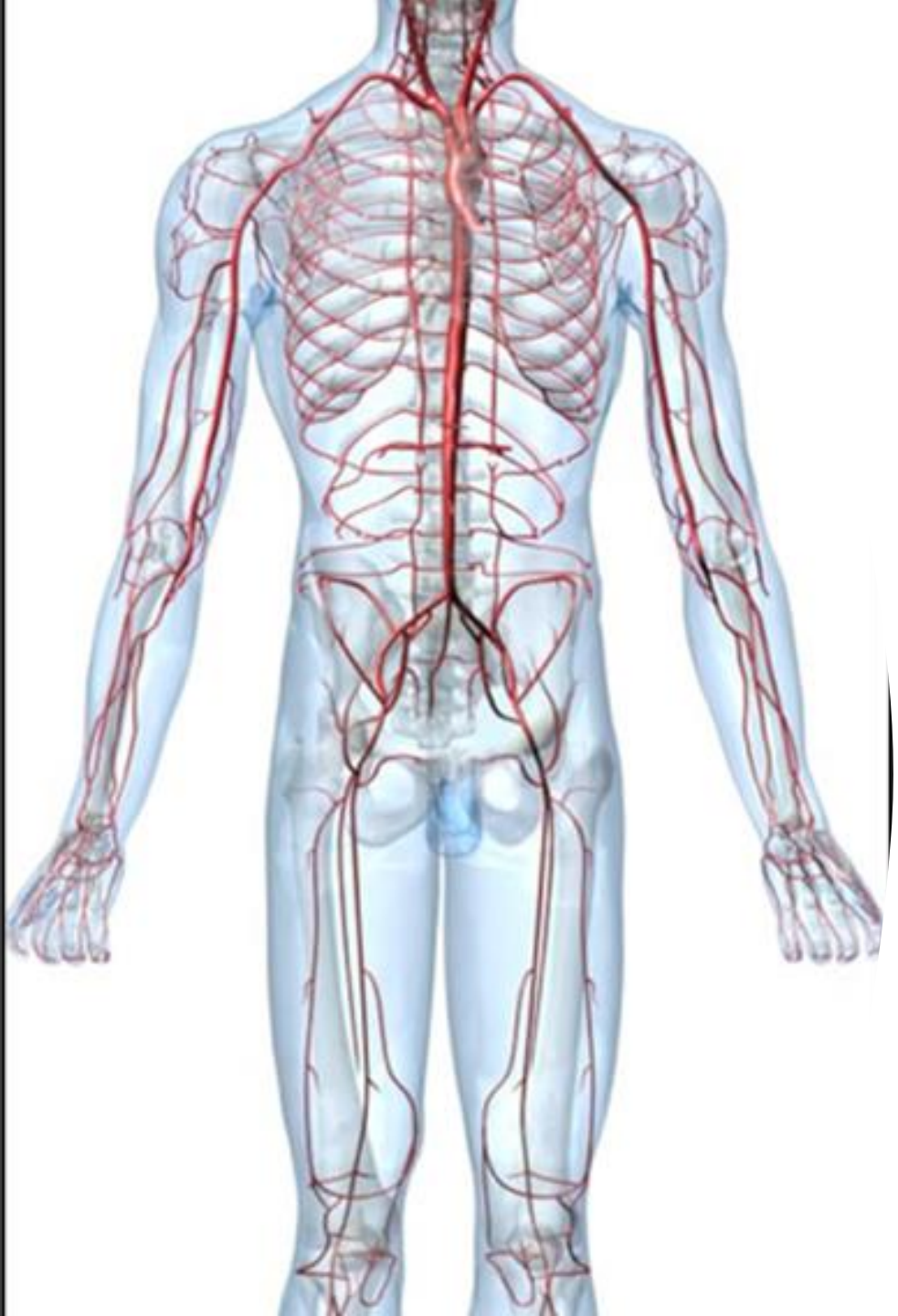
- Immediate control of severe hemorrhage is critical
  - Every second and every drop of blood counts

- Massive bleeding could be from artery or vein; doesn't matter which
  - Massive = visceral reaction: "That's a lot of blood!"
  - For now, ignore wounds that are not significantly bleeding (except amputations)

DIRECT PRESSURE

- Most major blood vessels – arteries and veins – run deep and along major bones
- **Treat with <u>direct pressure first</u>**, and then tourniquets or wound packing
- Direct pressure stops bleeding by compressing vessel against bone

DR. SMITH VIDEO



DIRECT PRESSURE

- Immediately apply direct pressure to:
  - The wound itself, or
  - An anatomic pressure point (where vessel runs near surface)
  - If using knee on femoral artery, use approx. 25# of body weight, adjust as needed
- Then think through your other options for bleeding control

BLEEDING CONTROL

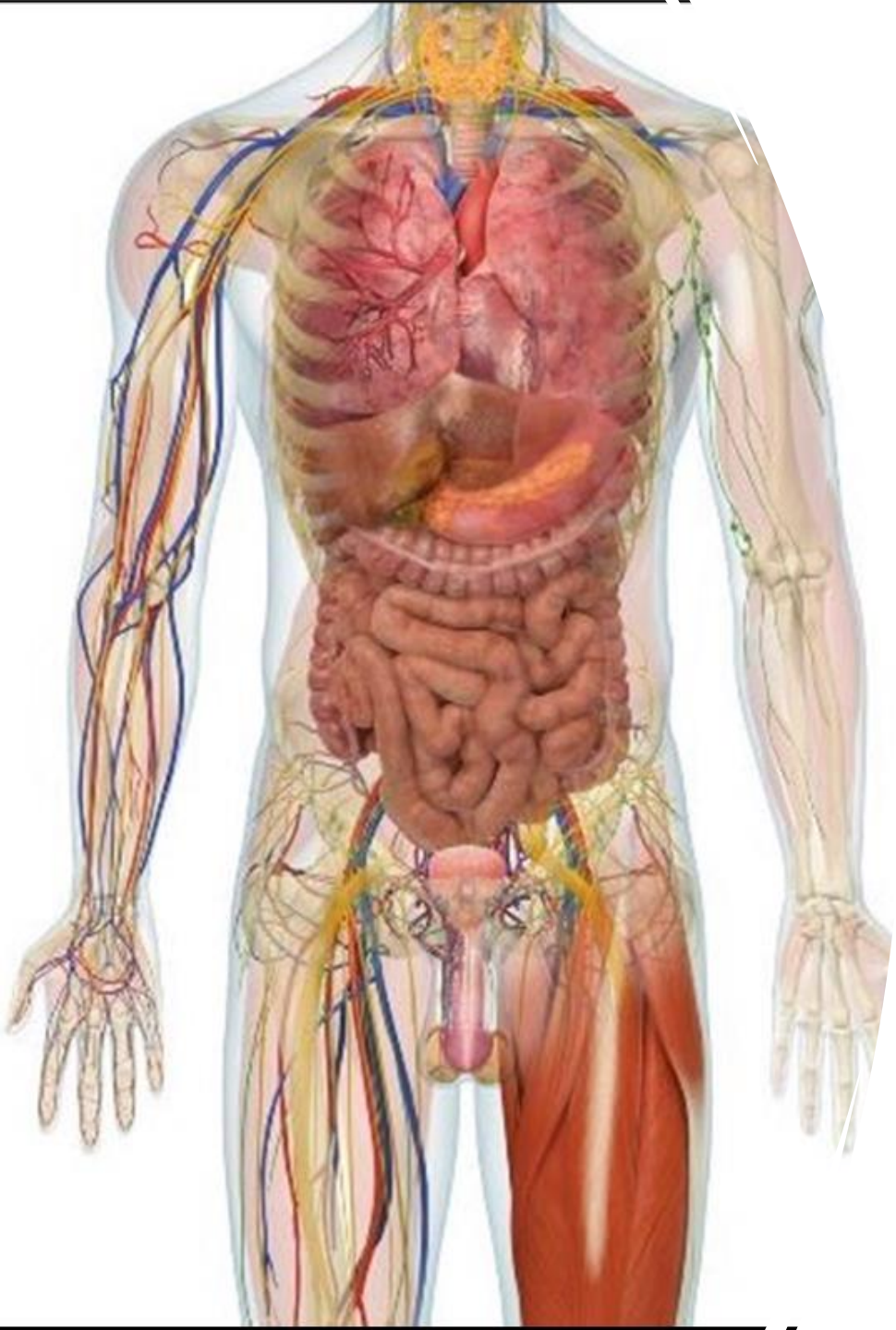
- Direct pressure first, then:
  - Tourniquet (commercial or improvised), or
  - Wound packing with cotton or hemostatic gauze, plus pressure bandage

TOURNIQUETS

- Compress tissue to stop blood flow
- 2" strap, buckle, mechanical crank or ratchet
- Use on arm or leg with massive bleeding or amputation
- Must pull tight before cranking
- Can use two side by side
- Check back often for renewed bleeding

TOURNIQUET ADVANTAGE

- Fast and easy to apply, even in high-threat situations
  - Can stop massive bleeding in 30 seconds
  - Speed helps prevent shock from blood loss
- No tissue damage if removed within 2 hours
  - Can be used on kids (less effective on small kids)



TOURNAQUET APPLICATION

- 4 locations only: high on limbs
- Over skin or light clothing
  - Empty pockets
  - Tighten as much as possible
- Can use two side by side
  - Depends on how many you have to spare

SAM-XT TOURNIQUET

- Quick and easy to apply
- Teeth click through holes in strap when tight enough to crank
  - This helps prevent excess slack during application
- Best for 5½" to 35" limb circumference

COMBAT APPLICATION TOURNIQUET

- More common than SAM-XT
- No teeth clicking through, so be sure to pull tight before cranking
- Otherwise similar to SAM-XT, and just as quick and easy to use

OTHER TOURNIQUETS

SOF-T Tactical Tourniquet

Military Emergency Tourniquet (MET)

Ratcheting Tourniquet

IMPROVED TOURNIQUETS

- Need strip of cloth, something as windlass, fastener
  - 2" wide by 4' long cloth (not a leather belt)
  - Sturdy crank that won't break
  - Strips of cloth or strings to tie down tightened crank
- Lift windlass while turning to reduce pinching
- Often ineffective; may need more than one

COMMON TOURNIQUET MISTAKES

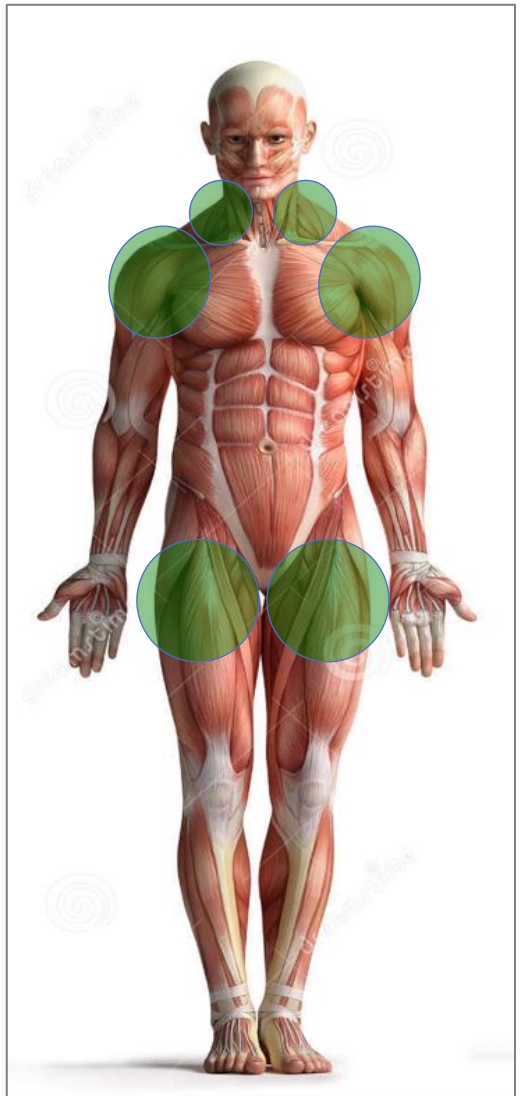
- Waiting too long to apply
- Not tightening enough
- Placing too low on the limb
- Loosening the tourniquet after application
- Forgetting to reassess
- Using a cheap knockoff tourniquet
  - Always use a reliable supplier
  - Cost ~ $35

BLEEDING CONTROL

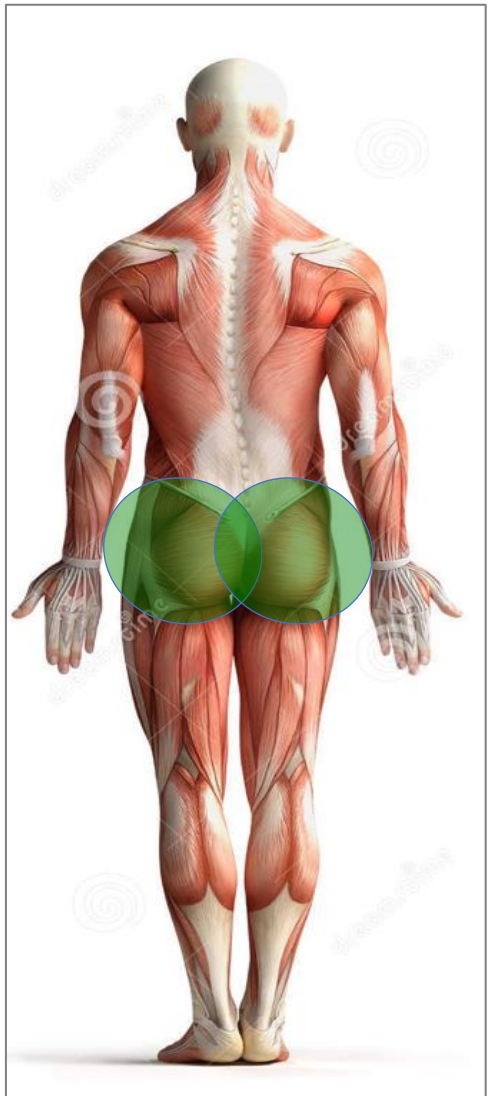
- Direct pressure first, then:
  - Tourniquet (commercial or improvised), or
  - Wound packing with cotton or hemostatic gauze, plus pressure bandage

AREAS FOR WOUND PACKING

JUNCTIONAL AREAS



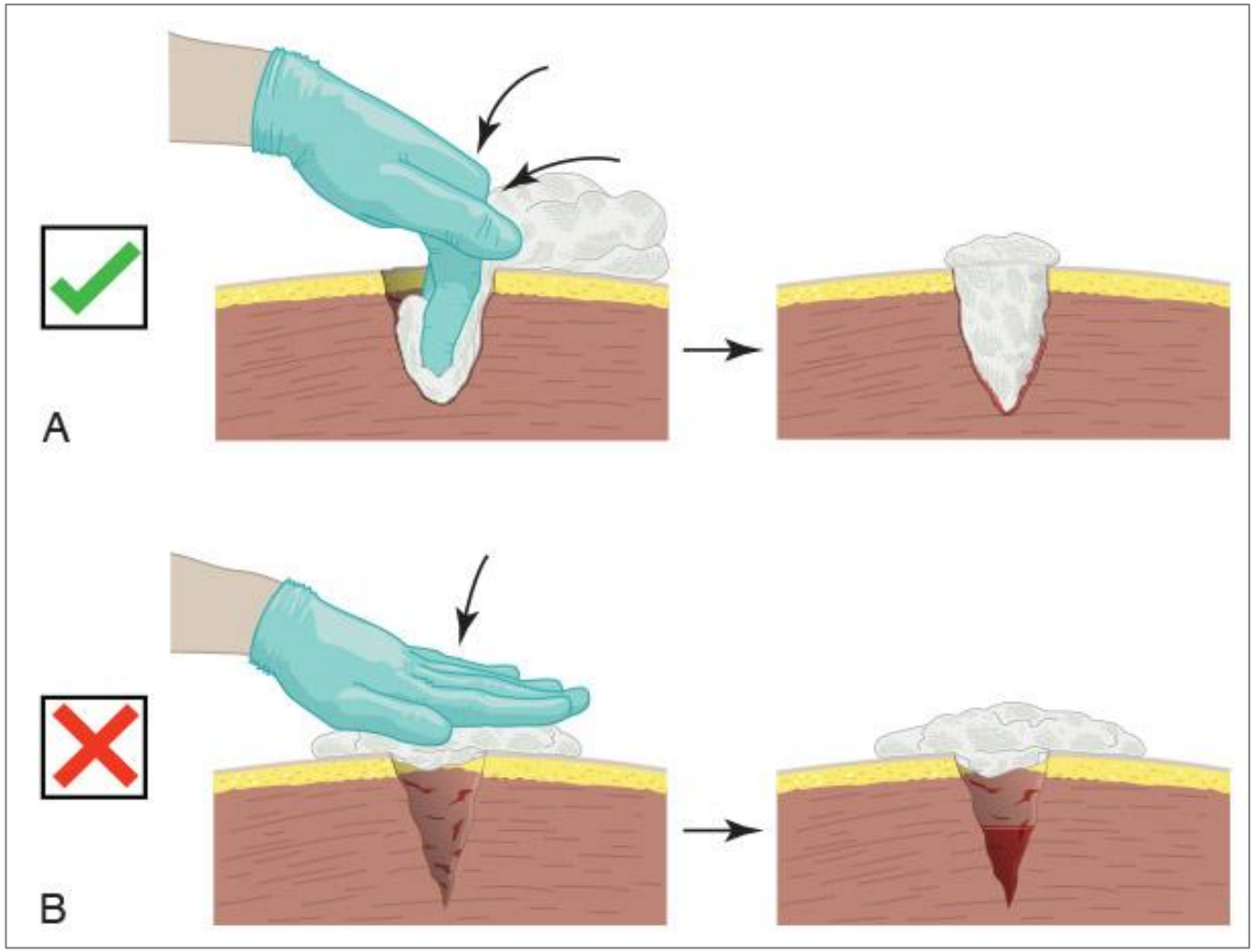
- Lower sides of neck
- Shoulder and armpit
- Groin below the inguinal ligament
- Buttocks and pelvic area (perineum)



WOUND PACKING HERE

WOUND PACKING

- Cotton gauze
- Any cotton material
- Hemostatic agent



HEMOSTATIC AGENTS

- Chemicals that accelerate clotting
- Seal damaged areas of arteries and veins
- Combine with direct pressure
- Potentially less effective if patient is hypothermic

WOUND PACKING STEPS

1. Remove clothing to expose the wound

2. If possible, remove loose clots

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

WOUND PACKING STEPS

4. Pack gauze or cotton into wound, directly onto site of bleeding

   - Fill all void spaces

   - "Pack to the pulse, pack to the bone"

WOUND PACKING STEPS

5. Firmly press gauze into wound and hold pressure

   - 5-10 minutes if plain gauze
   - 3-5 minutes if hemostatic gauze

WOUND PACKING STEPS

6. After proper amount of time, release pressure, but do not remove gauze

7. If still bleeding, reapply pressure for 2-3 minutes

8. Apply pressure bandage

PRESSURE BANDAGES

- Direct pressure first, then:
  - Tourniquet (commercial or improvised), or
  - Wound packing with cotton or hemostatic gauze, plus pressure bandage

PRESSURE BANDAGES

- Provide constant direct pressure to wound
- Are very effective, especially on arms or legs
- Are less effective if wound is not completely packed
- Are an alternative to tourniquet for smaller limbs
- Need 2-3 minutes to apply properly
- May take too long if threat is immediate

PRESSURE BANDAGE TIPS

- Keep unused bandage rolled up
- Use full width of the bandage—don't let it "rope"
  - Exception: twist bandage over the wound for extra pressure
- Don't rush: slow is smooth, smooth is fast
- Recheck for bleeding

PRESSURE BANDAGE TIPS

- Can use on junctional areas
- Neck/underarm wrap holds pressure on those areas
    - Lowering arm adds extra pressure
- For groin or buttocks, can swaddle around hip and opposite leg

DEMO AND PRACTICE

Let's Practice!

(Two 15-minute rotations)

Breakout 1: Demo and Practice Direct Pressure, Pressure Points, and Commercial Tourniquet Application

Breakout 2: Demo and Practice Wound Packing and Pressure Dressing

STRETCH BREAK

Let's Take a Stretch Break!

See you in 5!

SCAB-E AIRWAY

SCAB-E

S = Situation

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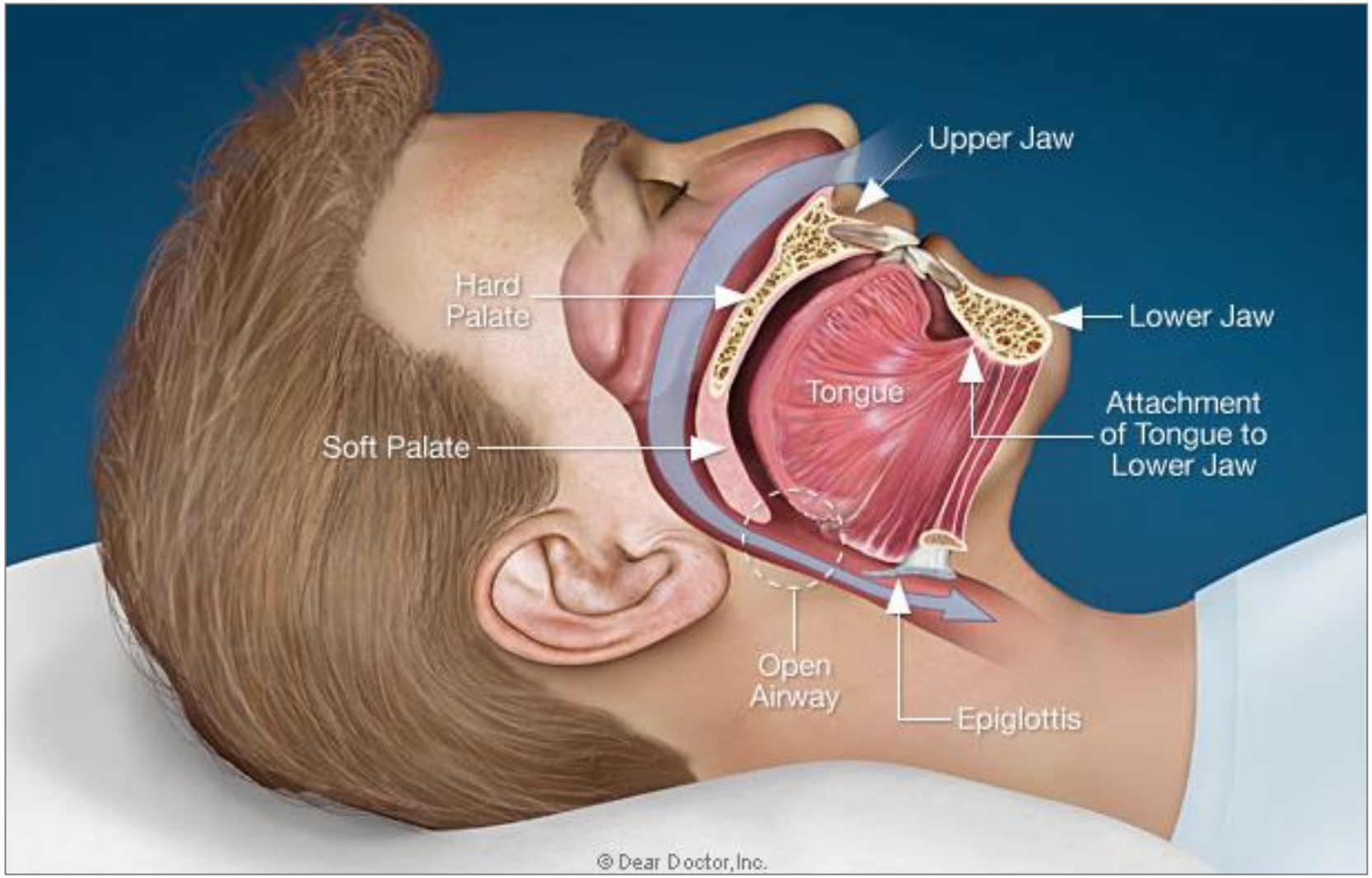
AIRWAY


Upper Jaw
Hard Palate
Lower Jaw
Tongue
Attachment of Tongue to Lower Jaw
Soft Palate
Open Airway
Epiglottis
© Dear Doctor, Inc.

SCAB-E BREATHING

SCAB-E

S = Situation

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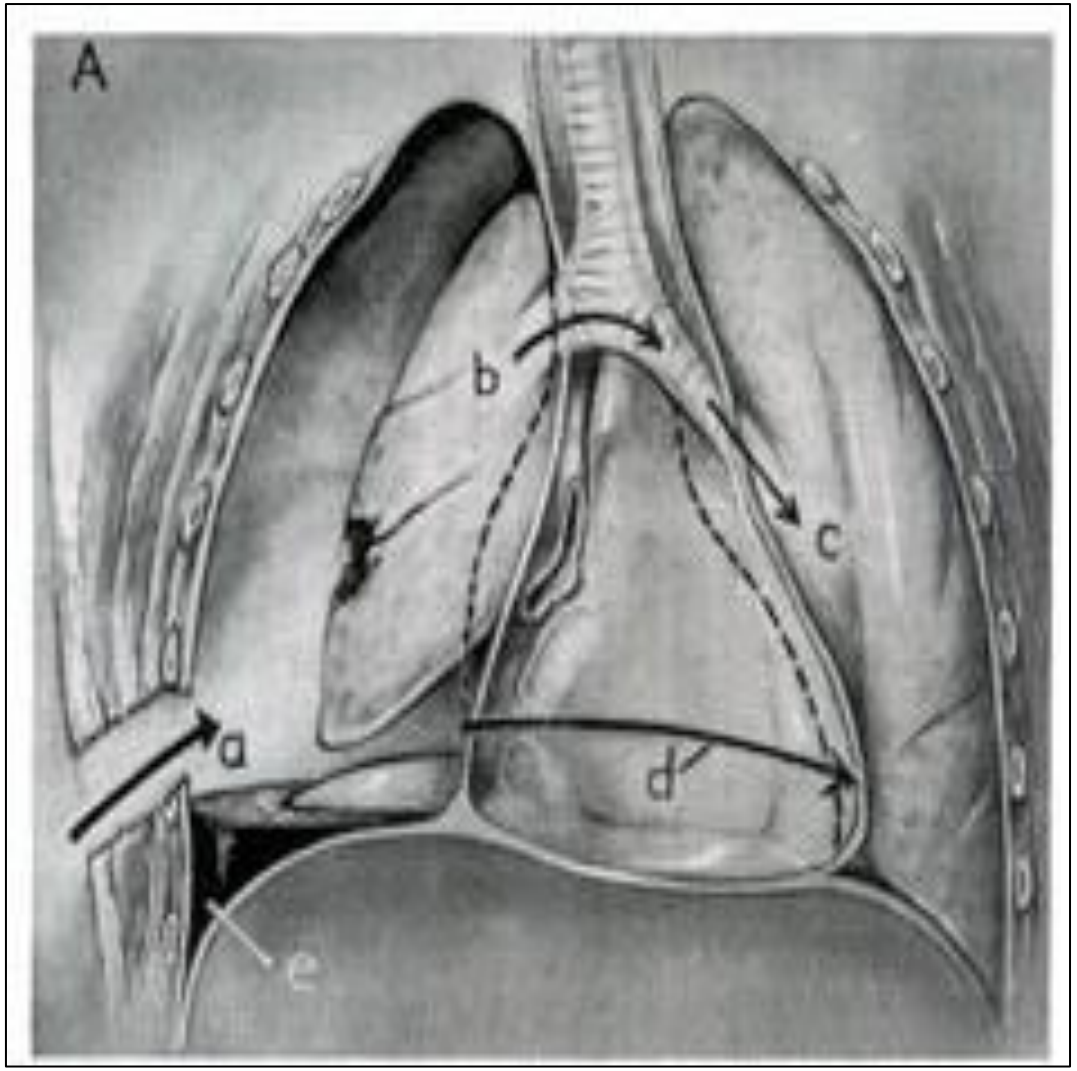
PENETRATING CHEST WOUNDS

- Open pneumothorax = "Sucking chest wound"
- Check navel to shoulder, front and back
- Look for entry and exit wounds
- Apply vented chest seals to improve breathing



CHEST SEAL VIDEO

USING A CHEST SEAL

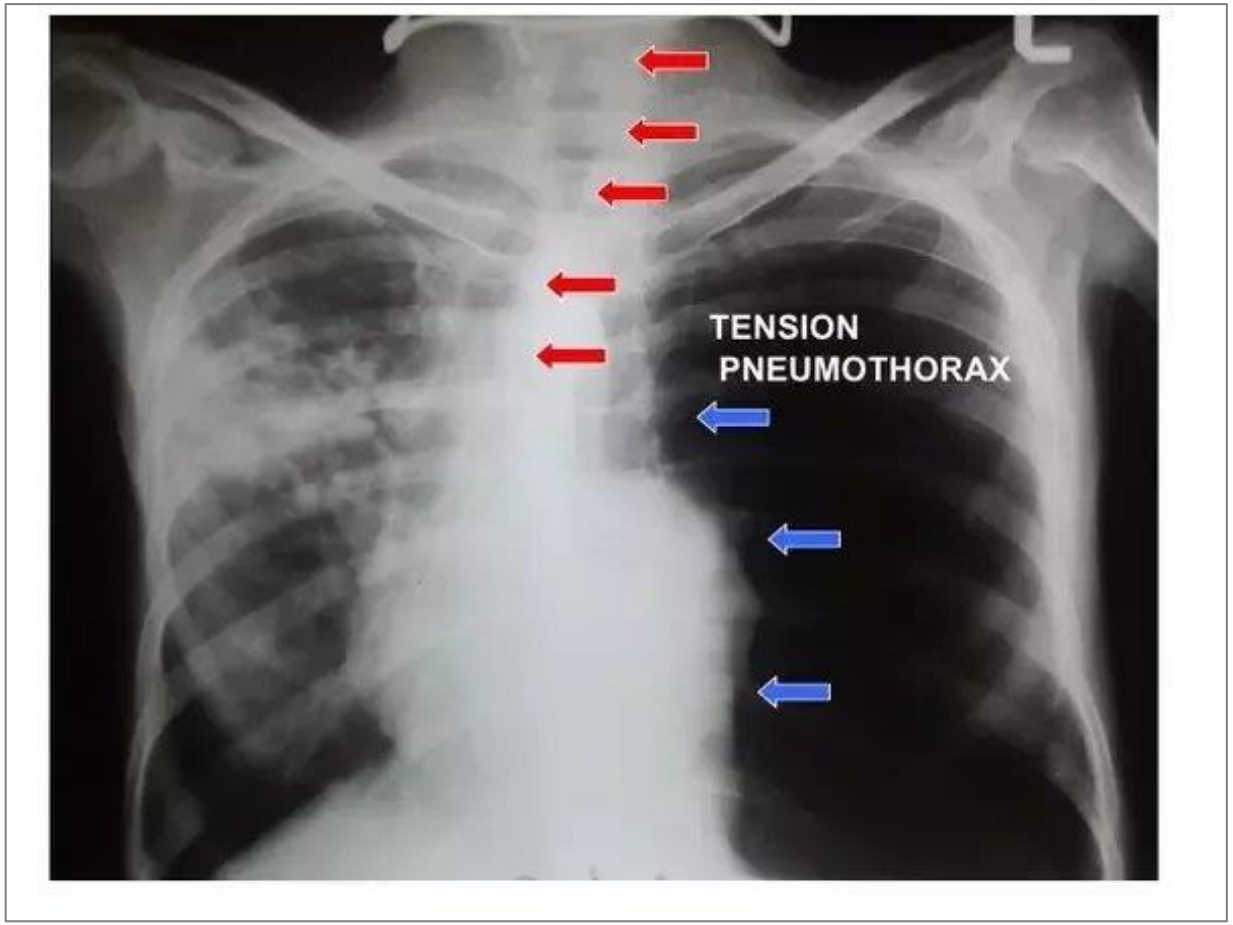
- Clean and dry skin
- Place chest seal vent directly over the wound
- Seal any hole between navel and collar bone, front and back, with a commercial vented chest seal

IMPROVISING A CHEST SEAL

- Use plastic bag, candy wrapper, duct tape, etc.
- Tape on 3½ sides – leave a half-side as a vent
- Vent closes on inhalation, lets air escape on exhalation

MONITOR CLOSELY!

- Continually reassess breathing rate and effort
- Air can leak out of the lung and build up inside the chest: "tension pneumothorax"
- Can collapse lung and constrict heart



TENSION PNEUMOTHORAX SYMPTOMS

- Increasing difficulty breathing; gasping
- Increasing respiratory rate; panting
- Turning blue around lips, or lightened lips
- Increasing anxiety and restlessness
- To treat: “burp” wound to release air every 5 minutes
- Prioritize for evacuation to medical care

BURPING CHEST WOUND

SCAB-E EVERYTHING ELSE

SCAB-E

S = Situation

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SCAB-E EVERYTHING ELSE

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

MENTAL STATUS

- Level of Consciousness = Is the brain getting enough oxygen?
- Use AVPU scale to evaluate:
  - **Alert**
  - Responsive to **Verbal** prompts
  - Responsive to **Painful** stimuli
  - **Unresponsive**

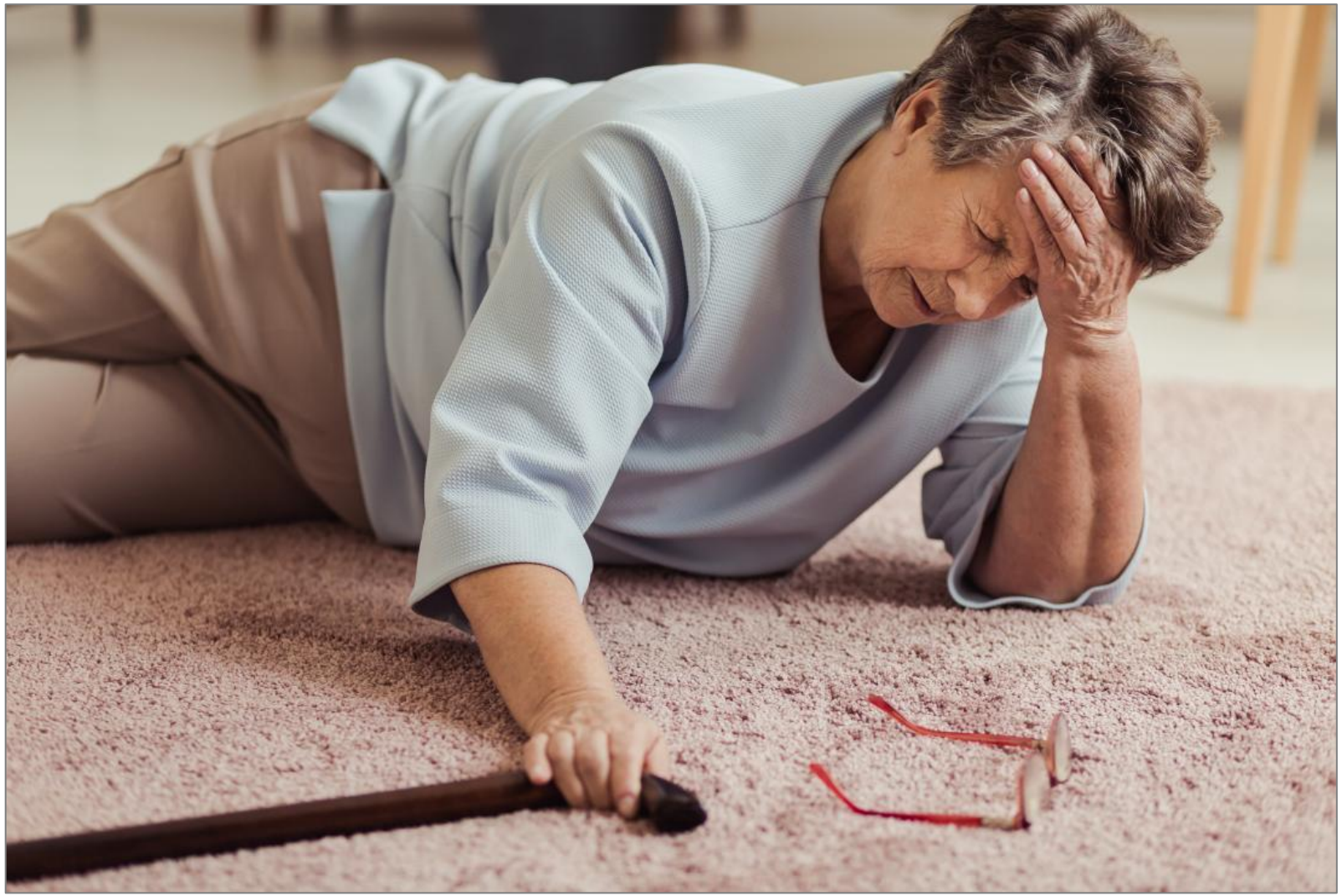
HYPOTHERMIA

- Even a small decrease in body temp can interfere with clotting and increase risk of death from trauma
- Injured persons in shock cannot generate body heat effectively; often shivering
- Hypothermia is easier to prevent than to treat
- Preventing hypothermia helps prevent irreversible shock

PREVENTING HYPOTHERMIA

- Minimize exposure to cold
  - Even an outside temp of 90 is dangerously cold!
- Protect them from wind
- Get them off the ground and onto an insulated surface
- Remove wet clothes and dry the skin
- Cover with anything that will help them retain heat

MONITORING FOR SHOCK



TREATING FOR SHOCK

- Keep warm
- Keep airway open and positioned for drainage
- Position of choice
- Fluids:
  - Thirst is a sign of shock
  - Vomiting is also a sign of shock
  - If they are not vomiting, small sips of water are OK!

IF CONSCIOUS: POSITION OF CHOICE

- Abdominal Trauma: Often on back or side, with knees brought up
- Breathing Difficulty: On back raised at a 45-degree angle or sitting, or "tripod" (leaning forward)
- If unconscious, put in recovery position, plus:
  - Head Wounds: head elevated 15-30 degrees
  - Chest Trauma: Injured side down to protect lung

PSYCHOLOGICAL FIRST AID

- Calm and reassure them
  - "It's OK. I've got you."
  - "I'm here with you."
  - "I'll take care of you."
- Find a survival hook – a reason for them to fight
  - "You will see your loved ones again."
- Get them to talk to you

SUMMARY: RESCUE

1. Maintain situational awareness
2. Control life-threatening bleeding
3. Open airway
4. Seal any chest wounds
5. Properly position, especially if unconscious
6. Monitor mental status and treat for shock and hypothermia
7. Provide psychological support

REPORT

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

REPORT INFO TO 911

Where is your emergency?

- 911 does not see your blue dot!
- Give exact address or location
- Not "Starbucks on Rt. 7"
- In building: what floor, room #
- On highway: what direction (66-east), what mile marker

REPORT INFO TO 911

What is your emergency?

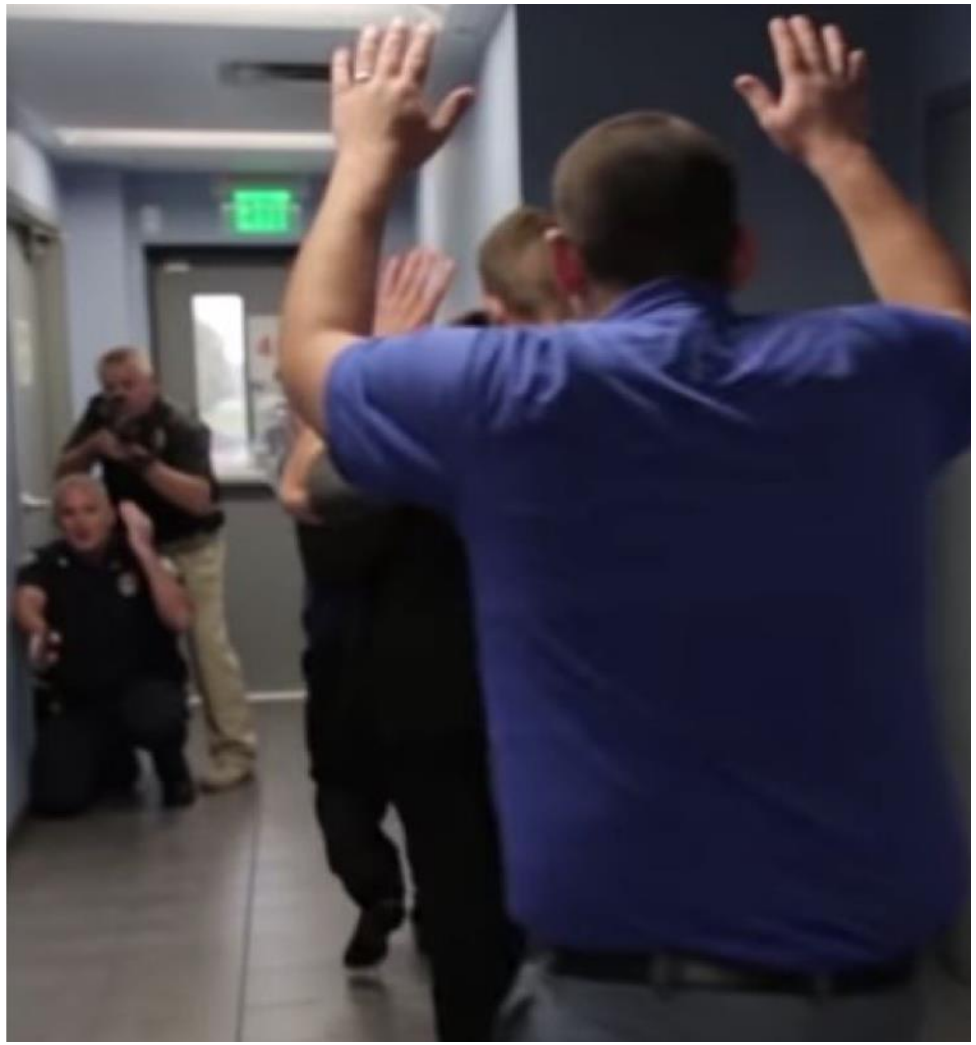
- 911 will ask a series of questions – stay calm, and be as detailed as you can to help prepare first responders
  - Units will be dispatched even while you're still talking
- Active attacks: Number of assailants? Locations? Physical description? Types of weapons?
- Natural Disasters or Accidents: Any hazardous conditions? Fire, smoke, power lines, flooded or blocked roads?

TEXT TO 911

- In Arlington and most of DC metro area, you can text to 911
  - Text only, no photos!
  - No group text with 911
  - Text your location and emergency
- Talking is faster and conveys more info
  - Text only if you cannot safely talk

WHEN POLICE ARRIVE

- Remain calm and follow instructions
- Keep hands raised, empty, and visible
- Do not run at or yell at officers
- Police will prioritize ending threats over rescuing injured



WHEN EMTS ARRIVE

- List injuries, treatments, and responses
- Prioritize chest wounds
- Identify tourniquets, wound packing
- Describe any changes in patients' mental status

QUESTIONS AND FEEDBACK

Student Feedback Survey

HELP YOUR COMMUNITY PREPARE FOR + RESPOND TO EMERGENCIES

JOIN ARLINGTON CERT

LEARN MORE AT **ARLINGTONCERT.COM**

TAKE ACTION

- Promote Until Help Arrives training to friends, family, coworkers, groups, etc.
- Contact Arlington County Department of Public Safety Communications and Emergency Management (DPSCEM) for more info:

  OEM@arlingtonva.us

  ReadyArlington.com

- Ask for bleeding control kits to be installed where you work, play, or shop

- Also consider:
  - Medical Reserve Corps
  - CPR/AED training
  - First Aid or Wilderness First Aid Training
  - Ham / Amateur Radio