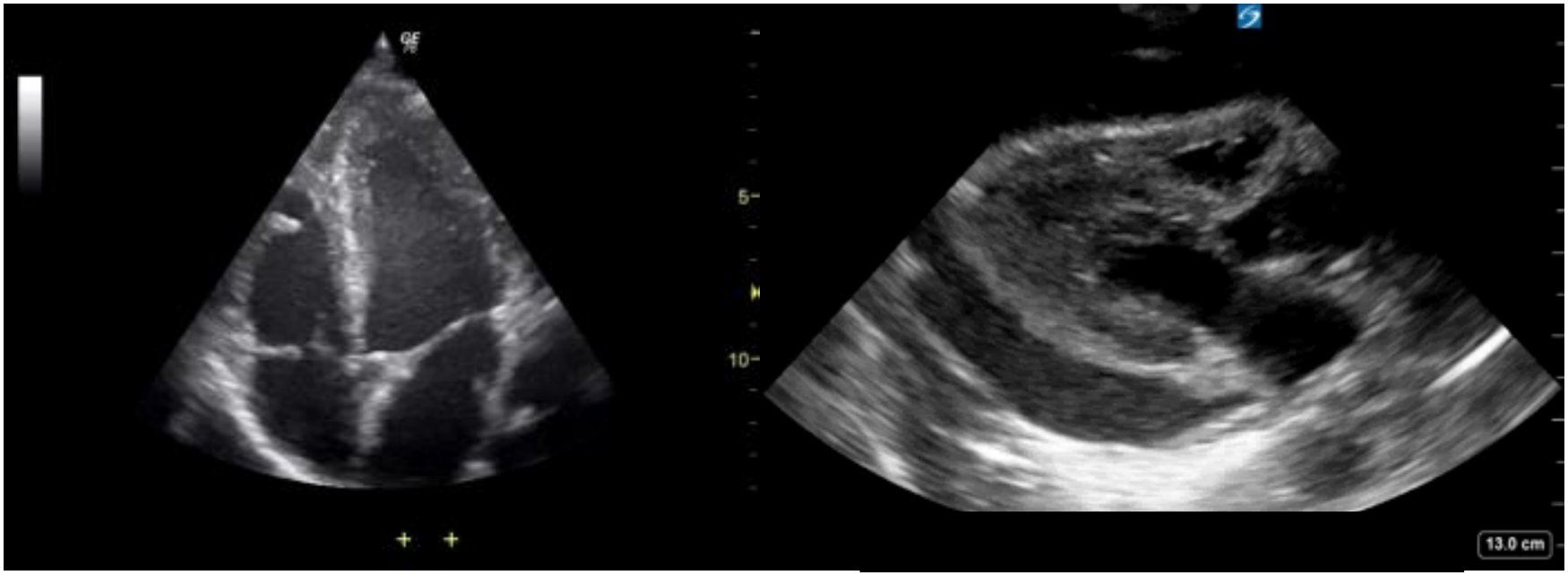
Benjamin Lawner, DO, MS, EMT-P, FACEP
Associate Professor, Department of Emergency Medicine
University of Maryland School of Medicine
Medical Director, Baltimore City Fire Department
Medical Director, Maryland ExpressCare Critical Care Transport

Why should we care about the definitions of trauma "arrest?"



- The heart is not actually in "arrest."
- Traumatic arrest is more appropriately termed traumatic hypovolemia or circulatory arrest since heart function is often preserved. The heart is not STOPPED
- Interventions that prioritize survival should be emphasized
- Position statements have formalized the shift in treatment paradigms and encourage a NEW standard of EMS care

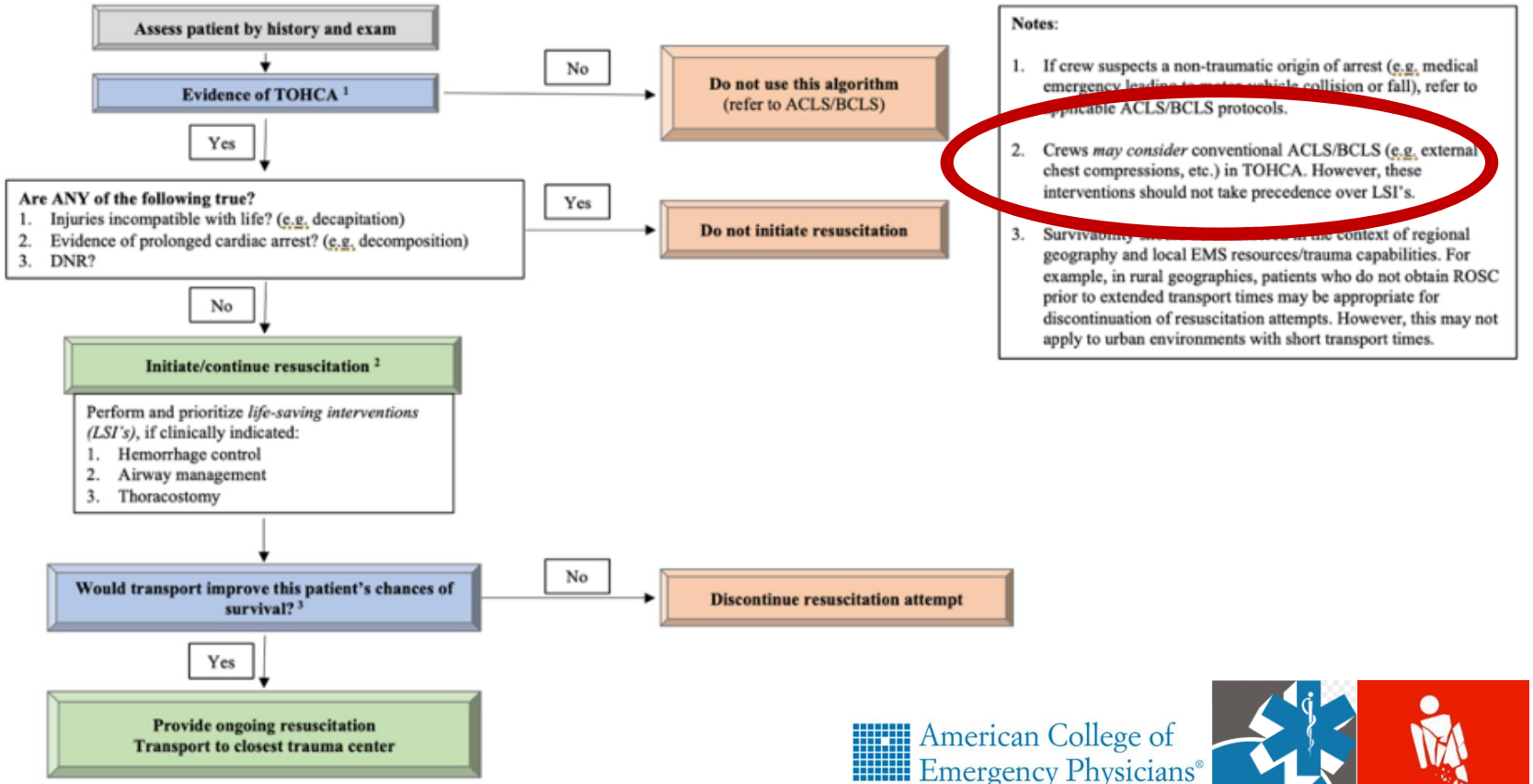


Figure 2. Treatment of TOHCA Algorithm.

American College of Emergency Physicians®
ADVANCING EMERGENCY CARE
NAEMSP
ACS

TRAUMATIC CARDIAC ARREST/ PERI-ARREST ALGORITHM

EUROPEAN RESUSCITATION COUNCIL

Emphasis on LSI
De-emphasis on chest compressions
Separate trauma/medical etiologies

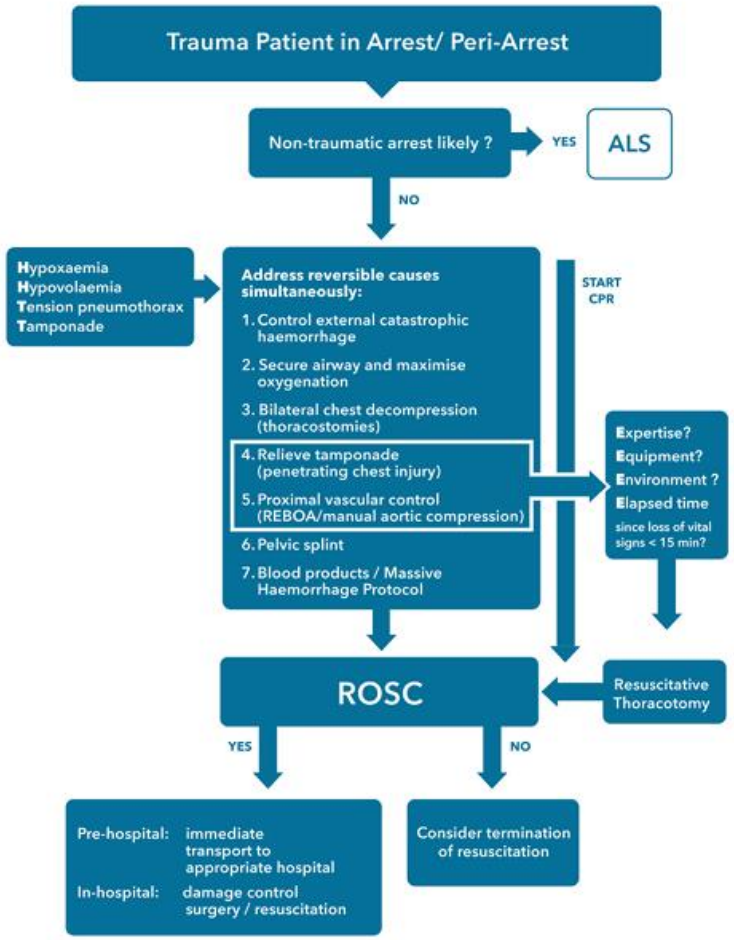


Fig. 2 – Traumatic cardiac arrest algorithm.

European Journal of Trauma and Emergency Surgery (2023) 49:2165–2172
https://doi.org/10.1007/s00068-023-02279-9

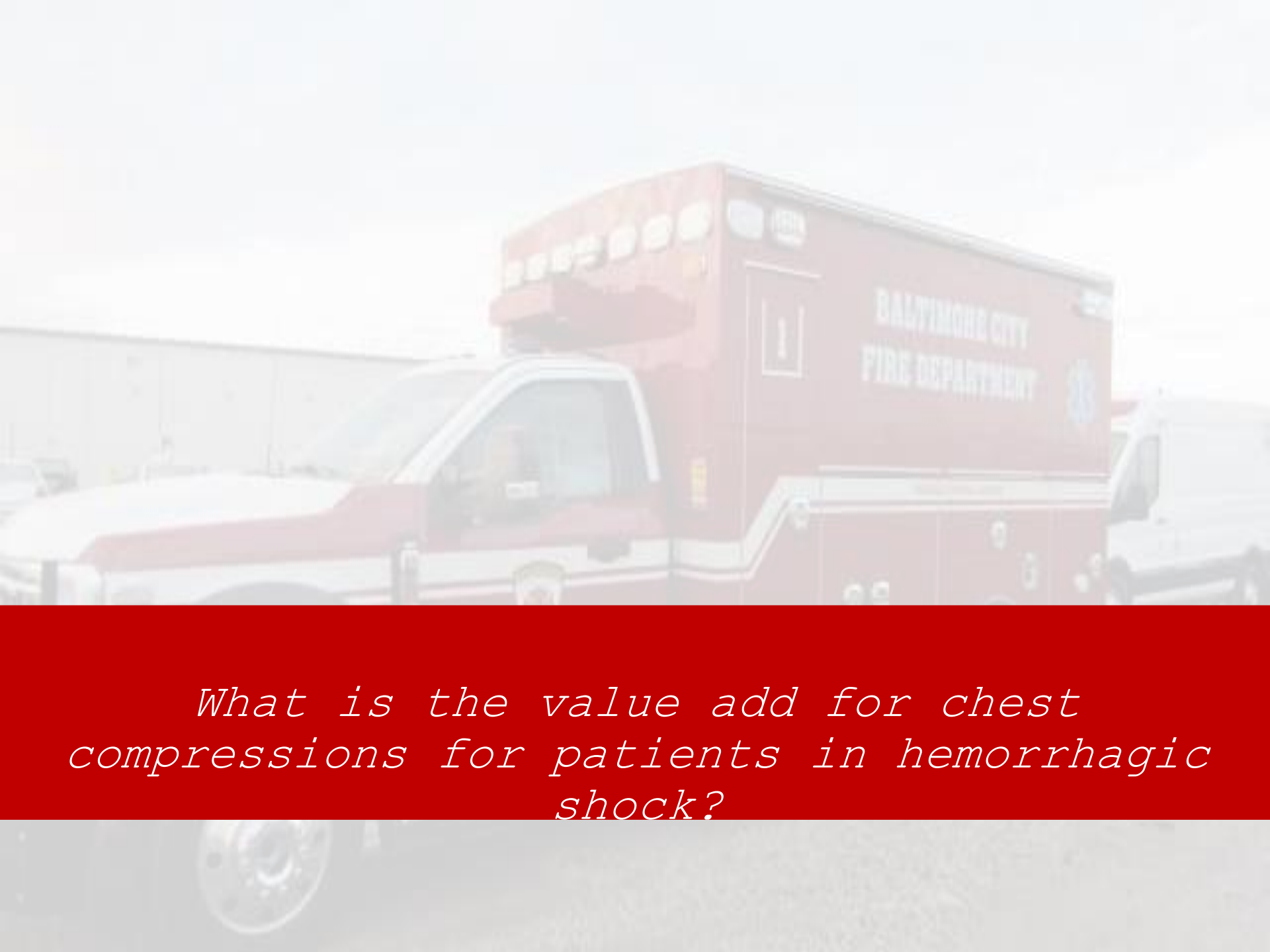
ORIGINAL ARTICLE

Stay and play or load and go? The association of on-scene advanced life support interventions with return of spontaneous circulation following traumatic cardiac arrest

Tanner Smida[1] · Bradley S. Price[1] · James Scheidler[1] · Remle Crowe[1] · Alison Wilson[1] · James Bardes[1]

Received: 4 February 2023 / Accepted: 2 May 2023 / Published online: 10 May 2023

On-scene ALS may “extend the clock”
Intravenous access and epinephrine administration linked to survival
Blood administration also with higher odds of survival
Performance of ALS airway as FIRST intervention = decreased likelihood of survival

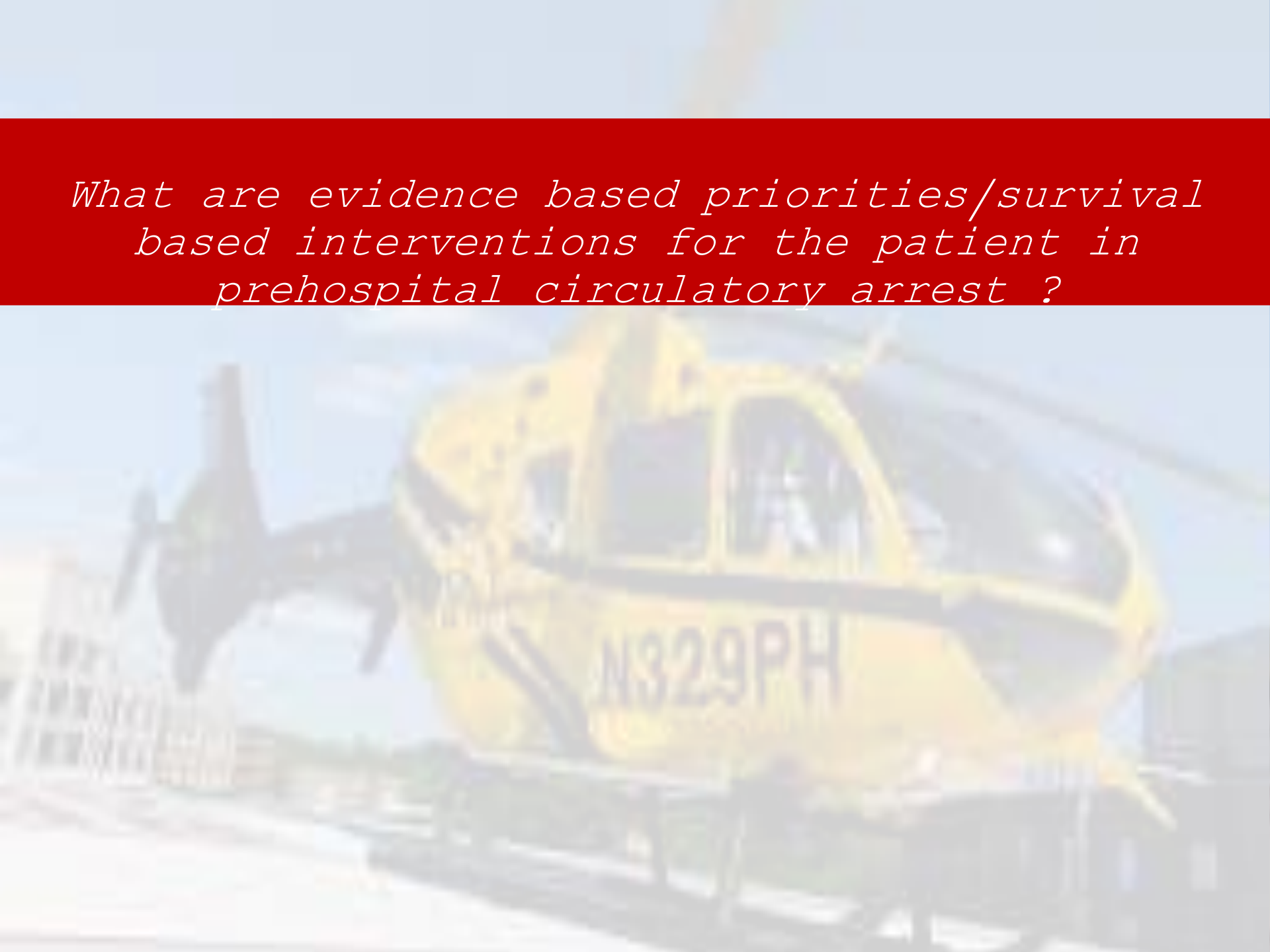


What is the value add for chest compressions for patients in hemorrhagic shock?

Traumatic Hypovolemia and CPR

- If interventions have benefit, then delays in performance have the potential to impact survival
- Heart fills during diastole; compression of empty heart further exacerbates hypotension and decreases filling
- Animal models suggest decreased brain and tissue perfusion
- Diminished diastolic flow and LV dysfunction
- No studies to date affirming benefit

What are evidence based priorities/survival based interventions for the patient in prehospital circulatory arrest ?



Avoid overventilation! Positive pressure and excessive inflation may diminish venous return.

Survivable/Treatable Injury Patterns in Prehospital Trauma

Exsanguinating hemorrhage	Hemostatic gauze Blood TXA Pressors
Pelvic fracture	Binder
Cardiac tamponade	Cardiocentesis Thoracotomy
Pneumo Hemothorax	Finger thora Needle decompression

Traumatic Circulatory Arrest: Who Survives?

- Initial rhythm NOT asystole
- Witnessed arrest
- Patient with “fixable” injury pattern
- Time of arrest < 4-6 minutes

BOTTOM LINE: TCA is a survivable entity. Adopt a patient focused protocols that prioritize life saving interventions (including blood) and time to arrival at definitive surgical care

When Does a Person Become a Patient?

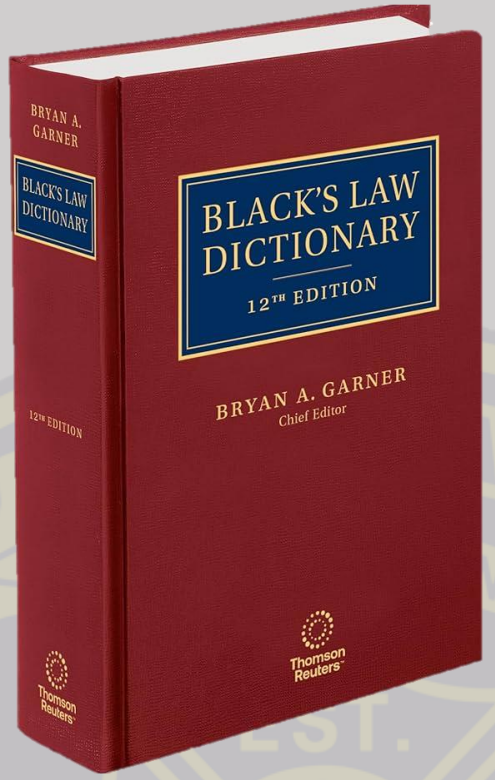
Dustin J Calhoun, MD FAEMS
Medical Director
Cincinnati Fire Department
Associate Professor
University of Cincinnati

- 36 yo female, minor MVC (car hit trash can in road), 3rd party caller. Patient has no apparent injury. Politely but firmly refusing tx

- 60 yo male, called 911 for 1 day of N/V. Got in touch with his MD's office and now has an appointment. Doesn't want evaluation.

“The Definition”

Patient interaction begins when: “the provider begins to assess the extent and likelihood of injury/illness and the capacity to make decisions.”



More useful definition?

Usually involve negative criteria

- Not requesting help
- No one else requesting help for them
- No mechanism reasonably believed to be likely to cause significant injury
- No signs/symptoms reasonably believed to be likely to represent significant injury
- No reason to question patient's capacity

More useful definition?

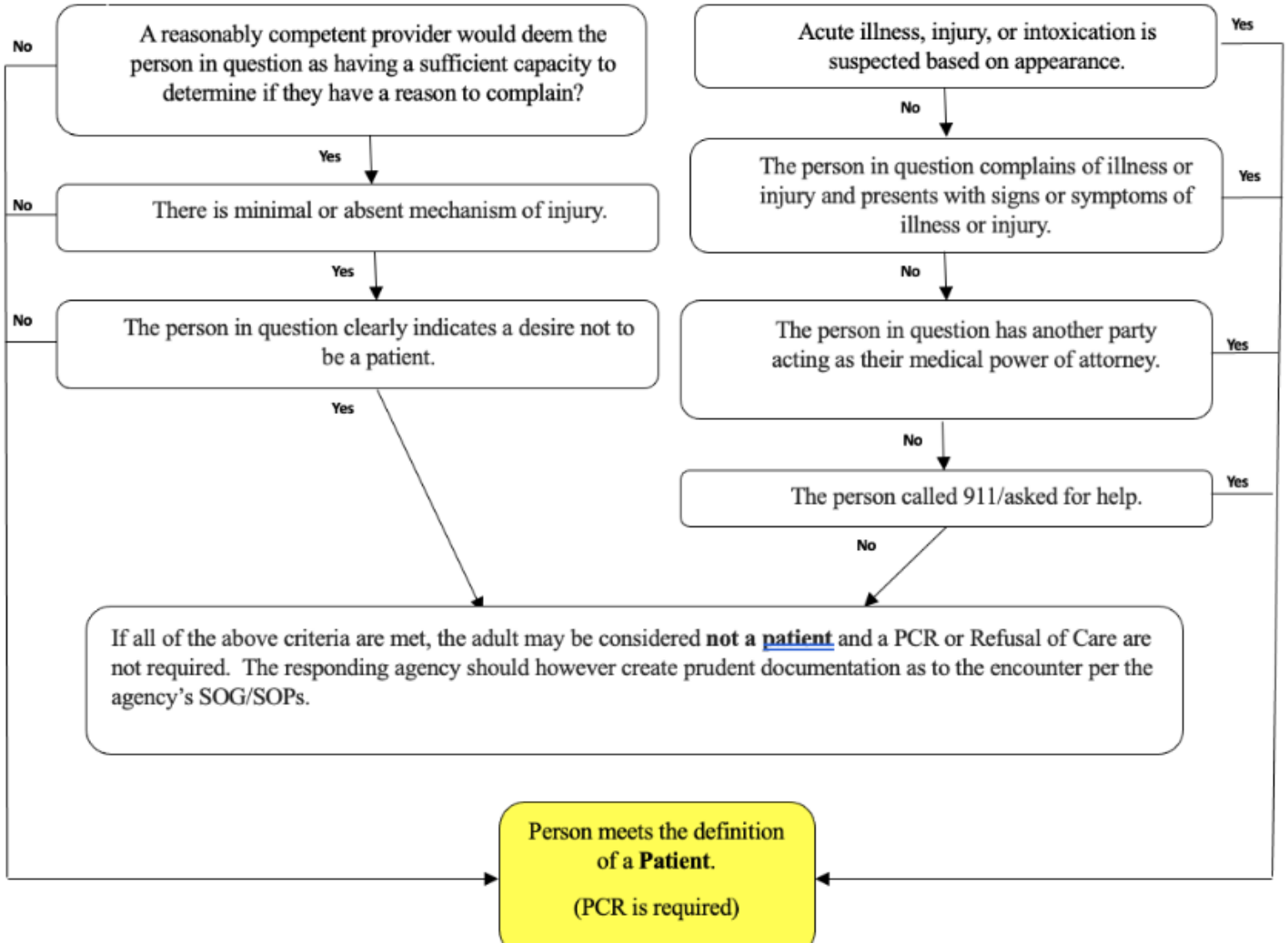
Usually involve negative criteria

- Not requesting help
- No one else requesting help for them
- No mechanism reasonably believed to be likely to cause significant injury
- No signs/symptoms reasonably believed to be likely to represent significant injury
- No reason to question patient's capacity


05
COMMON
SENSE

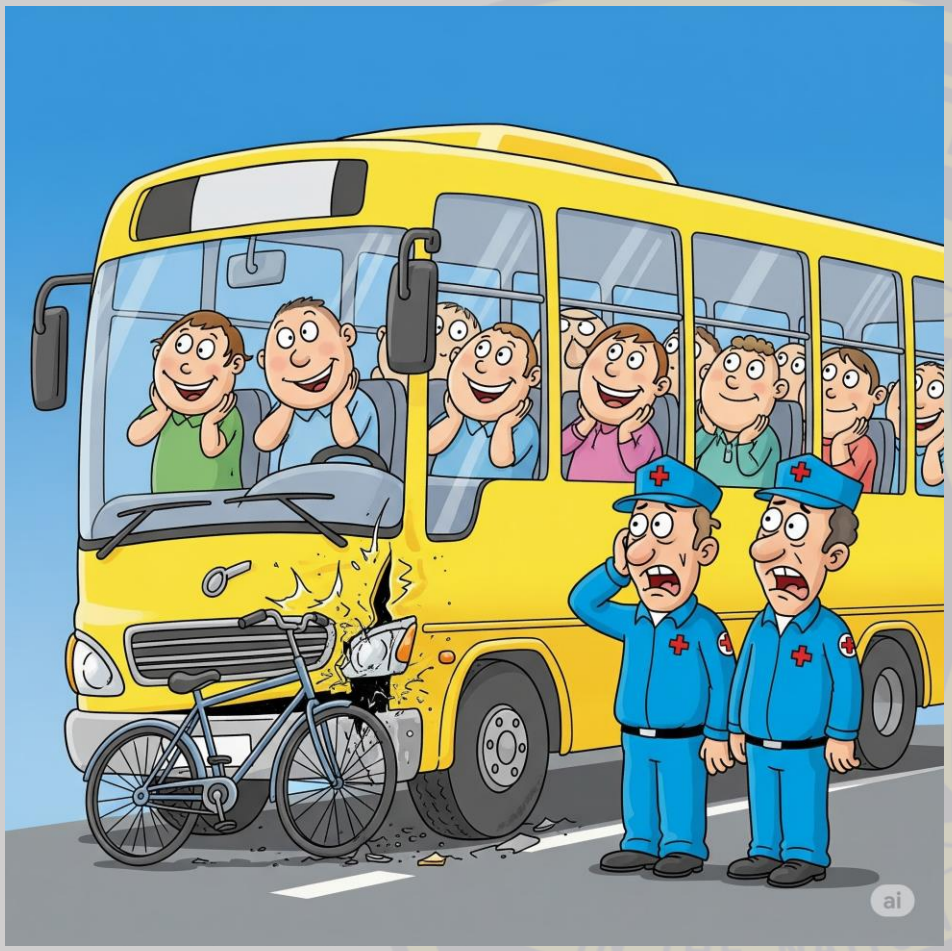
A113	Definition of a Patient	A113
Added: 2024	Academy of Medicine of Cincinnati Prehospital Care Clinical Practice Guidelines	2025

Patient – any person who identifies him/herself as requiring medical assistance or evaluation, or any person who has a physical or medical complaint or condition from an illness or injury. An adult may be considered not a patient if all the following criteria are met:



Key take-aways

- Not directly tied to “caller”
- Capacity assessment should not trigger
- Written department guidance
- More hands make a coffin lighter



Red or Dead ?

Some thoughts on atypical MCI triage

Dr. David Miramontes MD FAEMS FAEMS EMT-P
EMS Medical Director
San Antonio Fire Department
Univ. Texas Health Science Center San Antonio

UT Health San Antonio
Emergency Health Sciences

Office of the Medical Director

What is the Miramonster Barking about now ?

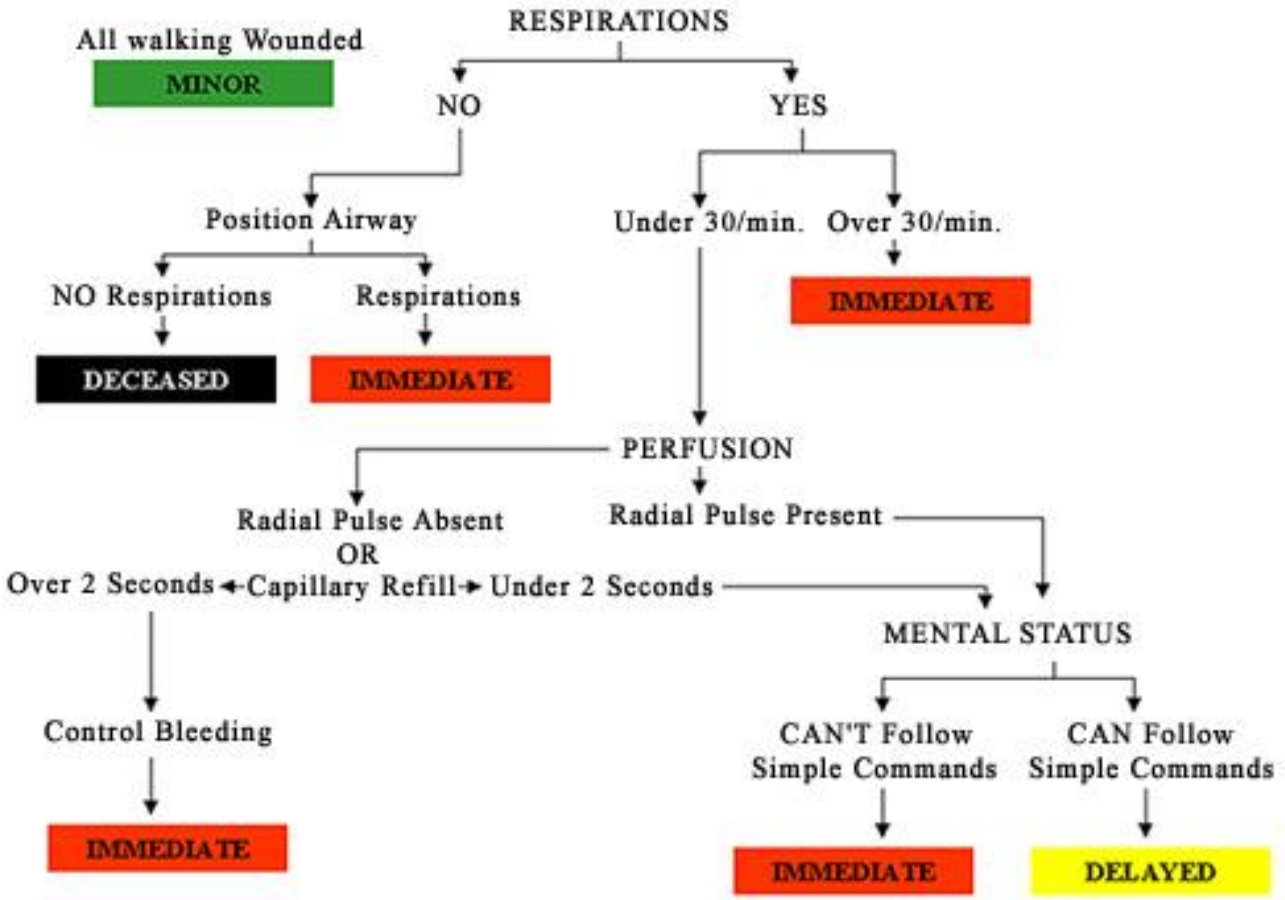
What are the current Triage Methods?

Should we use something else? When ?

What about non-traditional MCI's ?

Are there new resources you can use to organize the Chaos?

START – Simple Triage and Rapid Transport " 30 two Can DO "



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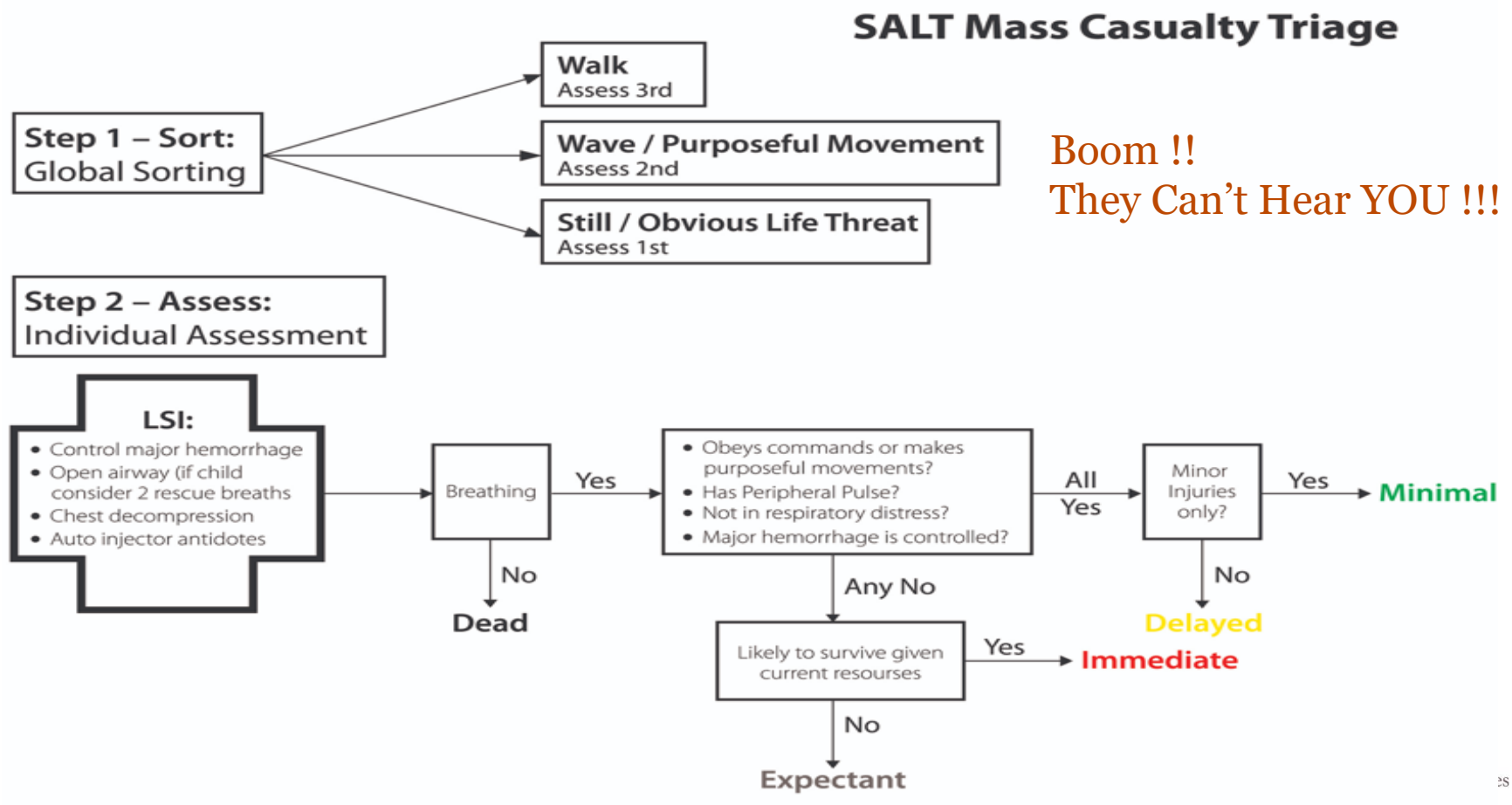
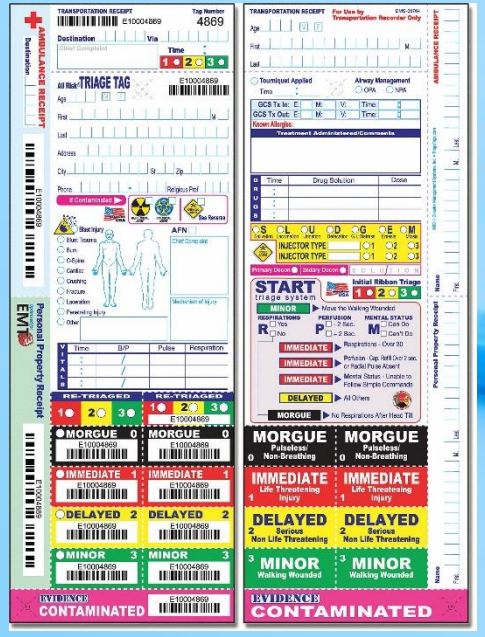
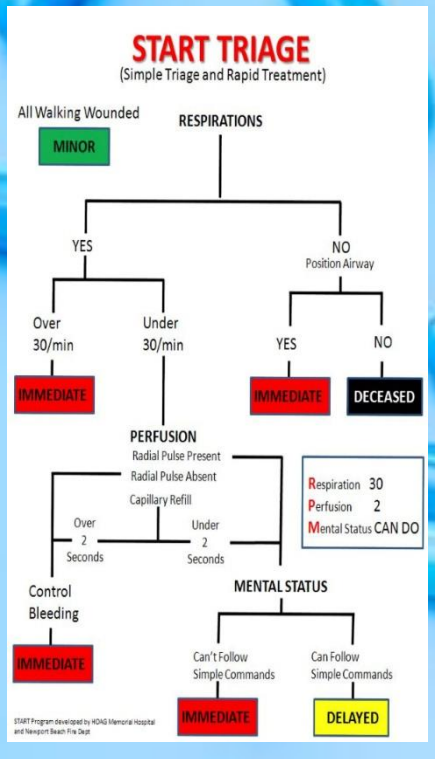
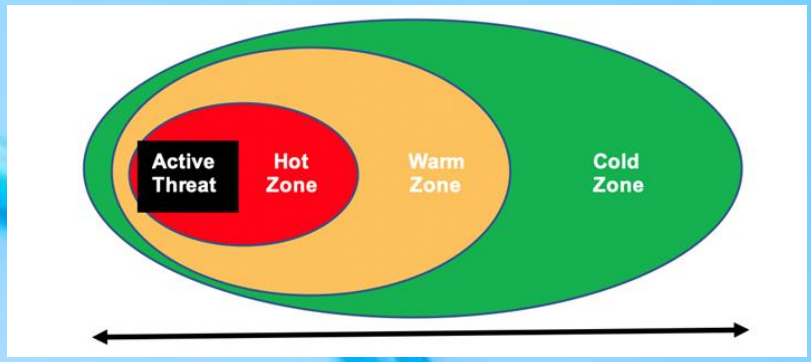
SALT (Sort, Assess, Life Threating Interventions, and Triage/Treatment

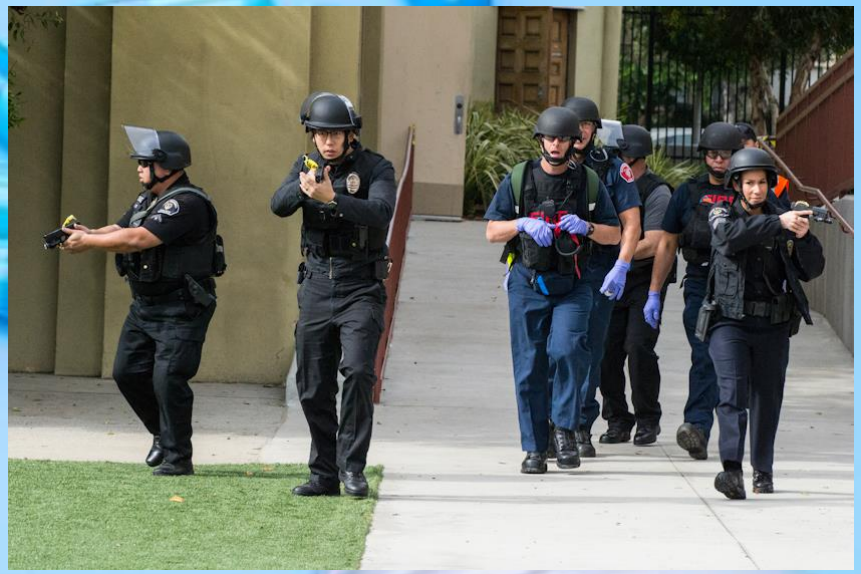


Boom !!
They Can't Hear YOU !!!


TRANSPORTATION RECEIPT
TRIAGE TAG
AMBULANCE RECEIPT
Personal Property Receipt
RE-TRIAGED
MORGUE
IMMEDIATE
DELAYED
MINOR
EVIDENCE CONTAMINATED
START triage system
Initial Ribbon Triage
Move the Walking Wounded
Respirations - Over 30
All Others
No Respirations After Head Tilt
Palseless/ Non-Breathing
Life Threatening Injury
Serious Non Life Threatening
Walking Wounded


START TRIAGE
(Simple Triage and Rapid Treatment)
All Walking Wounded
MINOR
RESPIRATIONS
YES
NO
Position Airway
Over 30/min
Under 30/min
IMMEDIATE
IMMEDIATE
DECEASED
PERFUSION
Radial Pulse Present
Radial Pulse Absent
Capillary Refill
Over 2 Seconds
Under 2 Seconds
Respiration 30
Perfusion 2
Mental Status CAN DO
Control Bleeding
IMMEDIATE
MENTAL STATUS
Can't Follow Simple Commands
Can Follow Simple Commands
IMMEDIATE
DELAYED
START Program developed by HOAG Memorial Hospital and Newport Beach Fire Dept


Active Threat
Hot Zone
Warm Zone
Cold Zone



If you are shot/stabbed in the BOX… You need blood and the OR not a triage tag

If wounded-- neck to crotch –
(not in arrest..

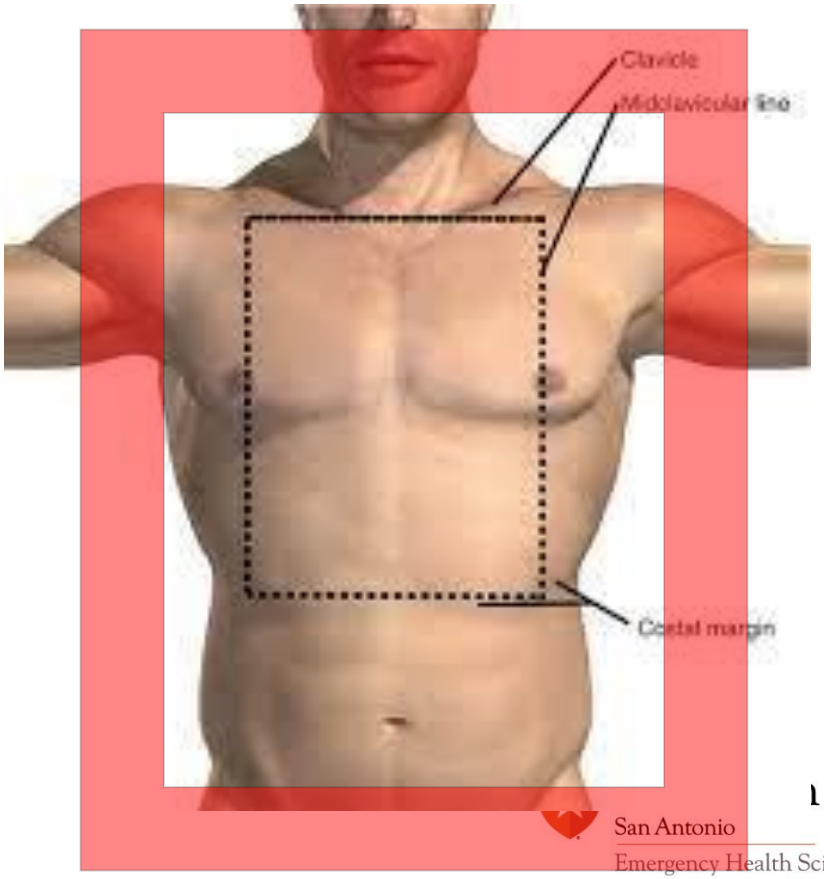
(not DEAD)

YOU ARE A RED !!!

MA-rches

Get the SKED and get them to a BED

Get the "Cluck" to a Truck



RAPID EVACUATION

You have Treatment Teams….

After MAR –
of MARCHES

Get the " CLUCK" to the TRUCK"

But do you have EVAC Teams deployed ?

Get the SKED and get them to a BED

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Real life application

Sacramento K street Shooting

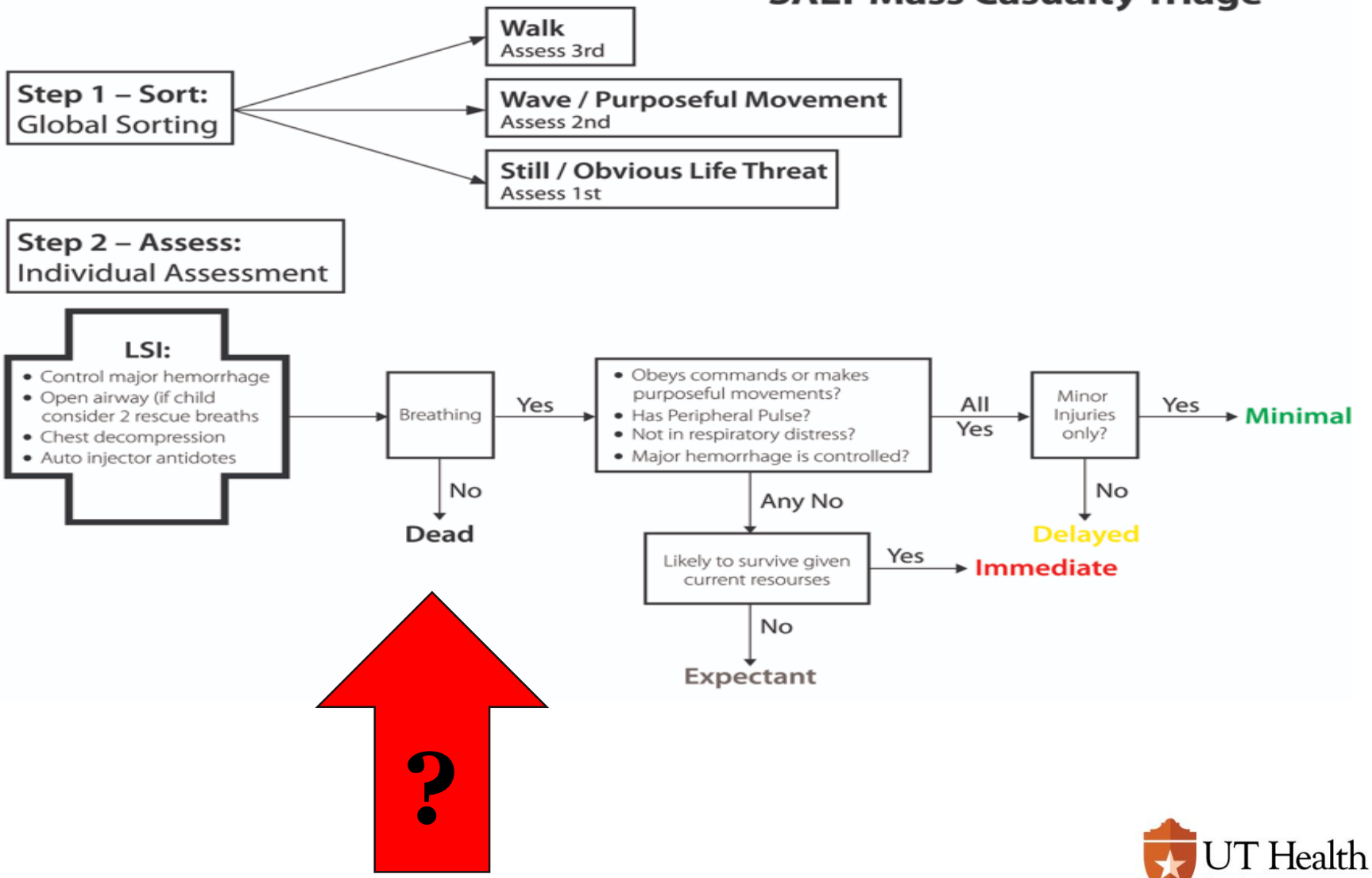
April 3, 2022

- 19 victims
- Spread over 5 blocks
- All transported victims survived
- Scene secured at 02:07 by CHP
- First victim transported at 02:19 (12 minutes)
- Last Victim transported at 02:41 (34 minutes)

Kevin Mackey MD, FAEMS

Lightning Strike MCI

SALT Mass Casualty Triage



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Lightning Injuries and Treatment

(Reverse triage-"The Most Dead" are often the the most salvageable)

- Three Types of Strikes:

1. Direct-often explosive severe injuries
2. Contact Strike- Touching the tree
3. Side Splash Hit
4. Ground to Cloud Current- humans better conductor ground to air

- **CPR and AED:** unresponsive, not breathing,
  CPR and use an AED
  (how many Defibs on-scene)
- **Assess for injuries:** TX for burns, wounds, paralysis, and other injuries.
- **(How many Burn Beds available)**

Enough Trauma Drama !!!

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Emergency Health Sciences

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Walmart – July 23, 2017

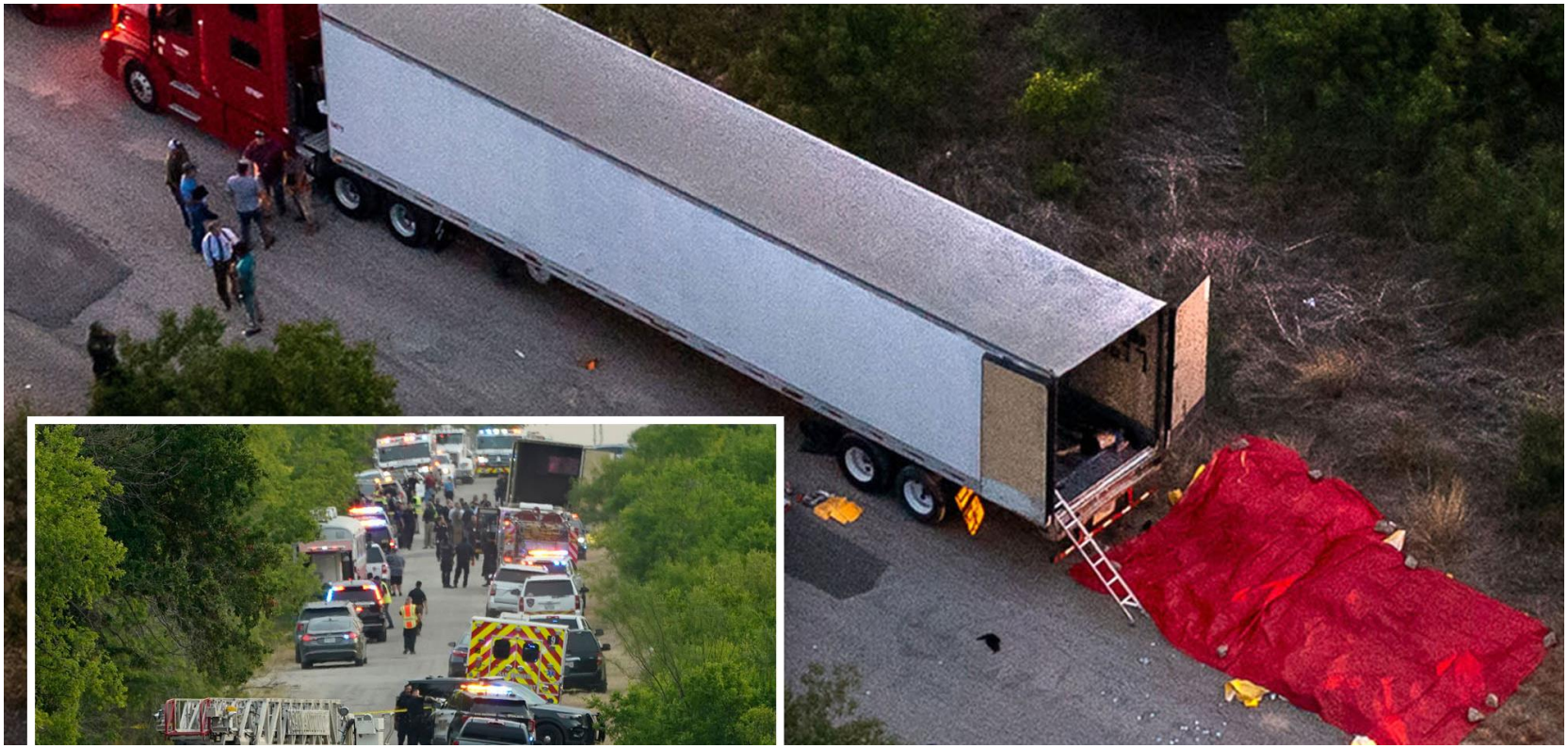
- 9 migrants found deceased
  - 2 more died at hospital
- Inside of trailer parked at Walmart at IH 35 and Palo Alto
- Total occupancy, at one time, 100-200 people (suspected)
- 1 arrested, sentenced to life

Physisian On Scene---YOU !!!!

Pronounce the Dead =affirm the decisions
Take the that off your Medic's Plate

Shiel non essential providers from seeing the dead to decrease trauma Exposure

Then We Had This….. Quintana Road – June 27, 2022



- Initial call out for DOA, upgraded to MCI by E52 – 22 units assigned
- Refrigirated trailer, non-functioning Cooler unit= Thermos

UT Health San Antonio
Emergency Health Sciences

Office of the Medical Director

What was weird…

- **<u>This wasn't an active shooter – was a medical event</u>**
  - Or was it ?
  - What was that smell? *****
  - Chemical contamination?
  - PPE

- **<u>One small loop road</u>**
  - quickly enter from south
  - established park on one side (MOVE COP CARS)
  - Staging manager

- **<u>Pulling out the bodies--- Red or Dead</u>**
  - Load two and grab firefighter from staging

- **<u>We did NOT have on scene cooling capabilities then</u>**

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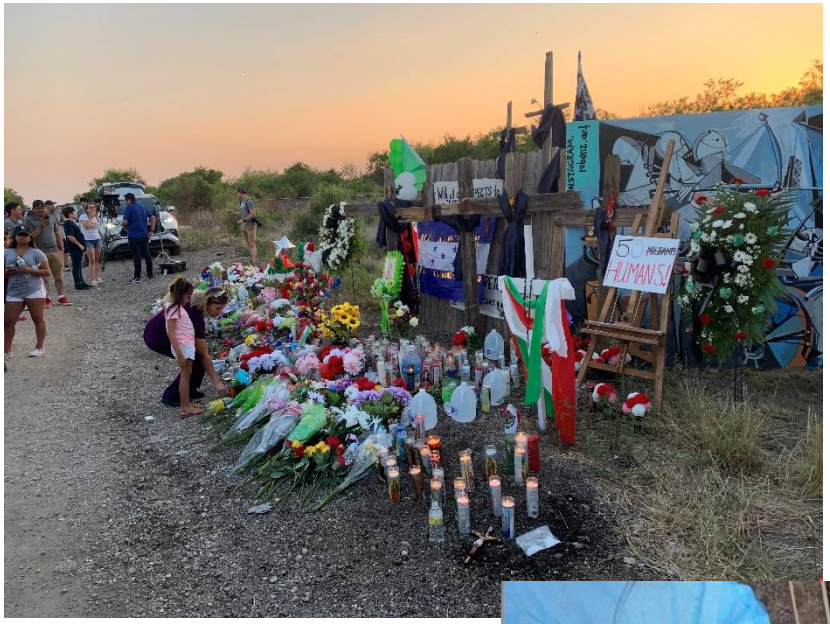
Office of the Medical Director

Quintana Road – June 27, 2022

➢Victims covered in a “seasoning” to mask smell from dogs

➢48 deceased in and around truck
- ➢16 transported to area hospitals
- ➢5 died at hospital
- ➢ Suspected heat-related COD



The deceased:

- 40 men and 13 women
- 27 from Mexico
  - 14 from Honduras
  - 7 from Guatemala
  - 2 from El Salvador.

➢4 arrested in ties to event (suspected driver was a “ patient”)

STRAC Regional Field Triage Algorithm *v_August 2021*

Southwest Texas Regional Advisory Council

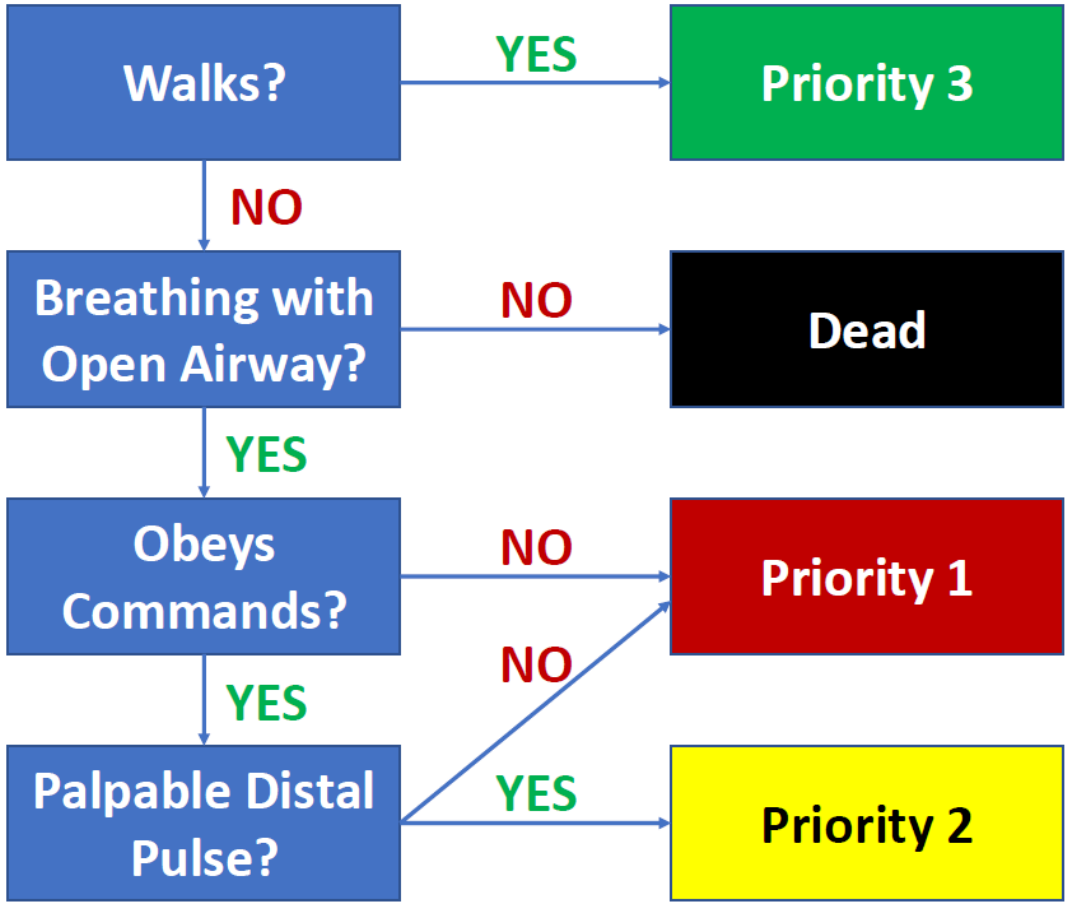
During assessment life-saving interventions of: Control Massive Bleeding & Basic Airway Maneuvers

If equipped and time/resources allow

- ❑ Chest Seals (vented if available)
- ❑ Temperature Regulation (Hypo/hyperthermia)
- ❑ Reassessment of patients (to include "Dead")

If your system/agency allows: Consider Needle Decompression

For initial sorting & classification, consider placing colored marking tape in lieu of triage tags.



https://www.strac.org/prehospital/

San Antonio Emergency Health Sciences

Office of the Medical Director

So there NOT a RED-

Yellows-

Chest Pain, stable extremity trauma, medical issues

Treatment sector-stabilize

Wave 2 of transports-
(perhaps to mor distant Eds)

Greens-

Can we treat and street ?

Load up the bus and drop them at far away ER/Urgent Care

Grey/Black

- Comfort care Morphine/Fentanyl
- Secure the Dead

STRAC
Southwest Texas Regional Advisory Council

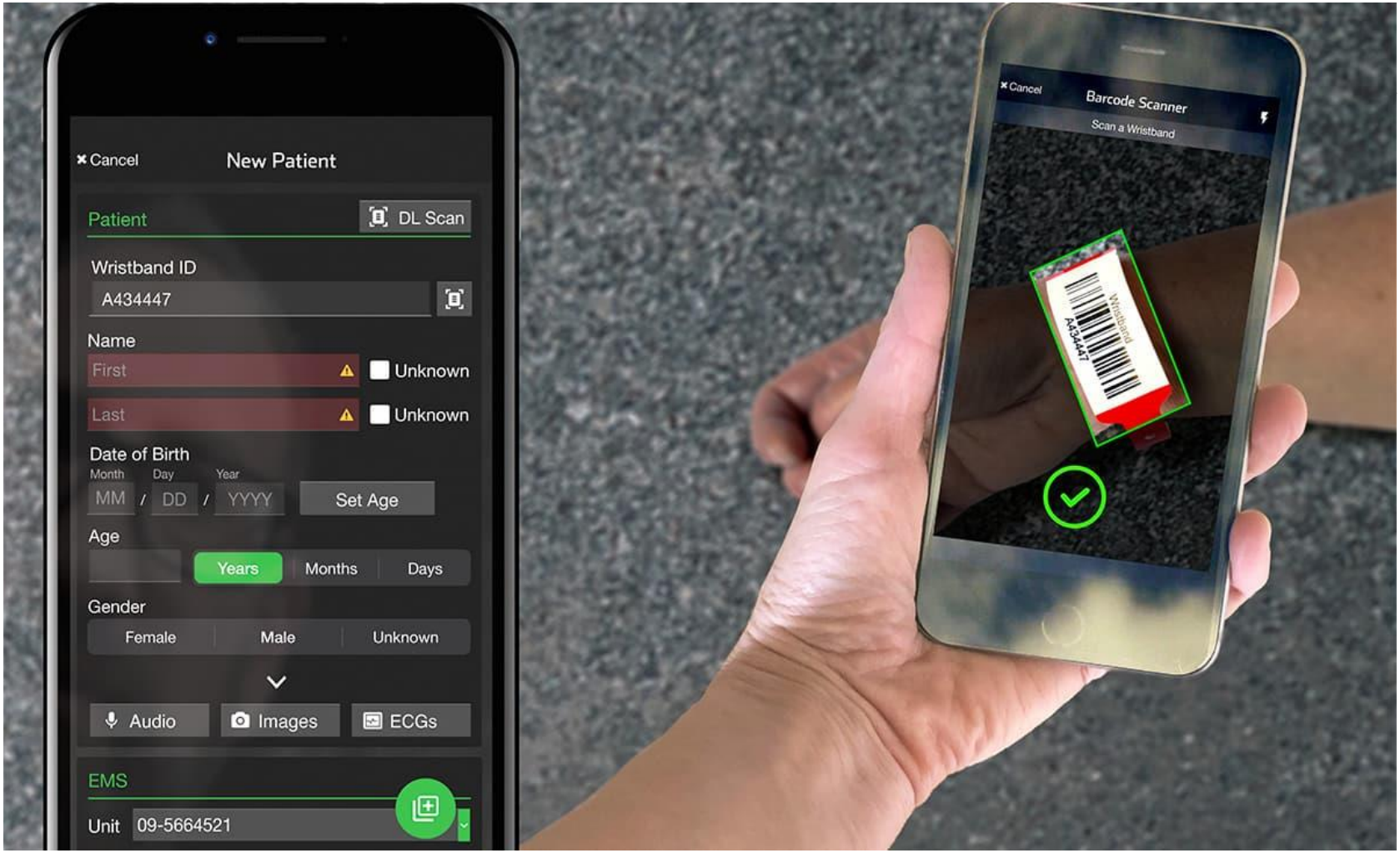
Regional Heat-Related MCI Response

August 2023

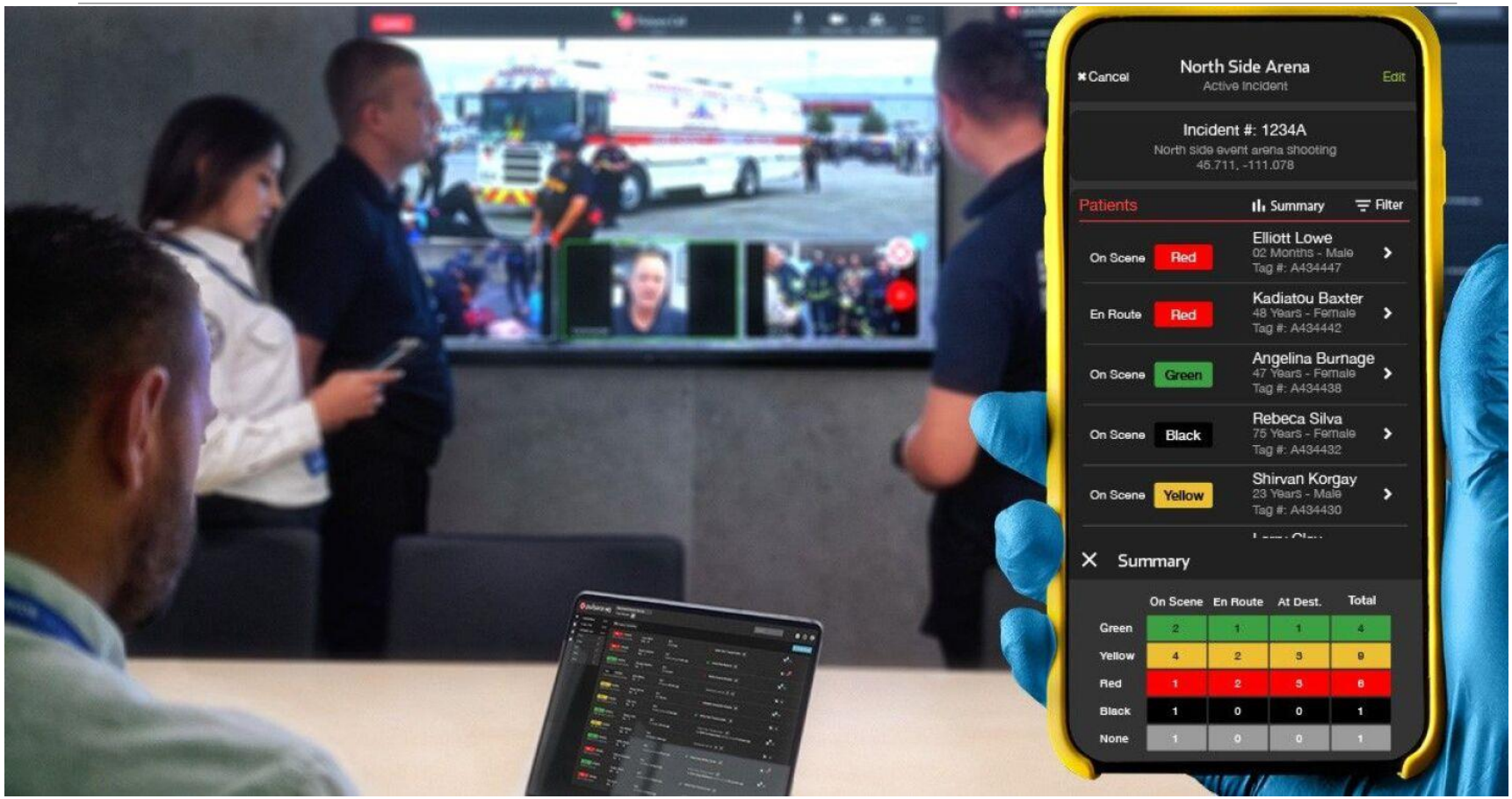
https://www.strac.org/prehospital/

- TEMP bags, 2 bags 8-10lbs ice and cold water
- STRAC hanger has ice freezer with 100bags of ice and 20-55qts coolers on stand-by
- 6bags of ice fit into 1 – 55qts cooler
  4 coolers on EC-135 for rapid deployment to scene
  - 6bags/chest x4 = 24bags, 12patients for TEMP therapy
- 16 coolers w/6 bags loaded in supervisor truck/AMBUS/box truck
  - 96bags on scene = 48 patients + EC-135 (12pts) = 60 total
- Medic units with access to ice machine are encouraged to pre-stage empty 55qt cooler and TEMP bag next to machine
  - Load ice/TEMP bags when departing bringing at least 2 bags of ice to scene per responding unit

The PULSARA Method



Real time PULSARA Counts



Hospital Destinations

Final words

Scene Size up- Get help
Go through Command

Start where you stand and send in triage /treatment and MOVEMENT teams

Addressing life threats as you go;
Bleeding, airways, tension Pneumo,
(cooling or antidotes?)

Use bystanders and able victims as helpers.

Get the " Cluck" to the Trucks

Set up place for yellow/walking wounded and assign resources… they need care too.

Care for the dying:
Fentanyl Morphine and comfort measures

Fatality Management

REHAB AND PEER SUPPORT
(as part of the initial response)

UT Health San Antonio
Emergency Health Sciences

Office of the Medical Director

Questions?

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My Contact Card

STRAC Protocols

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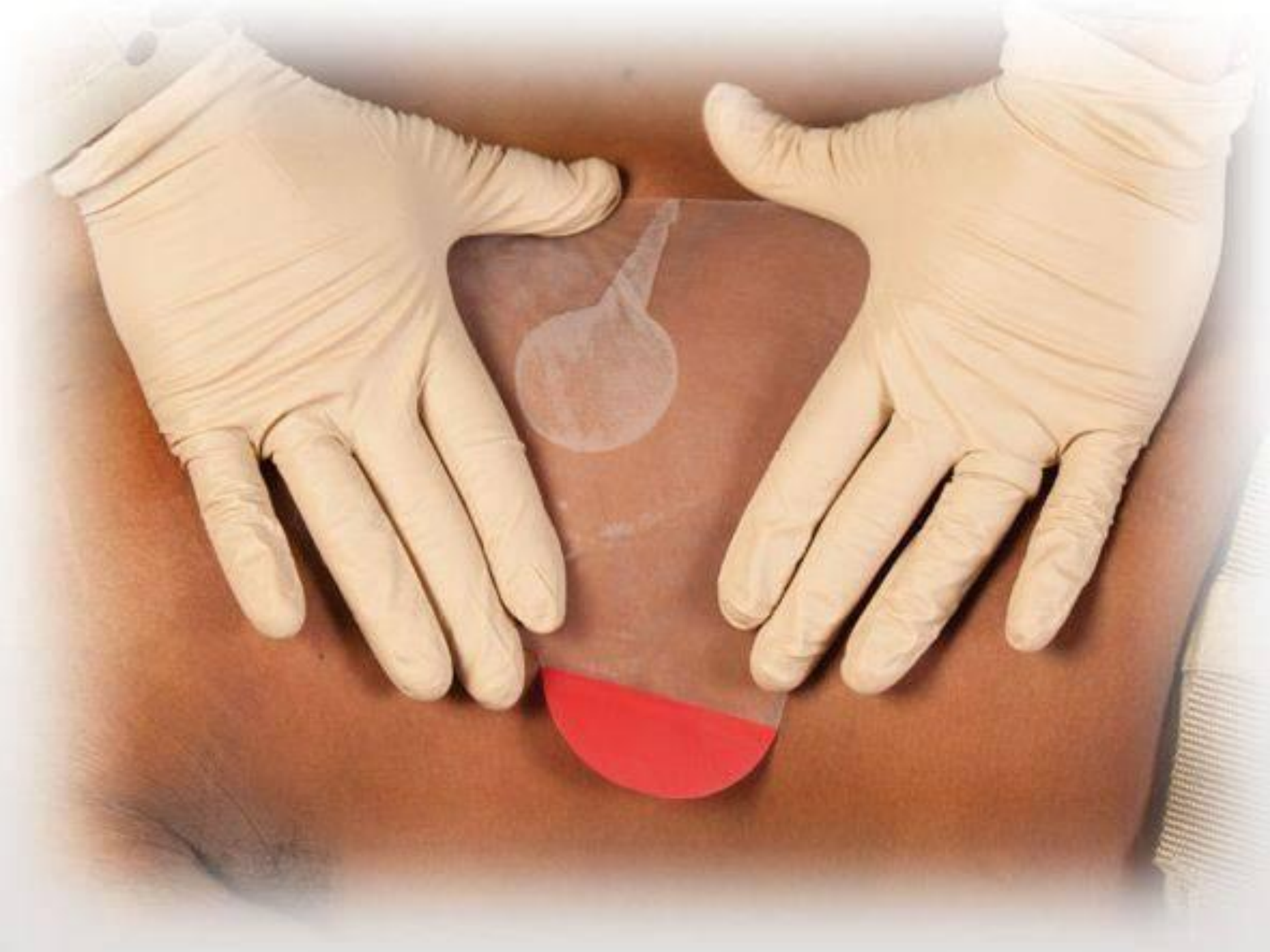
Emergency Health Sciences

Office of the Medical Director

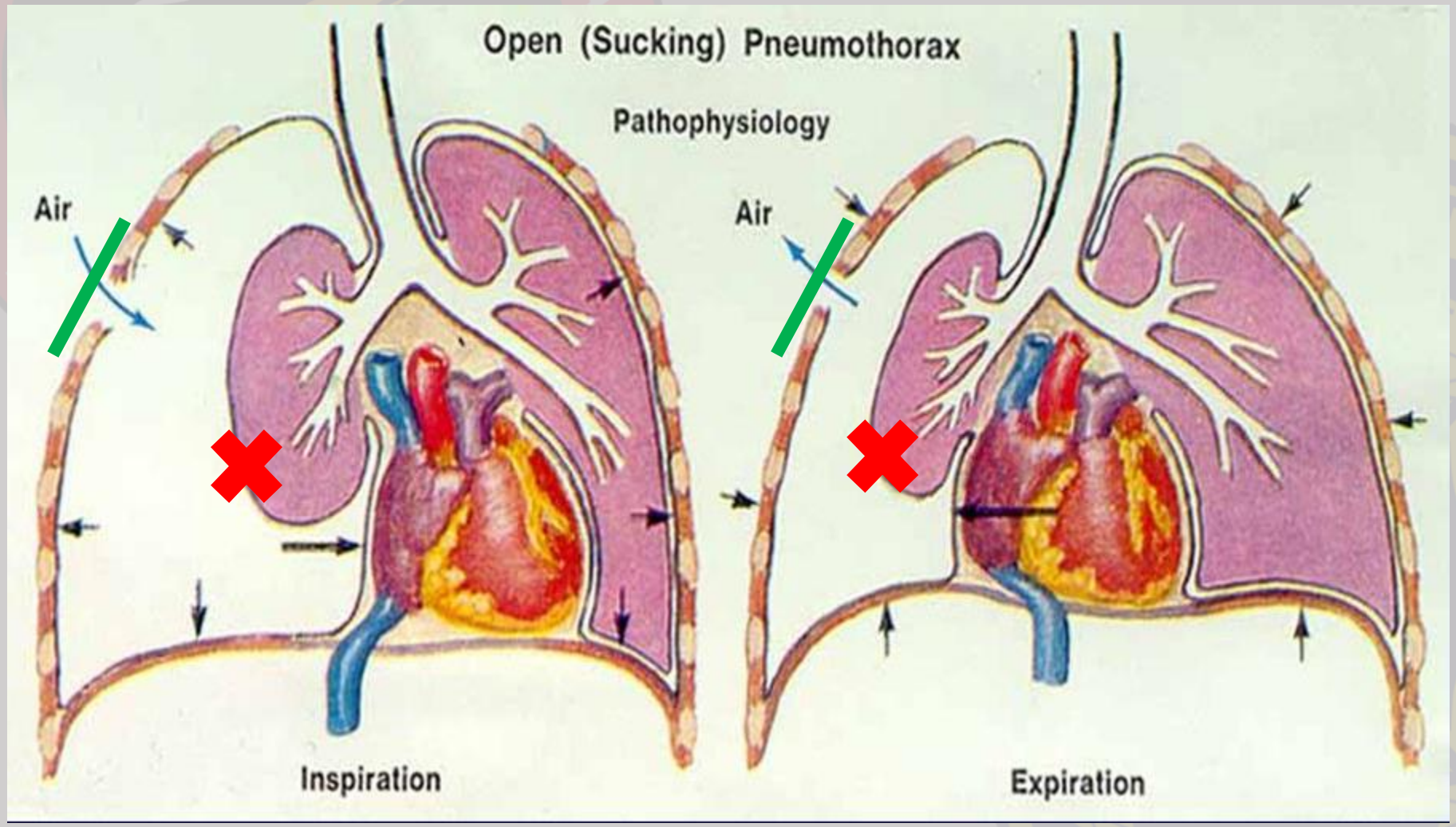
Are We Really Sealing Their Fate?

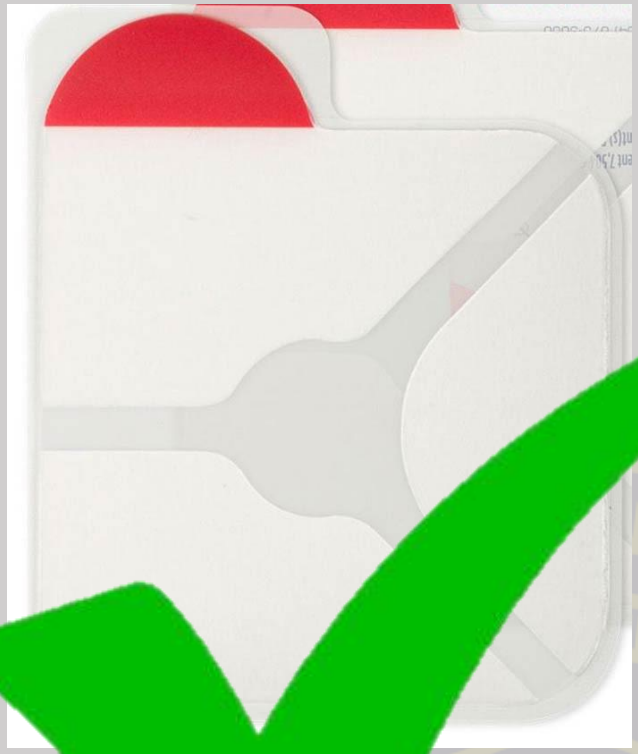
Dustin J Calhoun, MD FAEMS
Medical Director
Cincinnati Fire Department
Associate Professor
University of Cincinnati



A well placed, quality chest seal:

A. Helps prevent development of tension PTX
B. Has value for most penetrating trauma to the torso
C. Can help control significant hemorrhage
D. May improve lung inflation in a spontaneously breathing patient
E. All of the above





So….

- Limited utility in 911 EMS
- ONLY for large penetrations
- NEVER for PPV patient
- MUST be monitored closely

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Associate Professor, Department of Emergency Medicine
University of Maryland School of Medicine
Medical Director, Baltimore City Fire Department
Medical Director, Maryland ExpressCare Critical Care Transport