

Disaster/ Trauma Lectures

By Kathy Dollarhide RN, BSN, CEN, CEM(r)

Day 1- April 27, 2023 - Active Shooter/Violence and Hospital Safety

Day 2- April 28, 2023- Mass Casualty Triage/Tourniquets

DAY TWO

Now that we have learned about Active Shooter and Hospital Safety....

What can we learn today?

- 1.How to do START (Mass Casualty) Triage
- 2.Mass Casualty Incidents
- 3.Stop the Bleed
- 4.How to apply a life saving tourniquet

What are your hazards?

Agricultural
explosions?

Train Derailments?

Airplane or
transportation
crashes?

Tornados?

Hurricanes?

Weather related mass
casualty events?

Do you do a Hazard
Vulnerability analysis
with your local city?

MCI START TRIAGE

Triage is not democratic

Triage is not defined

Triage is not precise

MCI Triage is:

The greatest good for the
greatest number of people



Where do we do START triage? Why should we learn it?

The Emergency Department?



Outdoors?

TRIAGE = Greatest good for the
greatest number of casualties



Disaster Triage

- Disaster triage is a dynamic process to rapidly identify patients with critical injuries out of the total number of presenting casualties.
- Triage improves outcome
- Avoiding deaths is the goal
- Simple triage and rapid treatment categorizes victims based on their ability to walk, their mental status, and the presence or absence of ventilation or capillary perfusion
- There is no perfect system of disaster triage—We will discuss one!

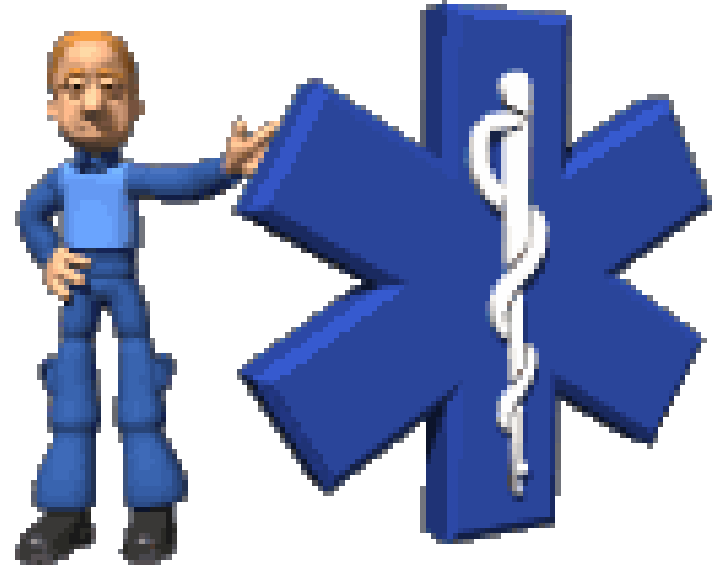
What is a Disaster?

A natural or manmade event that creates imbalance between the supply and demand for existing resources

NEED > RESOURCES

Local Emergency Response

- In a normal event “911” will coordinate:
- Law Enforcement
- Fire/Public Safety
- Paramedics/EMS
- Transport to hospitals



Why worry about disaster triage?



Could your public safety officers be first at the scene?

Are they prepared and ready for this?



Do they drill and train?

Scene Safety in the Hospital



Determine there is a problem
Scene Safety

Do not put yourself at risk

- **Keep everyone out of the area**

Possibility of secondary devices

- **Goal: To injure first responders**

A hero is the hospital worker who gets appropriate help...not one who dies from exposure or structural collapse!



Scene Safety to do START

What hazards exist in the area?

- **Secondary devices- Goal: to injure/kill rescuers**
- **Power lines**
- **Fire**
- **Chemical/Biological/Nuclear/Explosives**
- **Structural damage**
- **Blood and body fluids**
- **Weather conditions**
- **Snipers and civil unrest**

(During Pre-hospital events all of these are considered... but should we worry about these at hospitals?)

Triage Considerations

- Triage - Term in early 1800s (derived from the French *trier*, meaning "to sort")
- Immediate - Casualty requires lifesaving measures performed without delay if they are to survive
- Delayed - Casualty whose treatment can wait *without causing additional harm*



Triage Considerations

- Expectant – Casualties that will not survive or will require extensive resources and time if they are to be saved
- Minor – Casualties that are generally ambulatory and are injured only slightly

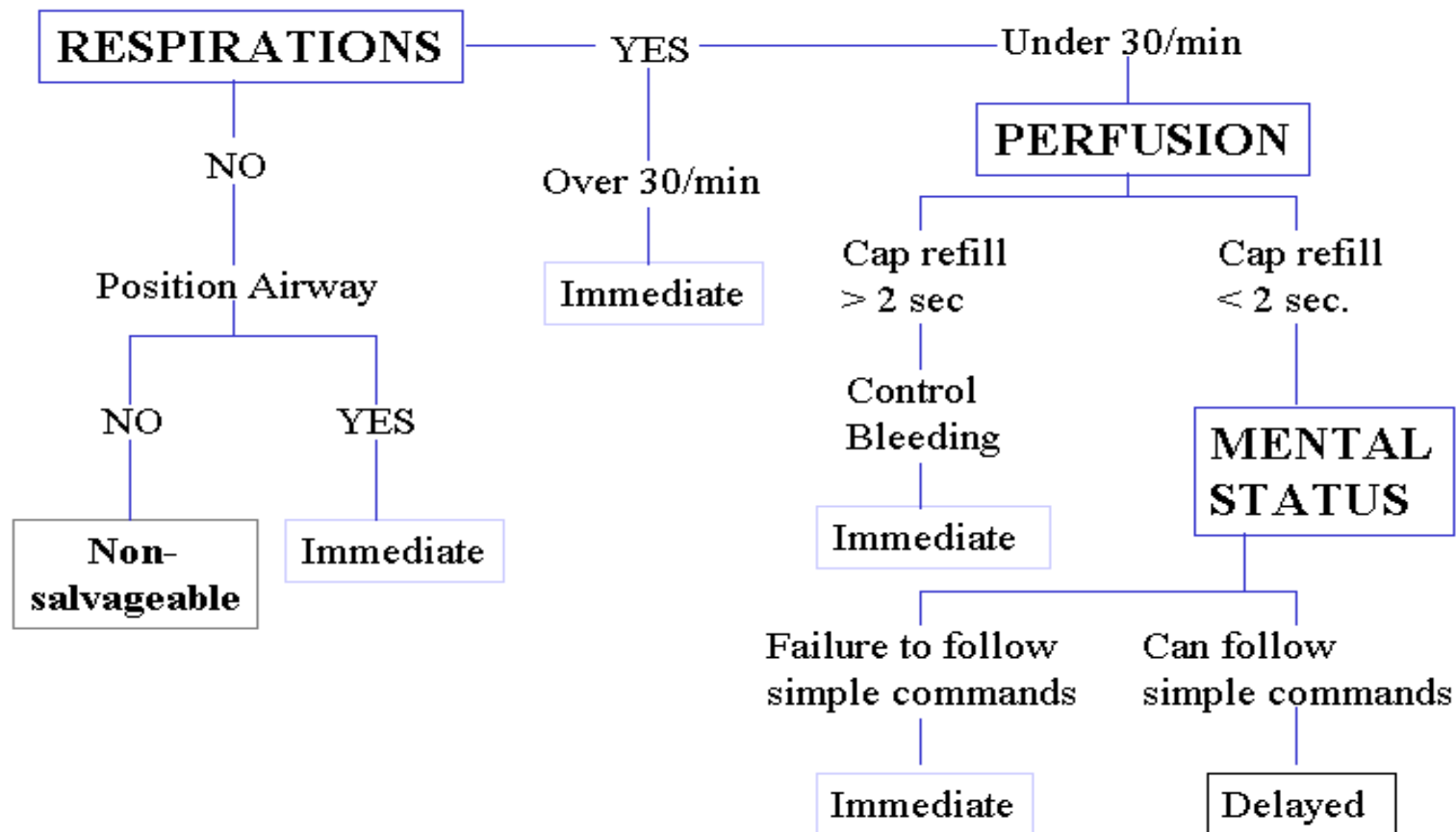


START



- Simple Triage..... then what?
- Rapid treatment
- Rapid transport
- Rapid depletion of resources
- Do you have enough triage tags?
- Sharpie markers that are waterproof
- Belongings bags for patients?
- Tarps, tents and color coordinated areas?

START Triage

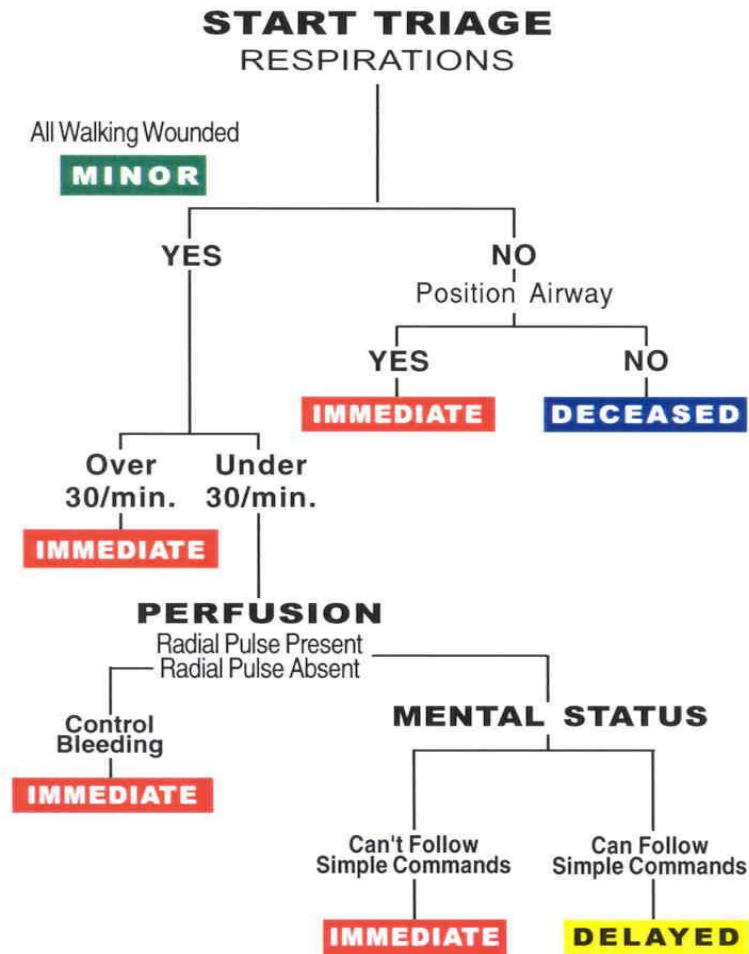


NOTE: START Triage is the property of the Newport Beach Fire Department

Simple Triage and Rapid Treatment/Transport

Simple formula quickly detects potentially life-threatening conditions.

S.T.A.R.T. rapid triage system was created for multi-casualty situations



MCI Triage different from day to day

Color Classification:

Red

Yellow

Green

Black

Expectant vs. Dead

- This designation does *not* mean that nothing can be done.
- Comfort care should be provided when possible, perhaps with the help of volunteers from the minimal group
- Temporary morgue should not be in view of the living if at all possible
- Dead should be treated with respect, covered, and left with personal belongings.
- Bodies should not be moved if possible as they are evidence for law enforcement and FBI

START Triage-30/2/can do

TRIAGE CRITERIA:

Respiratory status

Perfusion and pulse

Neurological

status/Mental Status

TRIAGE CATEGORIES:

Walking wounded - “**Green**” or minimal
(relocate when told)

Normal findings - “**Yellow**” or delayed
(unable to relocate)

Abnormal - “**Red**” or immediate

Non-salvageable - “**Black**” or expectant

Triage Tags in Mass Casualty Incidents

- Health care familiarity is key
- Knowing what the labels mean
- Filling in the tag
- Keeping as evidence
- Decon issues with tags
- Sharpie markers necessity



CONTAMINATED

Personal Property Receipt
Evidence Tag
Destination
Via

TRIAGE TAG

☐ S ☐ L ☐ U ☐ D ☐ G ☐ E

AUTO INJECTOR

First Name Last Name Gross Weight
First Name Last Name Secondary Weight
Solution

Blunt Trauma
Burn
C-Spine
Cardiac
Crushing
Fracture
Laceration
Penetrating Injury

Age
Male Female

Officer:

VITAL SIGNS

Time	B/P	Pulse	Respiration

Time	Drug Solution	Dose

EVIDENCE

MORGUE
Pulseless/Non-Breathing

IMMEDIATE
Life Threatening Injury

DELAYED
Serious, Non Life Threatening

MINOR
Walking Wounded

21

Patient's Name

RESPIRATIONS
R ☐ Yes ☐ No
PERFUSION
P ☐ + 2 Sec. ☐ - 2 Sec.
MENTAL STATUS
M ☐ Can Do ☐ Can't Do

Move the Walking Wounded ➔ **MINOR**

No Respirations After Head Tilt ➔ **MORGUE**

☐ Respirations - Over 30 ➔ **IMMEDIATE**

☐ Perfusion - Capillary Refill Over 2 Seconds ➔ **IMMEDIATE**

☐ Mental Status - Unable to Follow Simple Commands ➔ **IMMEDIATE**

Otherwise ➔ **DELAYED**



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ENDORSED BY

PERSONAL INFORMATION

NAME	
ADDRESS	
CITY	ST ZIP
PHONE	
COMMENTS	RELIGIOUS PREF.

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MORGUE

Pulseless/Non-Breathing

IMMEDIATE
 Life Threatening Injury

IMMEDIATE
 Life Threatening Injury

DELAYED
 Serious Non Life Threatening

DELAYED
 Serious Non Life Threatening

MINOR
 Walking Wounded

MINOR
 Walking Wounded

CONTAMINATED

EVIDENCE

- Have the RPMs documented for Respirations Perfusion and Mentation
- Have the Contaminated and Evidence tear off sections
- Have the ability to track the patient with bar codes
- Are the only patient document till a chart is issued

Dissection of a triage tag:

- Health care familiarity is key.. Bring them out at huddles and staff meetings
- Knowing what the labels mean
- Filling in the tag
- Keeping as evidence
- Decon issues with tags
- Long Beach=Triage Tag Tuesdays

CONTAMINATED

EVIDENCE

**Personal Property Receipt
Evidence Tag**

Destination _____
Via _____

TRIAGE TAG

☐ S ☐ L ☐ U ☐ D ☐ G ☐ E

AUTO INJECTOR 1 2 3 4 5

First Name _____
Last Name _____
Gross Weight _____
Secondary Device _____
Solution _____

Blunt Trauma _____
Burn _____
C-Spine _____
Cardiac _____
Crushing _____
Fracture _____
Laceration _____
Penetrating Injury _____

Age _____
☐ Male ☐ Female

Officer: _____

VITAL SIGNS

Time	B/P	Pulse	Respiration

Time	Drug Solution	Dose

MORGUE
Pulseless/Non-Breathing

IMMEDIATE
Life Threatening Injury

DELAYED
Serious, Non Life Threatening

MINOR
Walking Wounded

Patient's Name

RESPIRATIONS
R ☐ Yes ☐ No
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MORGUE Pulseless/Non-Breathing	
IMMEDIATE Life Threatening Injury	IMMEDIATE Life Threatening Injury
DELAYED Serious Non Life Threatening	DELAYED Serious Non Life Threatening
MINOR Walking Wounded	MINOR Walking Wounded

CONTAMINATED

EVIDENCE

Triage Tags:

1. Space at top of tag for RPM
2. Place on opposite side of the tag for how many Mark-One Kits or Duodotes were given as well as autoinjectors for Valium
3. Rip off the color tags
4. When victim is decontaminated tear off contaminated
5. Then tear off the colors at the bottom after triage is complete

Mass Casualty Triage

Simple Triage and Rapid Treatment/Transport

RPM = Respirations, Perfusion, Mental Status

R = Respirations Over 8 years old < 30 Normal, > 30 Abnormal
Under 8 years old < 45 Normal, > 45 Abnormal

P = Perfusion Capillary refill < 2 seconds Normal, > 2 seconds Abnormal

M = Mental Status Can follow simple commands - Normal
Unconscious or unable to follow simple commands - Abnormal
(Consider age appropriate commands, language, shock and fear, tympanic membrane rupture)

RPM

R=Respirations

P=Perfusion

M=Mentation

Triage—Hospital Arrivals

- Casualty arrival is uncoordinated and staggered-Las Vegas shooting 50% of victims arrived either private transport or Uber/Lyft- Pulse NightClub shooting many of the victims came in Police cars
- Arrival times vary
- Closest hospital is typically overwhelmed
- Medical needs of unaffected community continues (medical emergencies continue)
- In a contaminated event victims may present at distant hospitals to ensure treatment at clean facilities
- 80% of victims will self transport during a disaster
- Walking wounded/worried well may overwhelm an already taxed triage system

What if the patients are contaminated?

- Initial symptoms improve
- Reassess patient
- Recovering well from pre-hospital antidote therapy
- Massive doses in multi-dose form in CHEMPACK



Nerve Agent Antidote

- Atropine

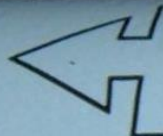
- administered to block receptor sites of acetylcholine

- 2-PAM Chloride

- restores acetylcholinesterase

- Military Grade Meridian Mark I Kits (adults only)





2. PLACE BLACK END ON OUTER THIGH AND
PUSH HARD UNTIL INJECTOR FUNCTIONS

3. HOLD FIRMLY IN PLACE FOR TEN SECONDS

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MERIDIAN MEDICAL TECHNOLOGIES, INC.

000 545



2. PLACE GREEN EN
PUSH HARD UNTI

3. HOLD FIRMLY I



RADIATION
HEALTH

Radiation
Health
Safety

Triage of bombing and blasting patients

- Most survivors suffer secondary and tertiary blast effects
- Triage made more challenging because tympanic membrane and hollow injury ruptures are most common
- Primary blast injury is infrequent in survivors
- 15% of survivors require hospital admission. The remaining are treated and released from the

Once you have triaged where do these patients go now??

- Prepare for ERs to be saturated
- Prepare for diversion criteria to disappear
- Everybody is closed means all ERs are open
- Identify alternative medical treatment areas
- Planning for use of available space:
 - Open areas
 - Isolated areas
 - Temporary morgue





No matter how rapid the arrival of professional emergency responders, bystanders will always be first on the scene. A person who is bleeding can die from blood loss within five minutes, so it's important to quickly stop the blood loss.

Remember to be aware of your surroundings and move yourself and the injured person to safety, if necessary.

Call 911.

Bystanders can take simple steps to keep the injured alive until appropriate medical care is available. Here are three actions that you can take to help save a life:

1. Apply Pressure with Hands

EXPOSE to find where the bleeding is coming from and apply **FIRM, STEADY PRESSURE** to the bleeding site with both hands if possible.



2. Apply Dressing and Press

EXPOSE to find where the bleeding is coming from and apply **FIRM, STEADY PRESSURE** to the bleeding site with bandages or clothing.



3. Apply Tourniquet(s)

If the bleeding doesn't stop, place a tourniquet 2-3 inches closer to the torso from the bleeding. The tourniquet may be applied and secured over clothing.



If the bleeding still doesn't stop, place a second tourniquet closer to the torso from first tourniquet.



The 'Stop the Bleed' campaign was initiated by a federal interagency workgroup convened by the National Security Council Staff, The White House. The purpose of the campaign is to build national resilience by better preparing the public to save lives by raising awareness of basic actions to stop life threatening bleeding following everyday emergencies and man-made and natural disasters. Advances made by military medicine and research in hemorrhage control during the wars in Afghanistan and Iraq have informed the work of this initiative which exemplifies translation of knowledge back to the homeland to the benefit of the general public. The Department of the Defense owns the 'Stop the Bleed' logo and phrase - trademark pending.

1. Apply pressure
2. Press
3. You can teach alternative tourniquets such as Belts, lanyards, kerlex but a tourniquet is the best result



Homeland
Security

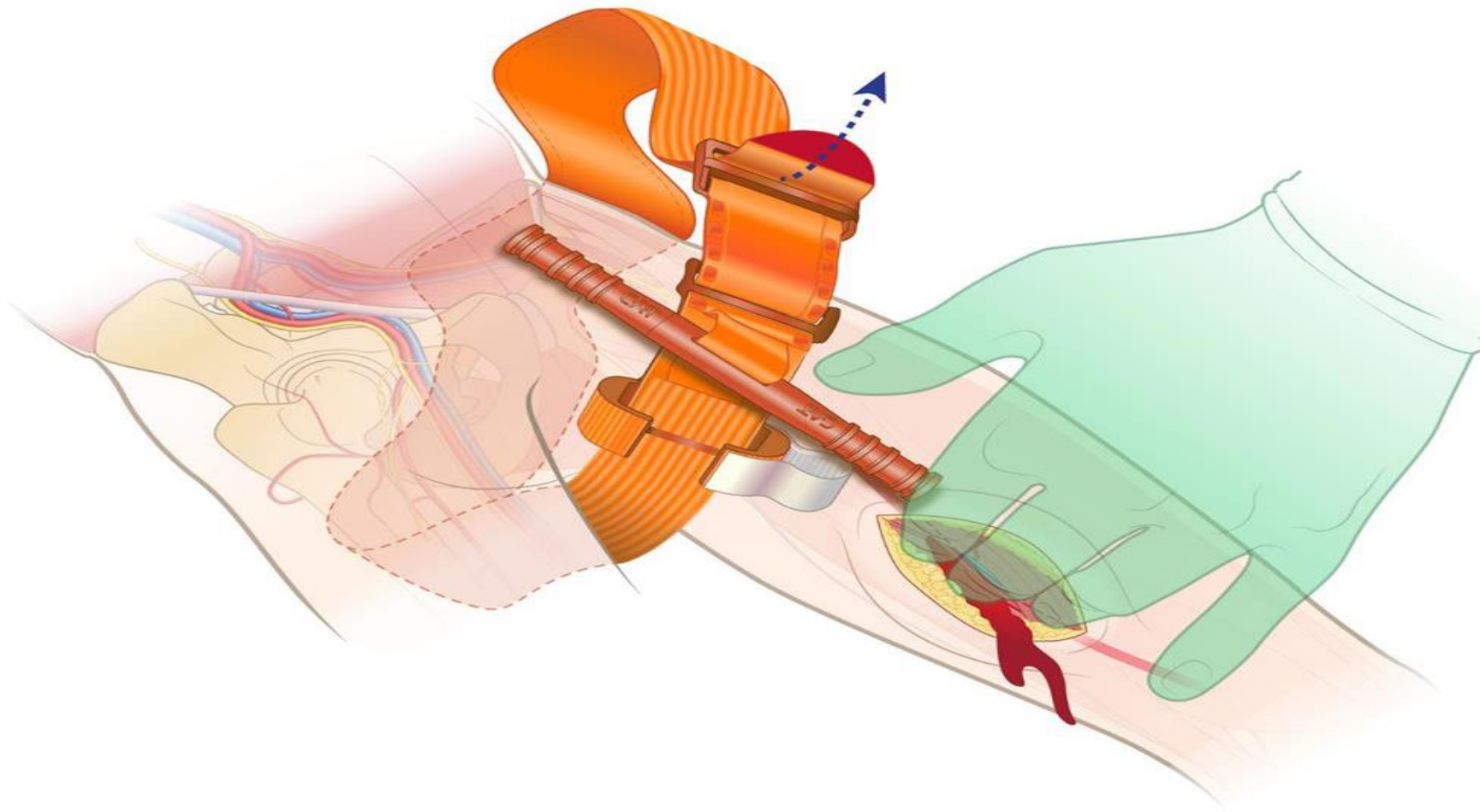
Office of Health Affairs

Any brand tourniquet will do...

If able,
compress vessels
while preparing to apply
C-A-T® Tourniquet.

MAINTAIN PRESSURE
*during tourniquet
application.*





How do you establish a stop the bleed program in your community?

- Trauma centers (work with them)
- Grant funding for public education
- Join in with your city, fire, and police
- Start public health trainnigs
- Put a kit everywhere you have an AED in your community



Military and First Responder trainings



FBI Tourniquet trainings



Training and education for Stop the Bleed

Community Fairs:





Putting together a program:



- Civilian vs. military kits
- Cost restrictions
- Make it user friendly

Questions?

It's been my honor to participate in this amazing conference again

Many thanks to the 41st Annual Gore- Farha Conference Committee and support staff