On Scene Initial Trauma Response for the Family Physician

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Byron Hepburn, MD, FAAFP

Professor, Department of Family and Community Medicine/Assistant Dean for Military Health, University of Texas (UT) Health San Antonio; Associate Vice President and Director of the Military Health Institute, UT Health San Antonio

Dr. Hepburn (Maj Gen, USAF, Ret) is a Distinguished Graduate of the U.S. Air Force Academy and one of only a few Air Force pilot-physicians. During a distinguished military career spanning 38 years, he served as Deputy Surgeon General of the Air Force. In this position, Dr. Hepburn directed operations of the Air Force Medical Service, a $5 billion integrated health care delivery system with 75 military treatment facilities worldwide. In addition, he served as the inaugural director of the San Antonio Military Health System (SAMHS) and completed his military career as Commander of the 59th Medical Wing, the Air Force’s largest medical wing.

After retiring from the military, Dr. Hepburn became the inaugural director of the Military Health Institute (MHI) at UT Health San Antonio. The mission of the MHI is to strengthen collaborative efforts of the university with the U.S. Department of Defense, the Veterans Administration, and local/state/national organizations. The ultimate goal is to improve the health and resiliency of the nation's military members, veterans, and their families through innovative medical research, education, and clinical care. With his worldwide experience as a clinician and leader in humanitarian and military medical operations, Dr. Hepburn believes the medical lessons learned from recent conflicts will help save lives in the response to trauma incidents in the United States.
Dr. Kharod, a retired Air Force Colonel, is board certified in emergency medicine (EM) and emergency medical services (EMS) and has completed subspecialty fellowships in international EM and EMS/disaster medicine. He served in the United States Air Force for more than 26 years, proudly following in his father’s footsteps. He deployed multiple times to Southwest Asia and other locations worldwide, providing Critical Care Air Transport, frontline emergency care, special operations medical support, and leadership of multifunctional combat support teams. Dr. Kharod has served as a special operations flight surgeon and squadron commander. His military experience spans clinical, operational, academic, research, and leadership domains, with a variety of emergency response, field oversight, and executive roles. He has extensive prehospital experience in a variety of settings, including medical oversight of special operations medics, independent duty medical technicians, pararescuemen, and combat medics. Dr. Kharod has delivered invited talks and keynote presentations in numerous national and international venues, and he is a subject matter expert in resiliency advocacy, leadership, and education innovation.

Learning Objectives

1. Understand the importance of ensuring on scene personal/group safety

2. Know the essential initial medical actions for effective handoff to EMS.

3. Be aware of opportunities for further preparedness.
Audience Engagement System

Why be prepared for trauma response?
Mass Shooting – November 5th, 2017

1st Baptist Church, Sutherland Springs, Texas

26 killed, 20 wounded

Timely response saved lives

Sutherland Springs Shooting Victim: Ryland Ward

Shot 5 times by a high velocity weapon

Tourniquets applied left arm and leg

Life saved!
Unfortunate reality…

Since Sandy Hook (December 14, 2012), there have been over 2,051 mass shootings with over 2,322 killed and 8,520 wounded in the US.

Poll Question 1

In the US, the #1 cause of death (ages 1-44 yrs.) is?

A. Infectious disease
B. Cardiovascular disease
C. Cerebrovascular accident
D. Trauma
Leading Causes of Death in U.S.

- **44%** Trauma
- **15%** Suicide
- **10%** Heart Disease
- **10%** Homicide
- **12%** Malignant Neoplasms

Trauma is the leading cause of death for age ranges:

- 1-4 Years of Age
- 5-9 Years of Age
- 10-14 Years of Age
- 15-24 Years of Age
- 25-34 Years of Age
- 35-44 Years of Age


Full Impact of Motor Vehicle Collisions

2,211,439 motor vehicle collisions leading to injury or death in 2016

34,439 fatalities


Retrieved from https://www.cdc.gov/motorvehiclesafety/
Tri-modal Distribution of Trauma Deaths

Minutes matter = Exsanguination is the initial primary concern

“Golden Hour” = 80% of trauma deaths in first hour after injury

Rapid trauma care has greatest level of impact in these patients

Civil-Military Information Exchange

This lecture is an exposure to emphasize key life-saving principles

It is not intended to replace or substitute ATLS, PHTLS, or TECC, etc.

General Principles Apply

Regardless of event type

Active Attacker
Motor Vehicle Collision (MVC)
Mass Casualty (MASCAL)
Response Overview

- On-Scene Safety
- Activating the Public Safety Response System
- Incident Assessment and Patient Triage
- Providing Initial Care: “MARCH”
- Hand-Off to Public Safety Teams

Poll Question 2

Are you at medicolegal risk if you stop to help?

A. No, there is universal Good Samaritan coverage
B. Yes, there is no protection
C. Maybe, depends on state law and specialty
D. Just keep driving
Good Samaritan Laws

Physicians acting as Good Samaritans generally have legal immunity:

1) to claims of ordinary negligence,

2) but **NOT** to gross, willful or wanton negligence.

On-Scene Safety:
Active Attacker Response

**Avoid**
Move away from threat

**Deny**
Prevent threat from getting to you

**Defend**
Be prepared, aggressive, and committed
On-Scene Safety:
Active Attacker Response

• Until attacker neutralized, stay safe
• Scene assessment may be limited if attack is ongoing
• Silence cell phones

On-Scene Safety:
Motor Vehicle Collision (MVC)

• Assess Scene Hazards
• Determine Courses of Action
• Respond Appropriately
On-Scene Safety: Motor Vehicle Collision (MVC)

1) Maintain personal safety
2) Allow efficient traffic flow
3) Park at least 100’ away (not alongside) the accident
4) Leave hazard lights on
5) Set parking brake

In any trauma event:

Active Attacker
Motor Vehicle Collision (MVC)
Mass Casualty (MASCAL)

Once the scene is safe, we begin our initial actions...
Activating Public Safety Response

• Name & Specialty

• Give Location

• Description of Incident

• Brevity is key

Poll Question 3

While driving on a winding rural road you come upon an SUV/Motorcycle collision. You park your vehicle well away from the active roadway, advise 911 and safely begin to assess and sort the injured. Which patient would be categorized as “immediate” and require rapid medical attention?

A) Distraught 25 year old mother crying next to the back door of her SUV—screaming “My Baby, My Baby....” (obviously concerned about the status of her infant safely secured in the rear seat)

B) 30 y/o male SUV driver, wearing seat belt, complaining of slight chest & forearm discomfort following the activation of his airbag

C) 20 y/o male lying supine under his motorcycle - responsive, wearing a helmet, has an open left femur fracture with active pulsatile bleeding

D) 20 y/o female—located 20 feet from the collision site adjacent to a large rock, unresponsive with a massive open skull injury, agonal respirations
Initiate Patient Triage

- Immediate
- Delayed
- Minor
- Expectant/Dead

Triage: Immediate

- Massive hemorrhage
- Compromised airway
- Severe dyspnea
Triage: Delayed

- Stable, but needs medical attention
- Fractures
- Lacerations
- Mild head injury

Triage: Minor

- “Helping Hands from the walking wounded”
- Not all wounds are physical
Triage: Expectant/Dead

- In extremis
- Requiring lot of resources/time
- Can re-triage if situation settles
- “Walking wounded” can help console others

Initiating Treatment: “MARCH”

Massive Hemorrhage
Airway
Respiration
Circulation
Head injury / hypothermia
Massive Hemorrhage

• Direct pressure
• Wound packing
• Tourniquet placement

Extremity bleeding:
Direct pressure or tourniquet

Junctional bleeding:
Direct pressure or wound packing

Internal bleeding:
Early recognition is critical
Pressure Dressing / Wound Packing

- Apply direct pressure
- Pack the wound
- Particularly good for junctional bleeding

MARCH

Poll Question 4

Tourniquets are only used as a last resort in life-threatening extremity hemorrhage.

A. True

B. False
Tourniquets (TQs)
For life-threatening extremity bleeding

Airway: Conscious Patient

- Trauma airways can be dramatic
- Conscious patients are typically able to breathe on their own
- Sit patient up, lean them forward, or lay them on their side
Airway: Unconscious Patient

• Clear the airway

• Perform the appropriate maneuver

• Place patient in rescue position

Respiration

• Assess respiratory status

• Allow optimal position for breathing

• Decompress suspected tension pneumothorax

• Seal open chest wounds

• Mouth-to-mouth not recommended in MASCAL
Circulation

- Check for bleeding
- Check pulses
- Check capillary refill
- Apply pressure or TQ as needed

Hypothermia

- Keep patient warm
- Monitor level of consciousness
Saving Lives: “MARCH”

Massive Hemorrhage
Airway
Respiration
Circulation
Head injury / hypothermia

When help arrives...

Police
Fire
EMS
Professional Handoff to EMS

- Give report to EMS
  - Relevant safety information
  - Number of patients
  - Care rendered

- Render assistance if requested
  - Work within your qualifications
  - Be prepared to assist with transport

Response Review

- On-Scene Safety
- Activating the Public Safety Response System
- Incident Assessment and Patient Triage
- Providing Initial Care: “MARCH”
- Hand-Off to Public Safety Teams
Practice Recommendations

- Know your facility & community response plans
- Be individually & organizationally prepared to act
- Obtain appropriate training and equipment
- Participate in disaster preparedness exercises

Planning Resources

- State-specific planning toolkits (e.g.,
  https://www.dshs.texas.gov/commprep/planning/toolkits.aspx)
- FBI Active Shooter Planning (https://www.fbi.gov/file-repository/active_shooter_planning_and_response_in_a_healthcare_setting.pdf)
- California Hospital Association
  (https://www.calhospitalprepare.org/active-shooter)
Opportunities for Further Preparedness

- Active Attacker Training
- Stop the Bleed Training
- Advanced Trauma Life Support (ATLS)
- Purchase medical and “Stop the Bleed” kits for your motor vehicles

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Questions