# Increasing Survival from Active Shooter and Intentional Mass Casualty Events

Vice President, Academic Affairs
Hartford Hospital
Professor of Surgery
University of Connecticut

# ACTIVE SHOOTER INCIDENTS WITH THE HIGHEST CASUALTY COUNTS: 2000 – 2013

**Cinemark Century 16 Theater in Aurora, Colorado:**

**70 (12 killed, 58 wounded), July 20, 2012.**

**Virginia Polytechnic Institute and State University in Blacksburg, Virginia:**

**49 (32 killed, 17 wounded), April 16, 2007.**

**Blair JP, Schweit KW. A study of Active Shooter Incidents, 2000 – 2013. Texas State University and Federal Bureau of Investigation. U.S. Department of Justice, Washington, D.C. 2014.**

# ACTIVE SHOOTER INCIDENTS WITH THE HIGHEST CASUALTY COUNTS: 2000 – 2013 (Cont'd)

**Ft. Hood Soldier Readiness Processing Center in Ft. Hood, Texas:**

**45 (13 killed, 32 wounded), November 5, 2009.**

**Sandy Hook Elementary School and a residence in Newtown, Connecticut:**

**29 (27 killed, 2 wounded), December 14, 2012.**

**Blair JP, Schweit KW. A study of Active Shooter Incidents, 2000 – 2013. Texas State University and Federal Bureau of Investigation. U.S. Department of Justice, Washington, D.C. 2014.**

# EDUCATIONAL ENVIRONMENTS WERE IDENTIFIED AS THE SECOND LARGEST LOCATION GROUPING (39[24.4%]) OF ACTIVE SHOOTER INCIDENTS: 2003 2013).

**Other incidents, in descending order were located in:**

| | |
|---|---|
| Open spaces | 15 [9.4%] |
| Government properties | 16[10.0%] |
| Other (non-military) government | 11[6.9%] |
| Military properties | 5[3.1%] |
| Residences | 7[4.4%] |
| Houses of worship | 6[3.8%] |
| Health care facilities | 4[2.5%] |

Blair, J. Schweit, K. (2014). A study of Active Shooter Incidents, 2000 – 2013. Texas State University and Federal Bureau of Investigation. U.S. Department of Justice, Washington, D.C. 2014.

# LOCATION OF INCIDENTS OF ACTIVE SHOOTER EVENTS: 2003 - 2013

73(43.6%) Occurred in areas of commerce
44 (27.5%) Areas open to pedestrian traffic
23 (14.3%) Areas closed to pedestrian traffic
6 (3.8%) Malls

EDUCATIONAL ENVIRONMENT

39 (24.4%)

Blari J Pr, Schweit KW. A study of Active Shooter Incidents, 2000 – 2013. Texas State University and Federal Bureau of Investigation.
U.S. Department of Justice, Washington, D.C. 2014.

# ACTIVE SHOOTER INCIDENTS: 2000 - 2013

## DURATION OF ACTIVE SHOOTER INCIDENT

**44 (69.0%) ended in 5 minutes or less.**

**23 ended in 2 minutes or less**

**Civilians had to make life or death decisions and therefore, should be engaged in training and decision making.**

**Blair JP, Schweit KW. A study of Active Shooter Incidents, 2000 – 2013. Texas State University and Federal Bureau of Investigation. U.S. Department of Justice, Washington, D.C. 2014.**

# ACTIVE SHOOTER and INTENTIONAL MASS CASUALTY EVENTS

**Requires variable resources**

- **Immediate responses**
- **Integration of multiple agencies**
- **Multiple jurisdictions**
- **Multiple responsibilities**
- **Integration of prehospital and hospital systems**

# IMPORTANCE OF TIME

## Active Shooter Event

- Usually concluded in 15 min
- Initial response is from the public
- First responder is usually law enforcement
- Next responder is EMS
- Critical action must be implemented immediately

# IMPORTANCE OF TIME

## Duration of Event

| | | |
|---|---|---|
| VA Tech | 8-9 min | 174 rounds |
| Fort Hood | 10 min | 214 rounds |
| Newtown | 5 min | 154 rounds |

## Response Time

Columbine 40 min EMS response

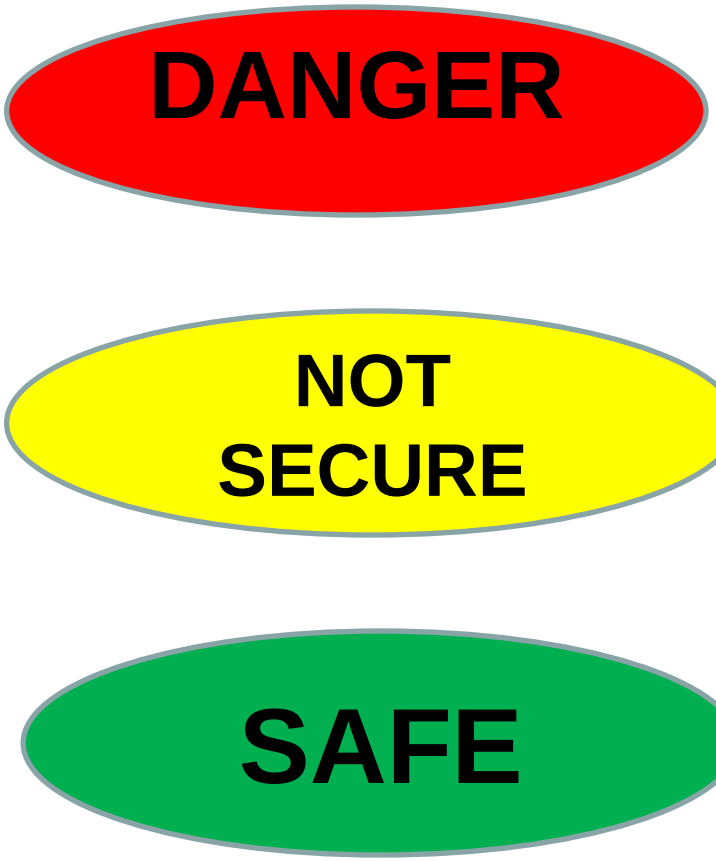
# ZONES OF ACTIVITY

**Hot:** Danger, Active Shooter Threat Suppression

**Warm:** Not Secure, Hemorrhage Control, Treatment and Extrication

**Cold:** Safe, Assess and Triage, Transportation to Hospital

# CIVILIAN


Hot
DANGER
Law Enforcement
SWAT Teams
Warm
NOT
SECURE
Fire
Rescue
Cold
SAFE
EMS

# HISTORICALLY DIFFERENT RESPONSIBILITIES

Law enforcement

EMS

Fire, Rescue

# LAW ENFORCEMENT

- Suppress  the threat
- Minimize further damage to victims or responders
- Secure the scene
- Preserve the crime scene

# THREAT SUPPRESSION

htt

*By Mike Krumboltz | The Upbeat – Tue, Apr 16,*

# MISSION FOCUSED


www.govexec.com, April 19, 2013

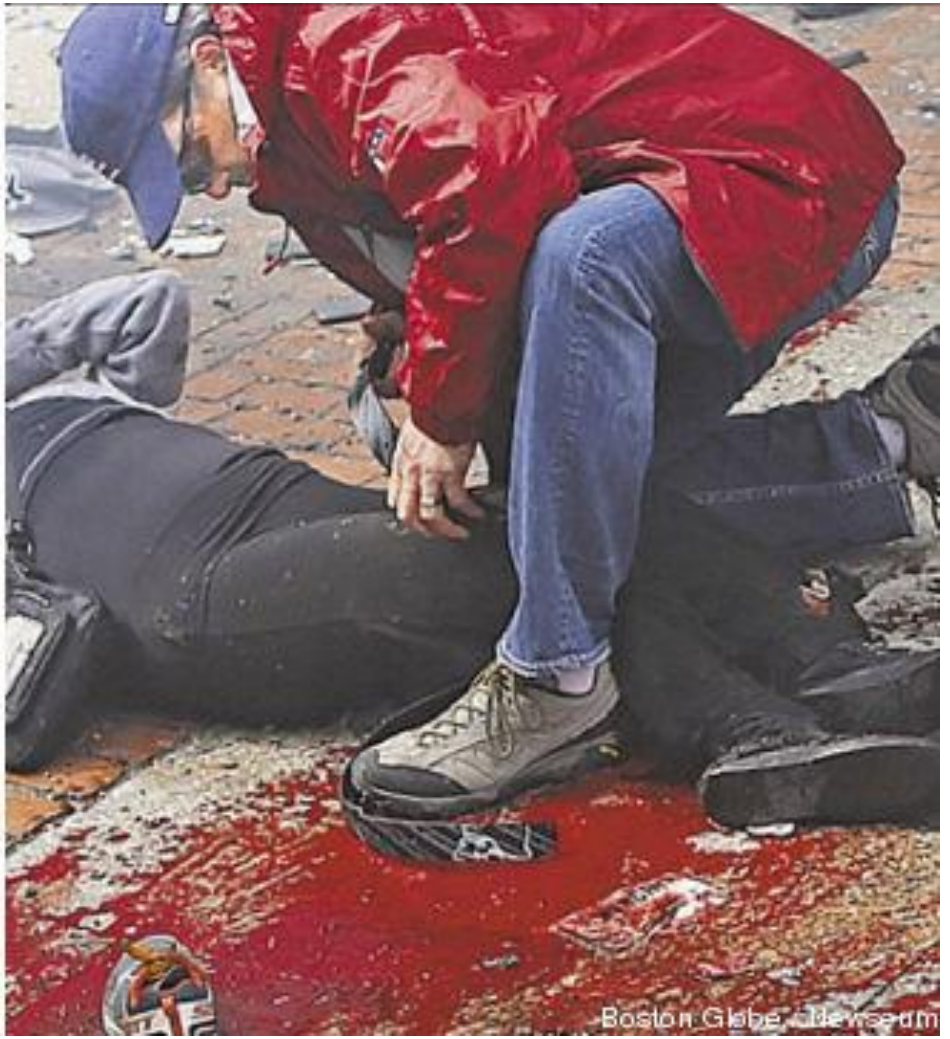
# HEALTH

- First responders
- Identify injured patients
- Assess for life-threatening injuries
- Assess severity
- Triage
- Treatment
- Transportation
- Distribution of patients for optimal treatment

# PUBLIC as FIRST RESPONDER


**Beforeitnews.com**
**Wednesday, May 29, 2013**
**12:43**

# IMPROVISED TOURNIQUET




talkingpointsmemo.com
JOE POMPEO | CAPITAL NEW YORK, 5:27 am Apr. 17, 2013

# PUBLIC HEMORHAGE CONTROL


Scrape TV .com

Mike Michaels, American Correspondent, April 20 2013

# IMPROVISED TOURNIQUET


By Associated Press
khou.com Posted on April 22, 2013 at 12:38 PM
Updated Monday, Apr 22 at 12:48 PM


TOUGH RUCK
RUCK ON

# PSEUDO TOURNIQUET


Jimmy Plourde, the firefighter with whom Mendelsohn worked, on April 15 – Ken McGah/Metro West Daily News/ZUMA

People.com 04/18/2013 at 11:30 AM EDT

# SCENE RESPONSIBILITIES

- Establish control of scene
- Manage resources
- Establish command structure
- Maximize immediate medical response
- Prevent exacerbation of the injuries
- Triage and transport to appropriate hospitals

# TRANSPORTATION


http://hereandnow.wbur.org/2013/04/16/boston-marathon-bombing,
Tuesday, April 16, 2013

# HOSPITAL RESPONSIBILITIES

- Prepare to receive variable number of patients of unknown severity
- Implement disaster Plan
- Multiple response teams from
- ED, Surgery, Radiology, Anesthesia, OR

# ACS CREATES COMMITTEE

ACS Regents, COT, PHTLS

FBI, FEMA, ACEP, Hospitals

Dept of Defense TCC

International Fire Chiefs

Major Cities Police Chiefs

National Security, Exec Office of the President

17th U.S. Surgeon General

**Hartford Consensus I**

Published, ACS Bulletin and J Trauma

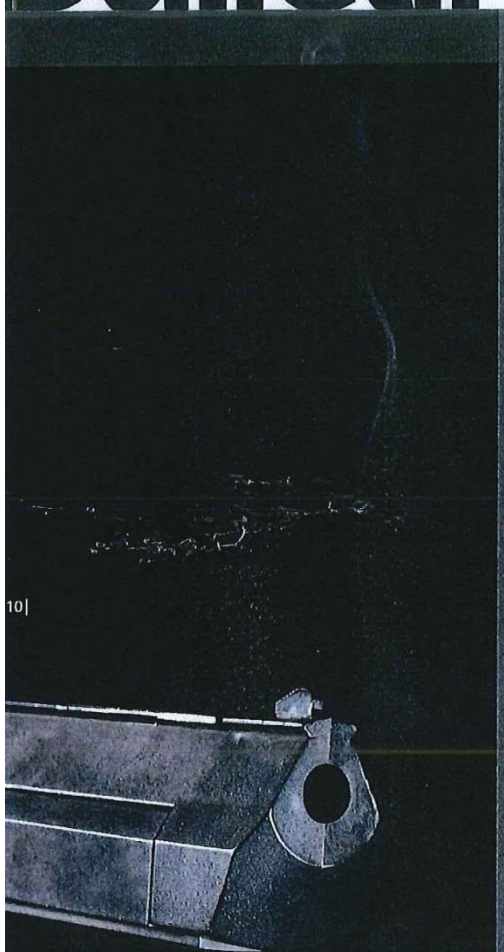
**Hartford Consensus II**

Published, ACS Bulletin

JUNE 2013 | VOLUME 98 NUMBER 6 | AMERICAN COLLEGE OF SURGEONS

# Bulletin

AMERICAN COLLEGE OF SURGEONS
*Inspiring Quality:*
*Highest Standards, Better Outcomes*
100 years

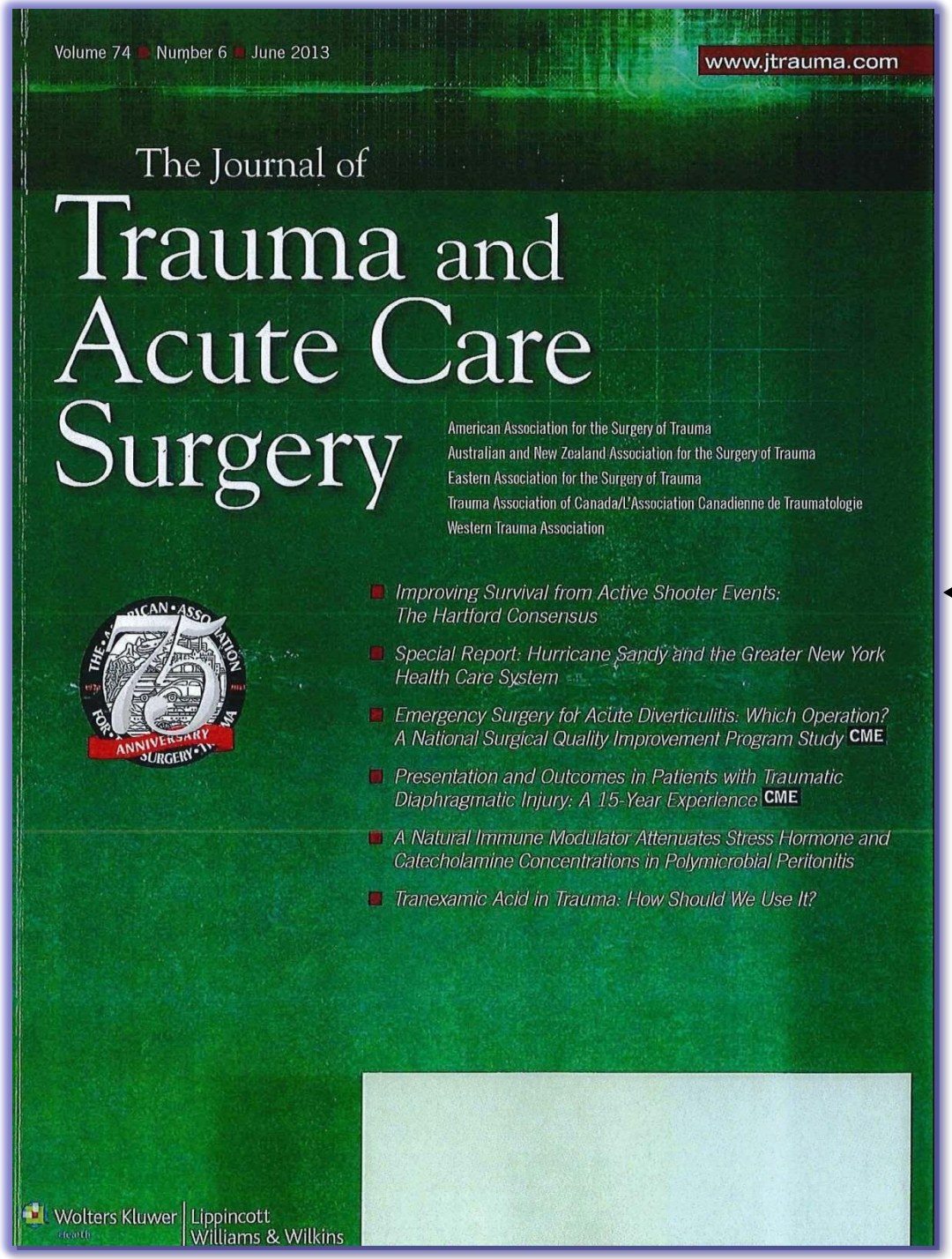




## Initial management of mass-casualty incidents due to firearms:

# Improving survival

by Lenworth M. Jacobs, MD, MPH, FACS;
Karyl J. Burns, RN, PhD;
Norman McSwain, MD, FACS;
and Wayne Carver, MD


Volume 74 Number 6 June 2013
www.jtrauma.com
The Journal of
Trauma and Acute Care Surgery
American Association for the Surgery of Trauma
Australian and New Zealand Association for the Surgery of Trauma
Eastern Association for the Surgery of Trauma
Trauma Association of Canada/L'Association Canadienne de Traumatologie
Western Trauma Association
Improving Survival from Active Shooter Events: The Hartford Consensus
Special Report: Hurricane Sandy and the Greater New York Health Care System
Emergency Surgery for Acute Diverticulitis: Which Operation? A National Surgical Quality Improvement Program Study CME
Presentation and Outcomes in Patients with Traumatic Diaphragmatic Injury: A 15-Year Experience CME
A Natural Immune Modulator Attenuates Stress Hormone and Catecholamine Concentrations in Polymicrobial Peritonitis
Tranexamic Acid in Trauma: How Should We Use It?
Wolters Kluwer Lippincott Williams & Wilkins

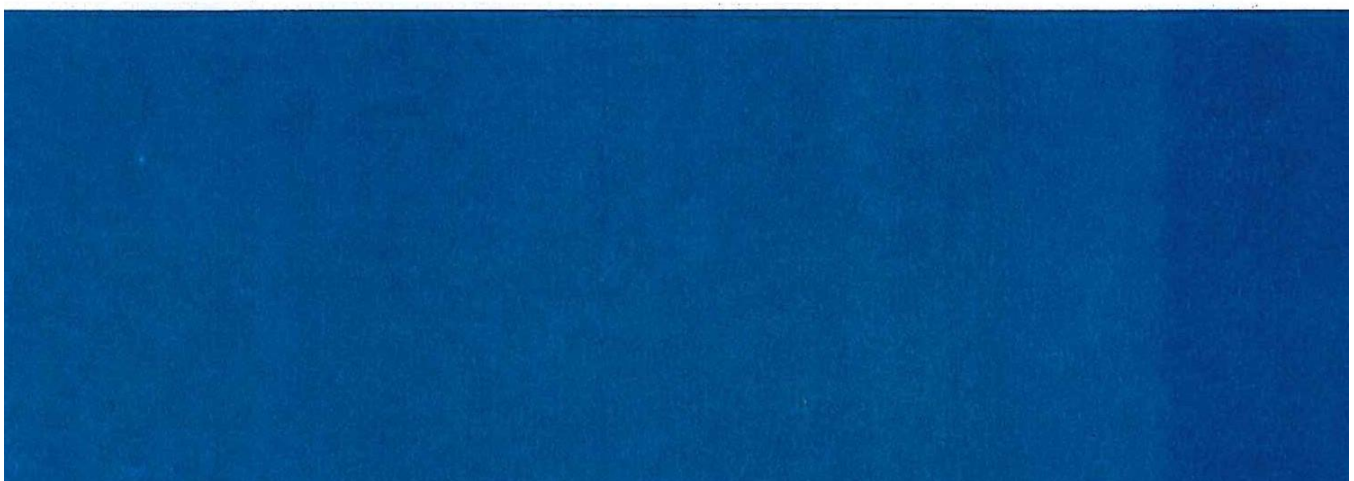
**June 2013**

U.S. Fire Administration

# Fire/Emergency Medical Services Department Operational Considerations and Guide for Active Shooter and Mass Casualty Incidents

September 2013

FEMA



# THREAT

**Hot** — **DANGER** — **T**hreat Suppression

**Warm** — **NOT SECURE** — **H**emorrhage Control
**R**apid **E**xtrication

**Cold** — **SAFE** — **A**ssess Patient
**T**ransport to Hospital

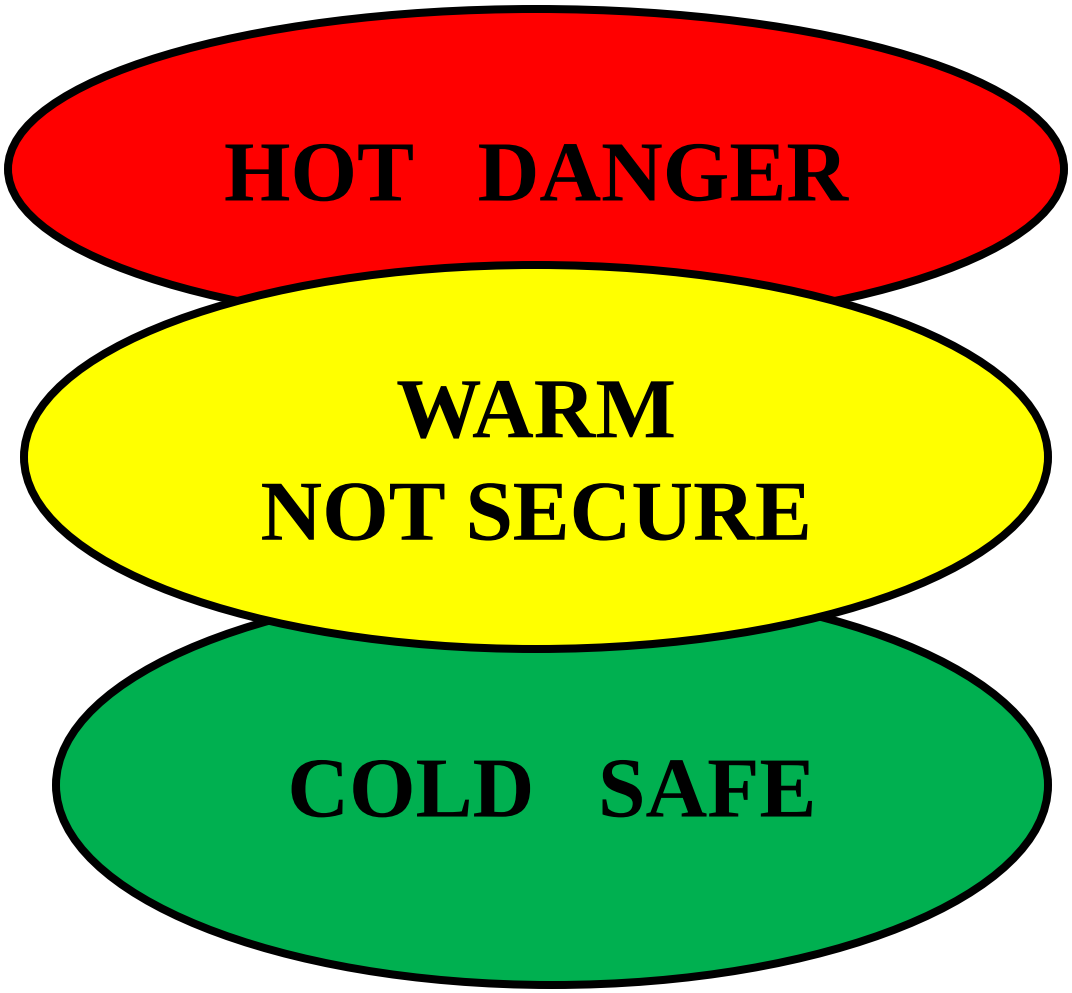
# CIVILIAN RESPONSE

- Multiple missions
- Variable structure
- Variable response
- Delayed implementation
- Siloed response

# MILITARY RESPONSE

- Solitary mission
- Integrated command structure
- Immediate response
- Immediately scalable
- Buddy system

# MILITARY



# PREVENTABLE COMBAT DEATHS FROM NOT USING TOURNIQUETS

Frank Butler, MD, Chairman
Tactical Combat Casualty Care Committee

Maughon – Mil Med. 1970: Vietnam 193 of 2600. 7.4% of Total

Kelly. J Trauma 2008: 77 of 982. 7.8% of Total

Eastridge. J Trauma 2012: 119 of 4596. 2.6% of Total

# THREAT SUPPRESSION and HEMORRHAGE CONTROL

# TOURNIQUET


Windlass
Strap
Self-Adhering
Band
Windlass
Rod
Windlass
Clip

# TOURNIQUET

# ONE HANDED APPLICATION

# ONE HANDED APPLICATION

# ONE HANDED APPLICATION

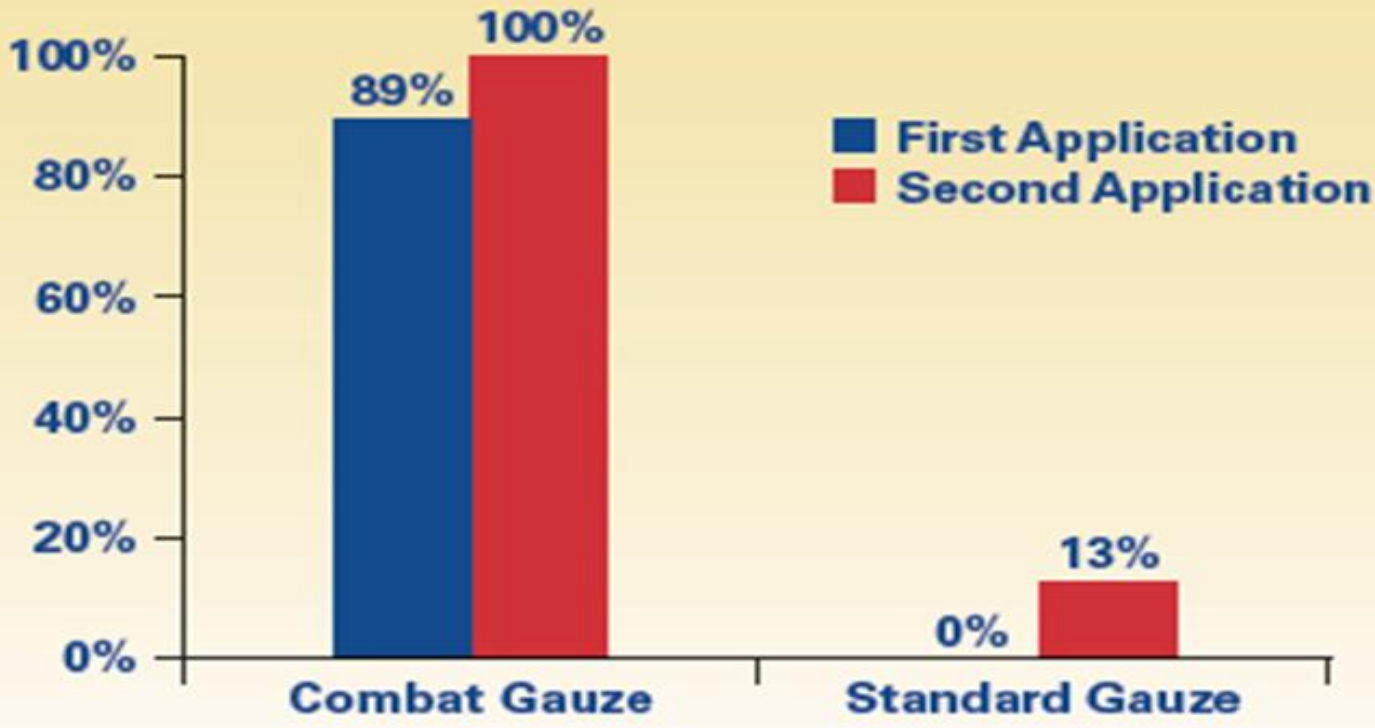
# ONE HANDED APPLICATION

# ONE HANDED APPLICATION

# ONE HANDED APPLICATION

# ONE HANDED APPLICATION

# THE EFFICACY OF COMBAT GAUZE IN EXTREME PHYSIOLOGIC CONDITIONS

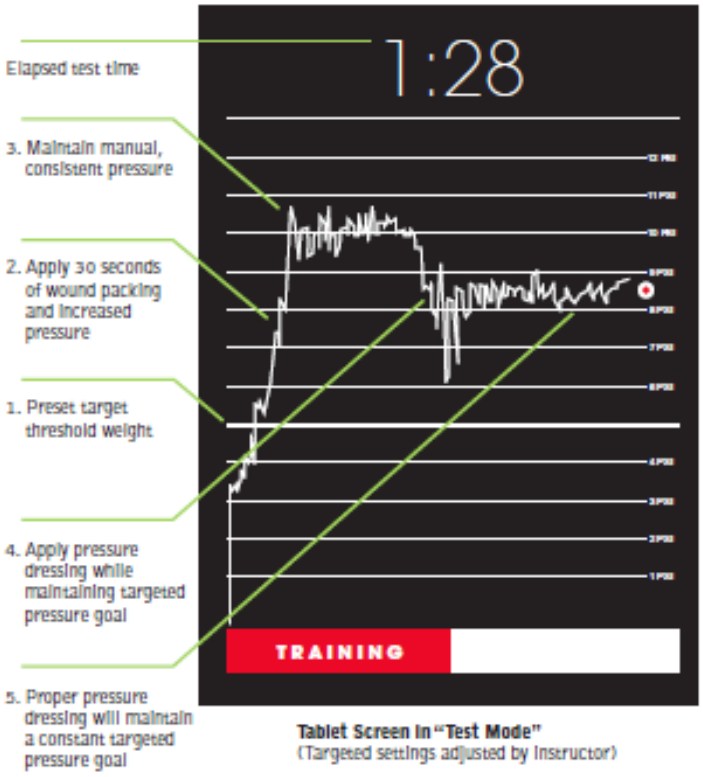



Source: *J of Surgical Research*. 2012 June;177(2):301-305.

Police and 1st Responders practicing the skills

# Training Results

The Wound Packing Trainer, when used in conjunction with the WPT app on your smartphone or tablet, provides real-time, PSI measurement of the force being applied to the source of the bleeding. The results can be saved and used for further training or to certify competency. Students are engaged, curious and motivated to "get it right." Now, you can take the guess work out of your training, and start getting results that work!



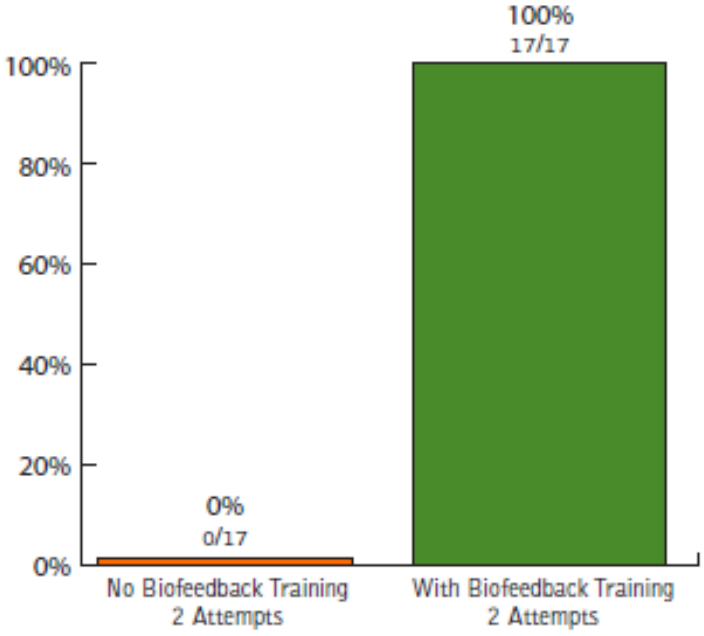

**Tablet Screen in "Test Mode"**
(Targeted settings adjusted by Instructor)

# Biofeedback Value

1. **Positive reinforcement shapes behavior**
2. **Competency assessment validates training**
3. **Learn by doing**
4. **Learn for your workplace environment**

### BIOFEEDBACK TRAINING GETS RESULTS!

To effectively stop and control bleeding, a trainee must continually build digital compression force during wound packing—**the WPT builds the confidence and muscle memory to apply correct technique in the field.**



# RESPONSE MUST BE

**Immediate**

**Appropriate**

**Scalable**

**Organized**

# BALANCE OF LAW ENFORCEMENT AND EMS RESPONSE

- Safety of the scene
- Avoid additional shootings
- Avoid excessive hemorrhage
- Immediate medical response
- Access and triage
- Balance proximity vs safety
- Share traditional roles

# President's Directive

**To build national resilience by preparing the general public to save lives by raising awareness of techniques that can save lives by taking such basic actions as stopping life-threatening bleeding.**

# President's Directive

**Our national preparedness is the shared responsibility of all levels of government, the private and nonprofit sectors, and individual citizens. As we have seen in such recent tragic incidents as the Boston Marathon bombings, anyone can contribute to safeguarding the Nation from harm.**

# CALL TO ACTION BY THE HARTFORD CONCENSUS
# NO ONE SHOULD DIE FROM UNCONTROLLED BLEEDING

**Public:**

**Design educational programs and implement training for the public to respond**

**Preposition equipment**

**"Run – Hide – Fight"**

# National Security Council preparing the nation for increased resilience in Mass Casualty Events

## Physicians‘ Roundtable

## Bystander Roundtable

## Corporate Roundtable

## National implementation

## September 2015

# Joint Committee To Create A National Policy To Enhance Survivability From Intentional Mass Casualty And Active Shooter Events

# Hartford Consensus III

# Implementation of Bleeding Control

# Levels Of Responders in a Mass Casualty Event

- Immediate Responders
  the Public
- Professionals First Responders
  EMS/Fire/Police
- Trauma Professionals
  Hospital based

# HARTFORD CONSENSUS III
# JUNE 2015


**Standing left to right:** Peter Rhee, MD University of Arizona, Ernest Mitchell Jr., Administrator, U.S. Fire Administration,FEMA, Alexander Eastman, MD, UTSW/Parkland Memorial Hospital, Alasdair Conn, MD, Massachusetts General Hospital, Kevin O'Connor, DO, The White House , Ronald Stewart, MD, Chairman, American College of Surgeons Committee on Trauma, Frank Butler, MD, Committee on Tactical Combat Casualty Care, Karyl Burns, PhD, Research Scientist, Hartford Hospital, Leonard Weinstei, MD, Vice Chairman American College of Surgeons Committee on Trauma, Richard Hunt, MD, National Security Council The White House, John Holcomb, MD, University of Texas Health Science Center, William Fabbri, MD, Federal Bureau of Investigation, Robert Anderson, CDR, MSC,USN , Military Assistant to the Assistant Secretary of Defense for Health Affairs
**Sitting left to right:** Norman McSwain, MD, Director of Prehospital Trauma Life Support, Andrew L. Warshaw, MD, President American College of Surgeons, Lenworth M. Jacobs, MD, Chairman Hartford Consensus, Hartford Hospital, Jonathon Woodson, MD, Assistant Secretary of Defense for Health Affairs Department of Defense, Kathryn Brinsfield, MD, Assistant Secretary, Health Affairs, Department of Homeland Security, Matthew Levy, DO, Center for Law Enforcement Medicine, Doug Elliott, President, The Hartford , Chair, Board of Directors, Hartford Hospital

# Contents of the Bleeding Control Bags Should Include:

- Pressure Bandages
- Safe and Effective Hemostatic Dressings
- Effective Tourniquets
- Personal Protective Gloves

# Placement of Bleeding Control Bags should be:

- Next to AEDs
- Immediately Recognizable
- Secure But Accessible
- Able To Be Used in 3 Minutes


Hartford
Hospital
BLEEDING CONTROL BAG
EMERGENCY DEFIBRILLATOR
ZOLL
AED PLUS

# Citizen First Responder



BANDAGE WRAP 2 EA
SHEARS
GLOVES 2 PAIR
TOURNIQUET 3 EA
TOURNIQUET 3 EA
COMBAT GAUZE LE DRESSINGS 10 EA
EMERGENCY DEFIBRILLATOR
ZOLL
AED PLUS
WARNING
ALARMED SYSTEM


AED
AUTOMATED EXTERNAL DEFIBRILLATOR
AED
AUTOMATED EXTERNAL DEFIBRILLATOR
BLEEDING CONTROL BAG
BLEEDING CONTROL BAG
Good WORKS for Hartford Hospital
BLEEDING CONTROL BAG
Gloves 5 Pairs
WARNING
ALARMED SYSTEM
EMERGENCY DEFIBRILLATOR
ZOLL
AED PLUS
1st floor, Lobby
Warning
Alarm System
EMERGENCY USE ONLY

# EMS/FIRE/RESCUE

- Response must be fully integrated
- Traditional role limitations revised
- Not acceptable to stage and wait
- Utilize tourniquets and hemostatic dressings
- Triage and transport
- Transport patient with internal hemorrhage to definitive hospitals

# THREAT

**Hot** — **DANGER** — **T**hreat Suppression

**Warm** — **NOT SECURE** — **H**emorrhage Control

**R**apid **E**xtrication

**Cold** — **SAFE** — **A**ssess Patient

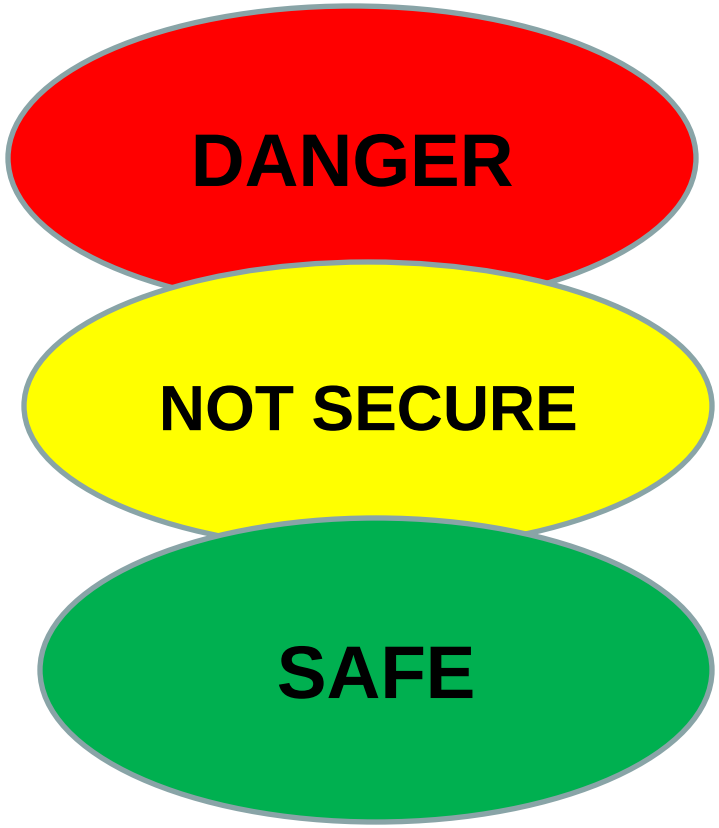
**T**ransport to Hospital

# THREAT

**Hot**

**Warm**

**Cold**




**T**hreat Suppression

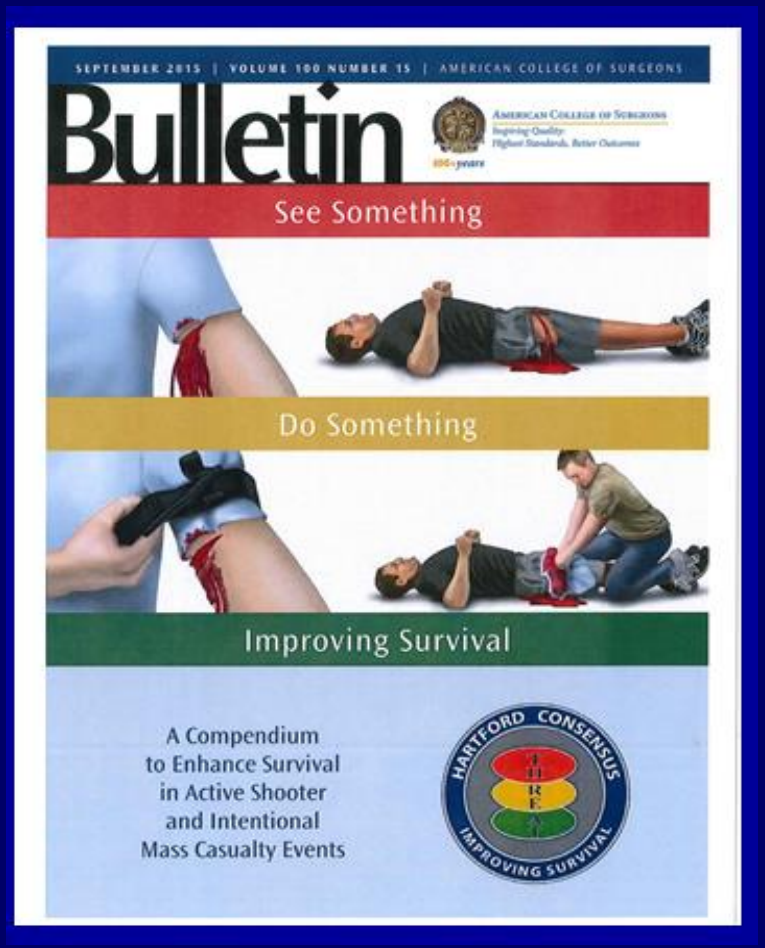
**H**emorrhage Control

**R**apid **E**xtrication

**A**ssess Patient

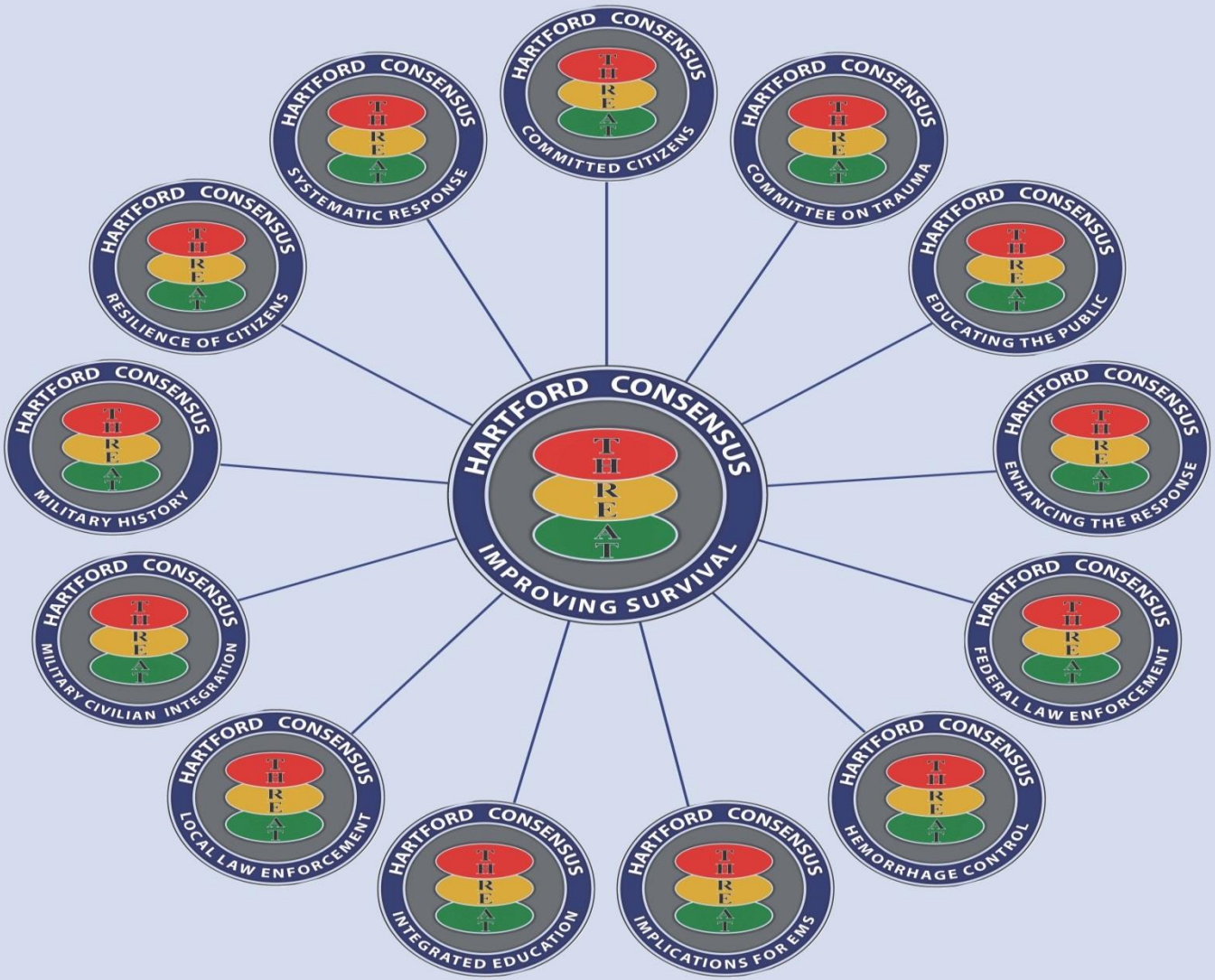
**T**ransport to Hospital

# AMERICAN COLLEGE OF SURGEONS




## COMPENDIUM

**Strategies to Enhance Survival in Active Shooter and Intentional Mass Casualty Events**




# Components of the Hartford Consensus

# CONCLUSION

- Engage public, law enforcement
  EMS/Fire/Rescue
  Hospital community
- Modify initial responses
- Broad educational strategy
- Comprehensive Evaluation
- Implement THREAT