# 3E ECHO HOSTILE EVENT RESPONSE

Metro Region
EMS System

# 3E HOSTILE EVENT RESPONSE

3 ECHO

FEMA Course Number
MN-005-RESP
MN POST Board Course Number: 9803-0005
Course Information and Design

# How did we get here!

- Committee Development
  - EMS
  - Fire
  - Police
  - CST 55th
  - MMRS
  - External Consultants (Local, London, Israel)
- Urban and rural settings
- Exercise and real world focus

# 3E Tested

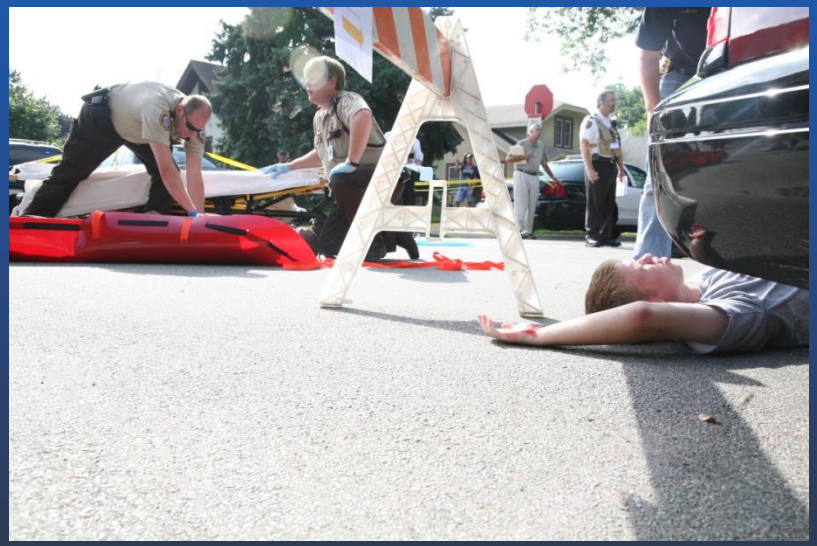
Minneapolis Fire personnel evacuating an injured student while being escorted by Minneapolis SWAT officer.

- First tests in Minnesota
- Minneapolis Full Scale Exercise: Operation Backpack
- St. Louis Park Full Scale Exercise: Operation Mayday


Buses being “prepared” for Operation Mayday

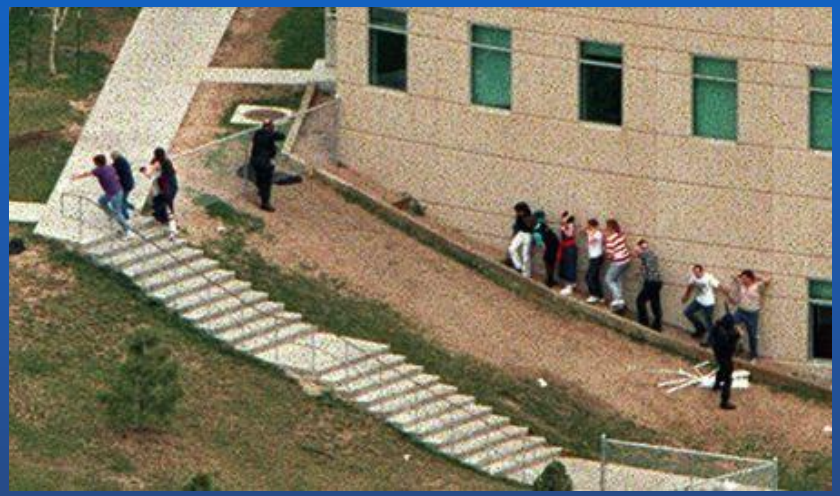
# Lessons Learned

- Unified Command
- Rapid Decision Making
- Security for medical response
- Triage
- Common Operating Picture



Injured, evacuated students at transport point, with Hennepin County Paramedics preparing to transport a patient during Operation Back Pack.

# Columbine 20 April 1999





# Per the NYPD

. . . an exhaustive study of 282 active shooter incidents from around the world, although the vast majority were here in the U.S. , uncovered some interesting statistics:

- 96% of suspects were male
- 98% of suspects acted alone
- 36% had more than one weapon on them
- 40% of the incidents ended in suicide while 46% ended with applied force (by LE, security, or bystanders/victims)
- The two biggest age groups for the suspects were 15-19YO and 40-44YO.

*Single patrol officer response, in most cases, appears to be the most effective way to stop a mass murder attack. Law Enforcement chances of winning the conflict are very good.*

# Intro to 3Echo

# Key Issues

- Time
- Early Unified Command
- Equipment

Injured student being moved at Virginia Tech

# Strategic Goals

- *Situational Awareness*
- *Unified Command*
- *Common Operating Picture*
- *Corridors*
- *Minimal Field Treatment*
- *Rapid Loading and Transport*

# Why change our approach?

- **SAVE MORE LIVES**
  - Rapid access to victims
  - Detect secondary threats
  - Early, temporizing treatment
  - Rapid extrication/evacuation to triage/transport points via secured corridors

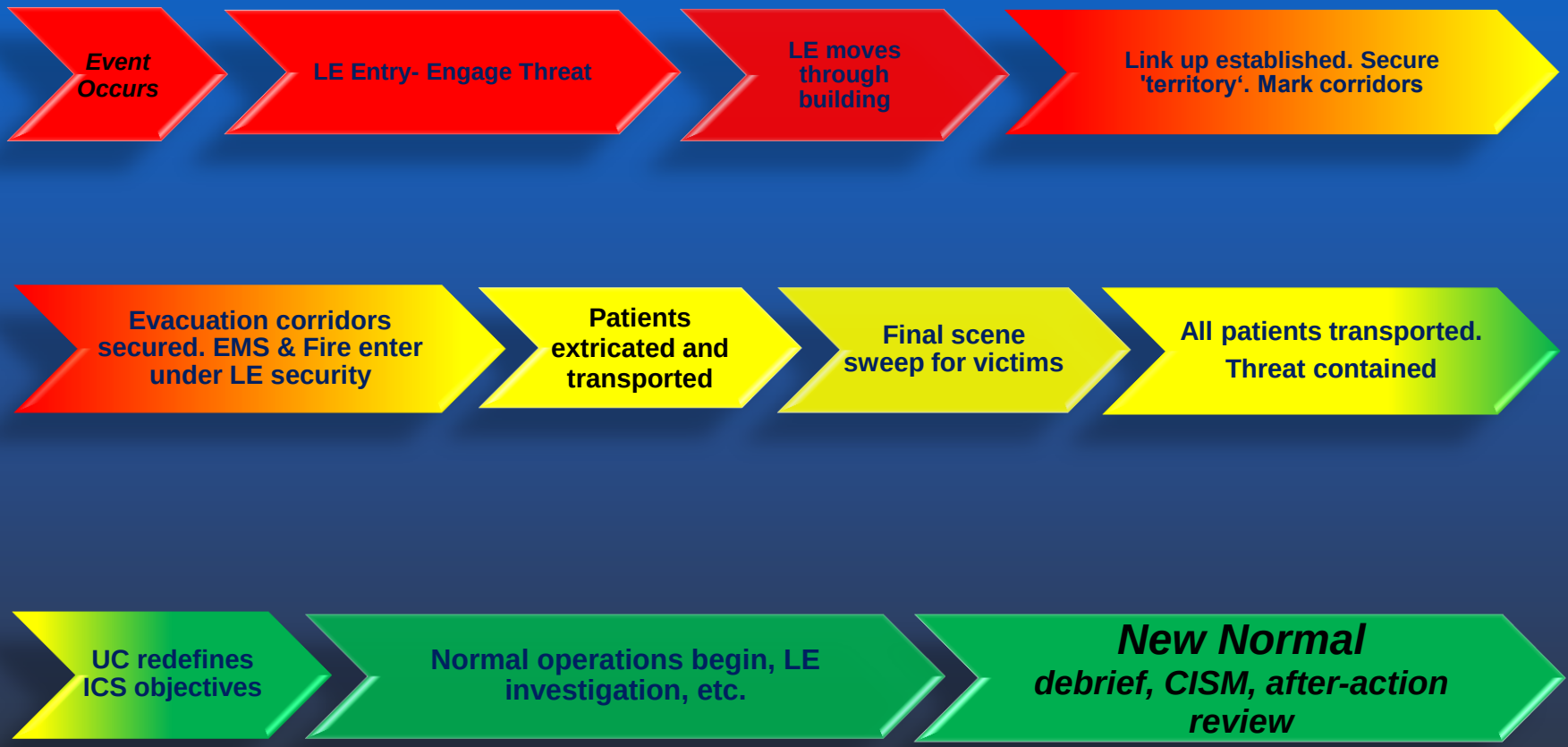
***Change our mindset***

# Additional Learning

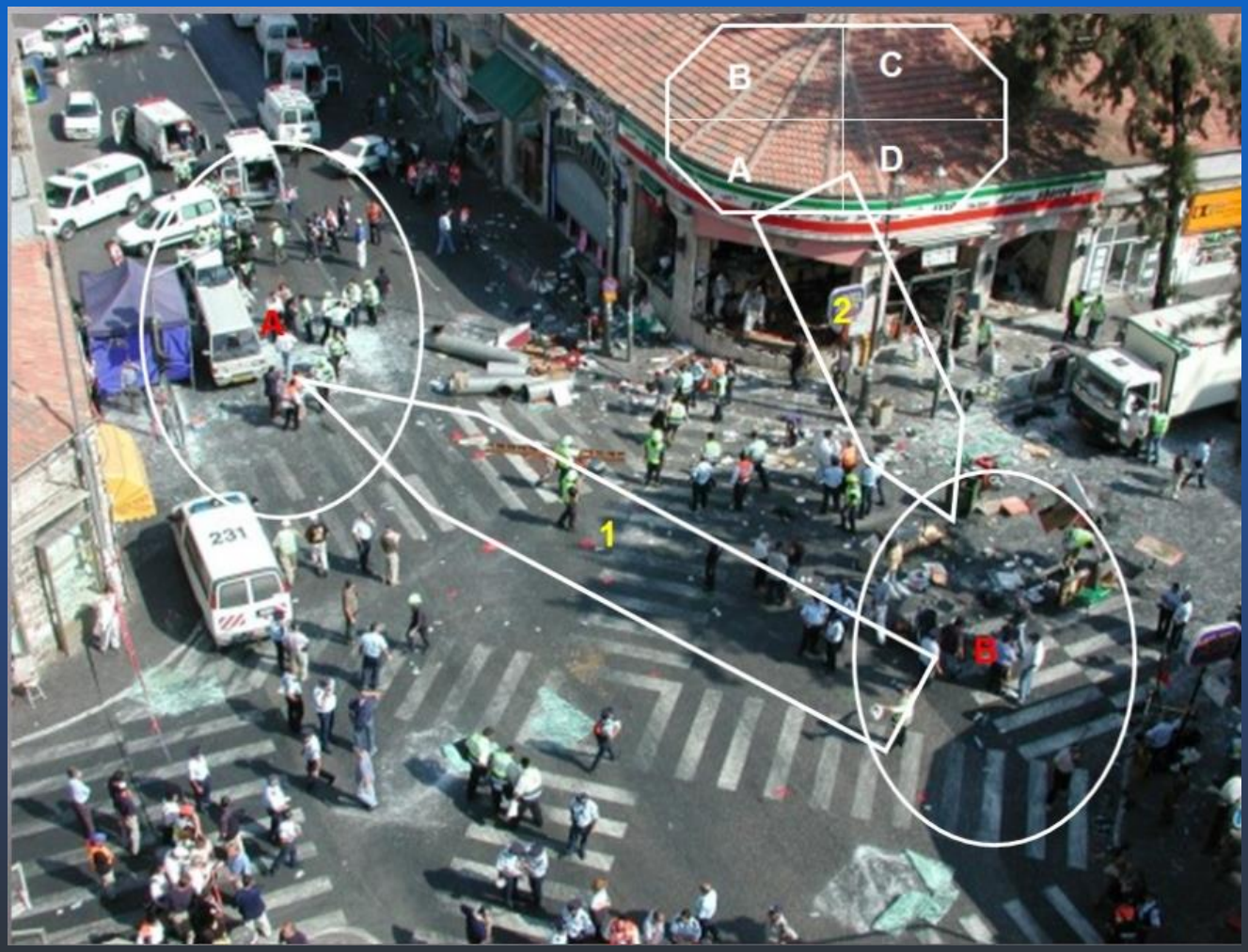
- "LINK-UP" (Unifying Command)
  - Too much work to do, cannot to it all
  - PD/FD/EMS, play to strengths
  - AND stay with the strengths
- "TIPPING POINT" RESOURCES, you cannot do this alone!

*Buses in position for Operation Mayday*

# 3E Phases


Event Occurs
LE Entry- Engage Threat
LE moves through building
Link up established. Secure 'territory'. Mark corridors
Evacuation corridors secured. EMS & Fire enter under LE security
Patients extricated and transported
Final scene sweep for victims
All patients transported. Threat contained
UC redefines ICS objectives
Normal operations begin, LE investigation, etc.
New Normal
debrief, CISM, after-action review

# Enter



# Evaluate

- Body sweep
- Do NOT touch dead bodies
- Careful search for devices / firearms
- Identify and control hemorrhage
- Identify penetrating injuries

Tourniquet application during body sweep during 3 Echo training.

# Evacuate

- Identify corridor
- Send ambulatory along corridor
- Triage non-ambulatory for evacuation

Triage and evacuation during Operation May Day Exercise

# Accent Signage Shooting, Minneapolis Sept 27, 2012

# MINNEAPOLIS POLICE DEPARTMENT AFTER ACTION REPORT November 21, 2012

- First EMS crew on scene **6 minutes, 11seconds** from when they arrived in CAD, met with fire, got to the loading dock, coordinated with MPD, checked three patients, evacuated their patient, and left the scene en route to HCMC.

- Second ambulance crew was on scene for **11 minutes, 43 seconds** from arrival to transport of their victim,.

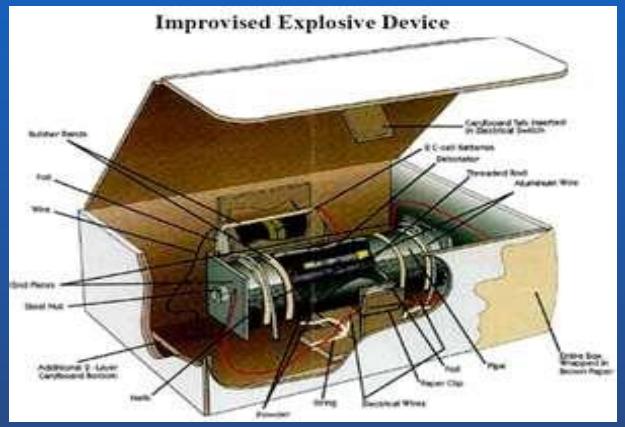
- Third ambulance crew was on scene a total of **9 minutes**.

# Understanding the IED in a hostile event

# Critical Topics

- Improvised Explosive Devices (IEDs)
- Explosion Scenes
- Bomb Squad Response

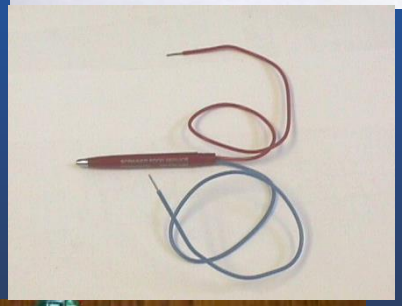
# Improvised Explosive Devices

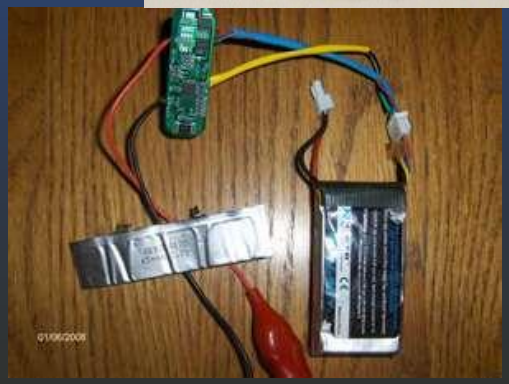


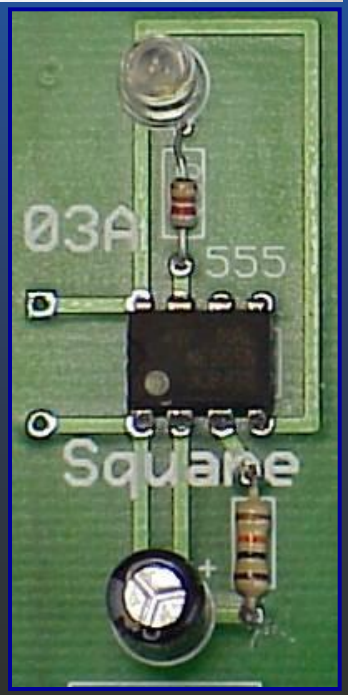



# IED Components

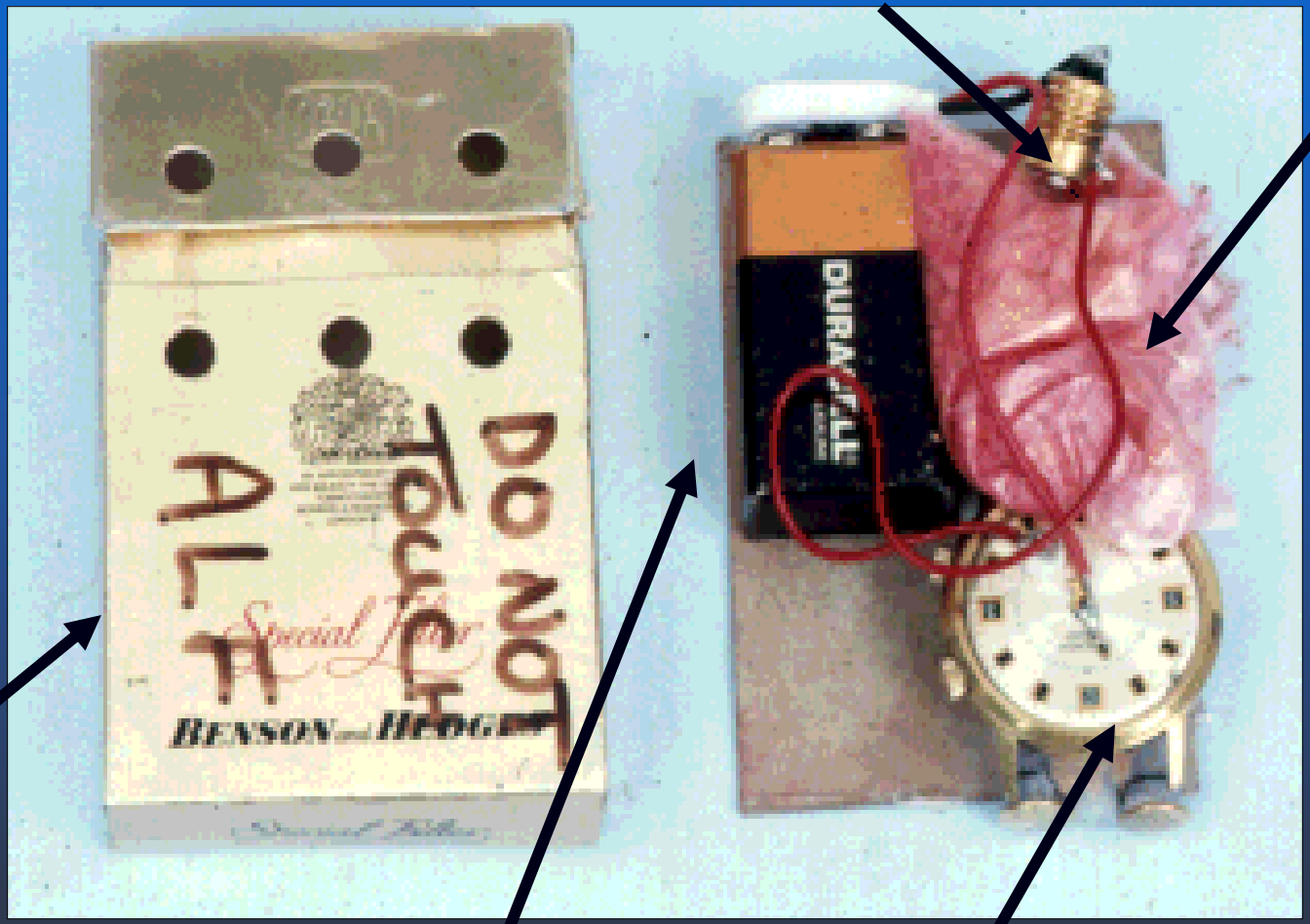

- Initiators
- Containers
- Electrical Components
- Timing mechanisms
- Fragmentation – shra
- Adhesives
- Wood
- Paper
- Fastners
- Non electric
- Pipes
- Ammo Cans





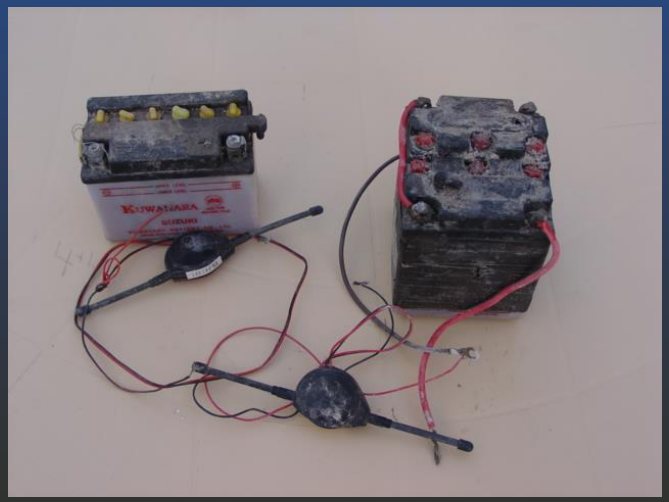
# IED Components

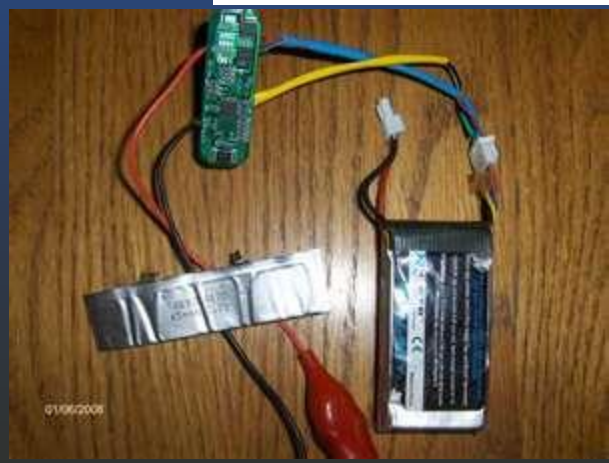


# POWER SOURCES

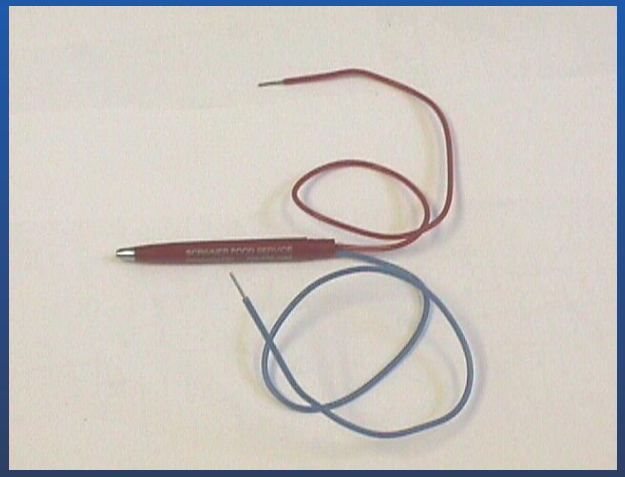


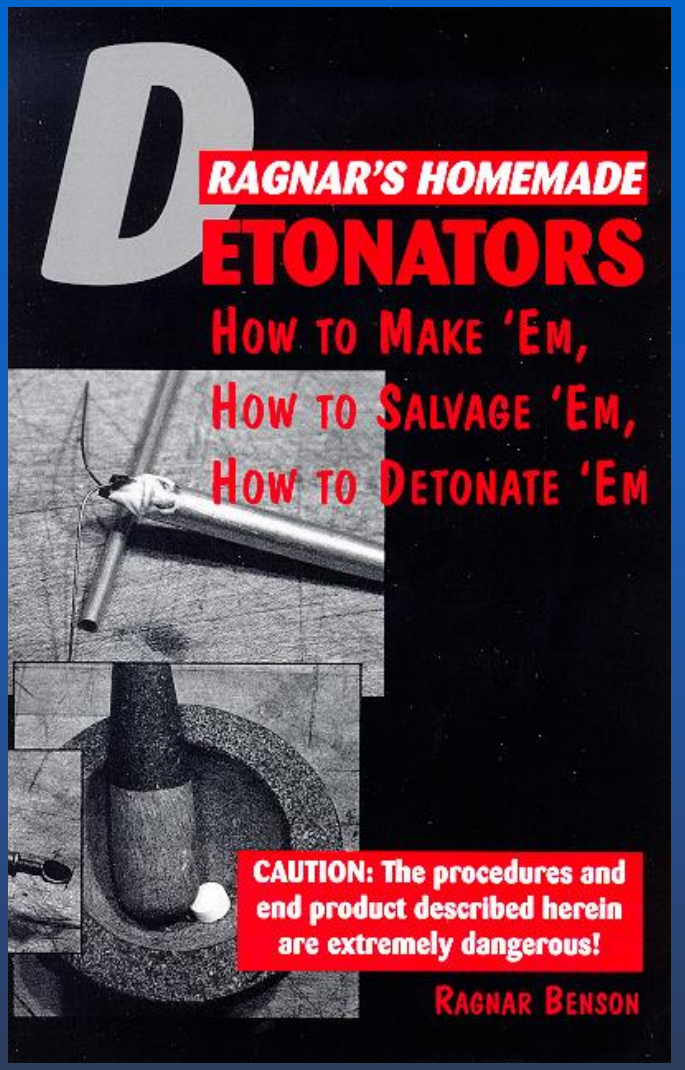


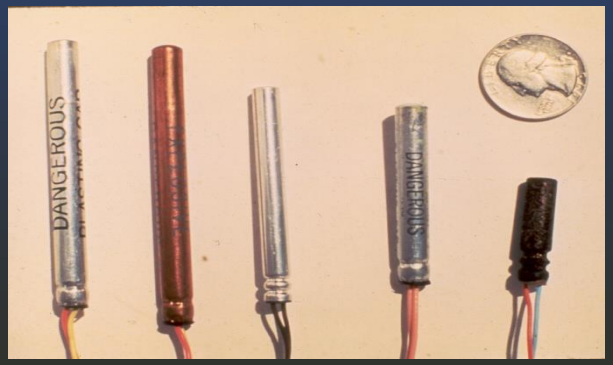


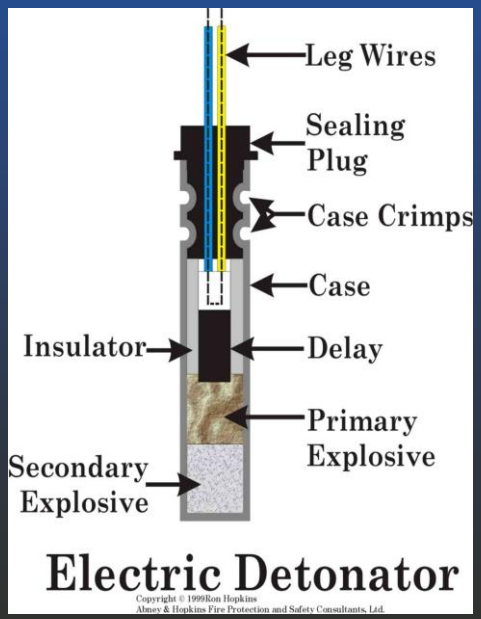



# Initiator




RAGNAR'S HOMEMADE
DETONATORS
HOW TO MAKE 'EM,
HOW TO SALVAGE 'EM,
HOW TO DETONATE 'EM
CAUTION: The procedures and end product described herein are extremely dangerous!
RAGNAR BENSON

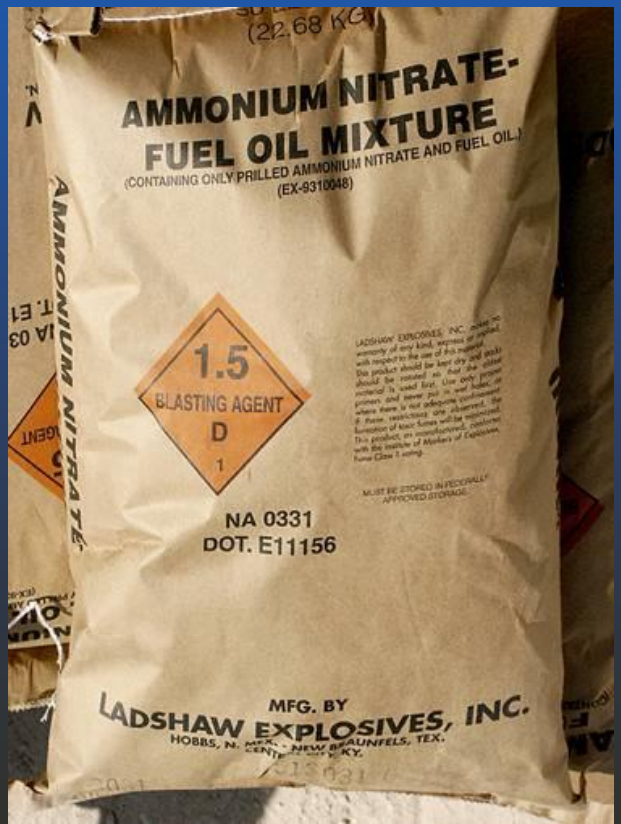

DANGEROUS
DANGEROUS


Leg Wires
Sealing Plug
Case Crimps
Case
Insulator
Delay
Primary Explosive
Secondary Explosive
Electric Detonator
Copyright © 1999Ron Hopkins
Abney & Hopkins Fire Protection and Safety Consultants, Ltd.


DANGEROUS
BLASTING CAP

# Explosive Main Charge




# Improvised/Homemade Explosives


Camp Stove Fuel Tablets for Hexamine

Food Additives for Citric Acid



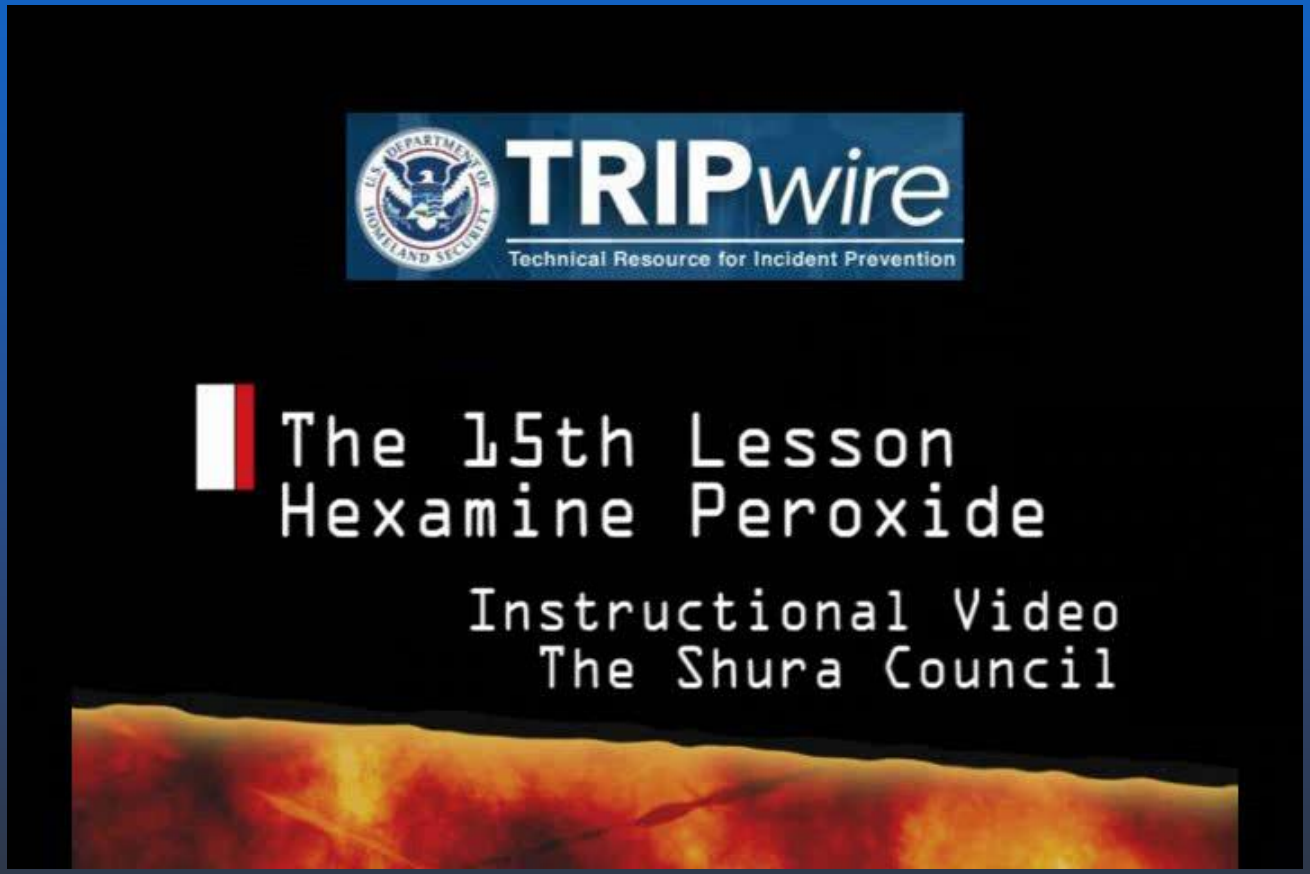
Hair Bleach for Hydrogen Peroxide


Drain Cleaners for Sulfuric Acid

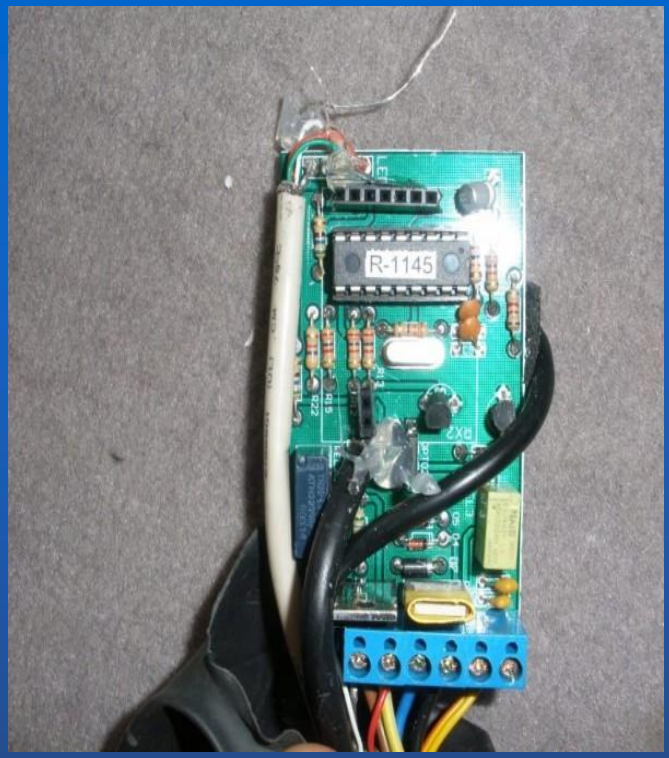

Nail Polish Remover for Acetone

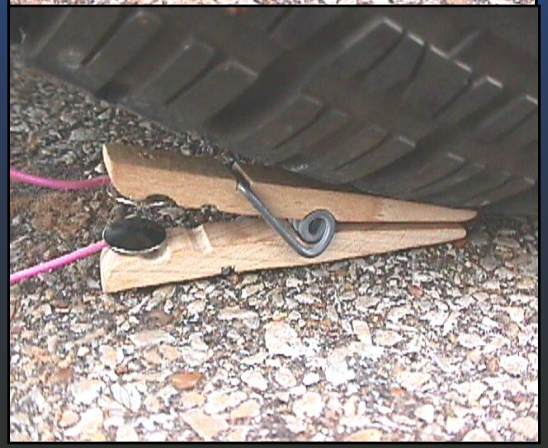
Hexamethylene Triperoxide Diamine (HMTD)

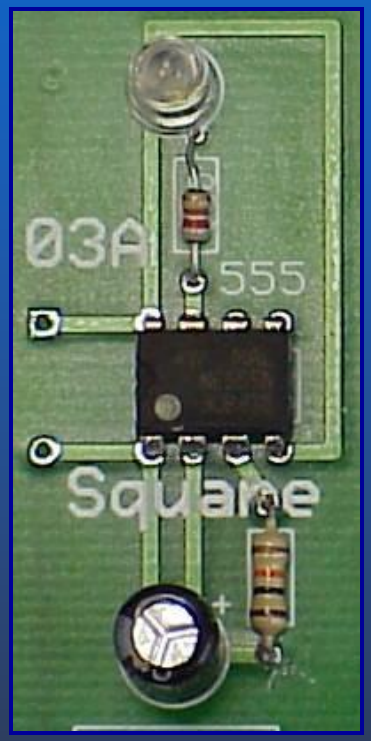
Triacetone Triperoxide (TATP)


TRIPwire
Technical Resource for Incident Prevention
The 15th Lesson
Hexamine Peroxide
Instructional Video
The Shura Council

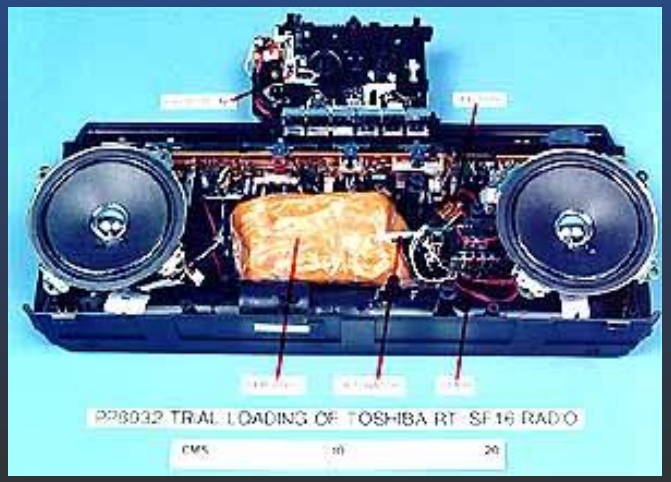
# Arming Firing






# Container




# Indicators: IED's

# Pipe Bombs (suicide bombers)


ATAP TV

# Remote Control Bomb

## OFFICER SAFETY BULLETIN

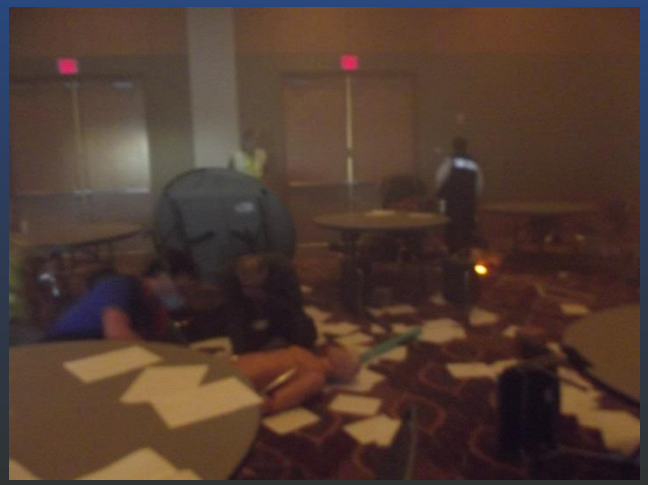
LOS ANGELES POLICE DEPARTMENT MAJOR CRIMES DIVISION
CRIMINAL CONSPIRACY SECTION

**ATTEMPT BOMBING IN THE CITY OF SAN DIEGO**

**SYNOPSIS:** On Thursday, September 9, 2010, the San Diego Bomb Squad and FBI personnel responded to 3929 Vista Grande Drive, in the Rolando section of San Diego to a suspicious package call. A witness observed a suspect exit a vehicle, drop a package on a residential street, get back inside his vehicle and flee the scene.

Members of the San Diego bomb squad determined the package to be a FEDEX envelope. Inside the envelope they observed a galvanized pipe bomb with a cellphone attached to it. A total of 18 missed calls were received by the cellphone from the time the package was dropped to the completion of the render safe procedures. The suspect(s) were most likely attempting to initiate the device with the cellphone.

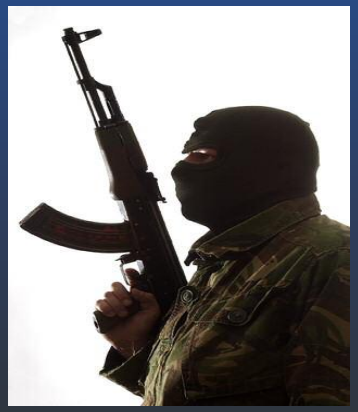

# Post Blast Scenes



# 15 June 1996 Manchester, England

# Explosion Scenes

- The actual cause of the explosion may be unknown for a period of time.
- Neutralize any threat and rescue the victims.
- Save lives.



# Before arriving at the scene

- Utilize unconventional expedient route if possible
- Things to consider:
  - Size
  - Location
  - Casualties/Medical
  - Suspect information
  - Possibility of secondary devices:

# Arrival at the incident scene Windshield Survey (360 degrees)

- Possible Threats
- Optics
- Things that appear out of place or suspicious

# Arrival at an Explosion Scene

- PPE
- Blood borne pathogen issues
- 300 meters from explosion site
- Radiological Detection Equipment









# EXPLOSION SCENE

- For the first 5-15 minutes on scene there may well be no bomb techs there.
- **You will need to scan the area and identify things that appear out of place or suspicious.**

# Explosion Injuries

- Incendiary Effect
- Fragmentation and
  debris
- Blast Overpressure
- Time, Distance & Shielding

| THREAT | EXPLOSIVES | BUILDING EVAC | OUTDOOR EVAC |
|---|---|---|---|
| Pipe Bomb | 5 lbs | 70 feet | 850 feet |
| Suicide Belt | 10 lbs | 90 feet | 1080 feet |
| Suicide vest | 20 lbs | 110 feet | 1360 feet |
| Briefcase | 50 lbs | 150 feet | 1850 feet |
| Compact Car | 500 lbs | 320 feet | 1500 feet |
| Full Size Car | 1000 lbs | 400 feet | 1750 feet |
| Pass. or cargo van | 4000 lbs | 640 feet | 2750 feet |
| Box Truck | 30,000 lbs | 1240 feet | 6500 feet |
| Semi-trailer | 60,000 lbs | 1570 feet | 7000 feet |

# Windows/Glass

# VBEID

- Missing Equipment
- Freshly Repaired body work or paint

- Unaccompanied Vehicles
- Illegally Parked Vehicles
- Strange Odors

# Bomb Squad Response

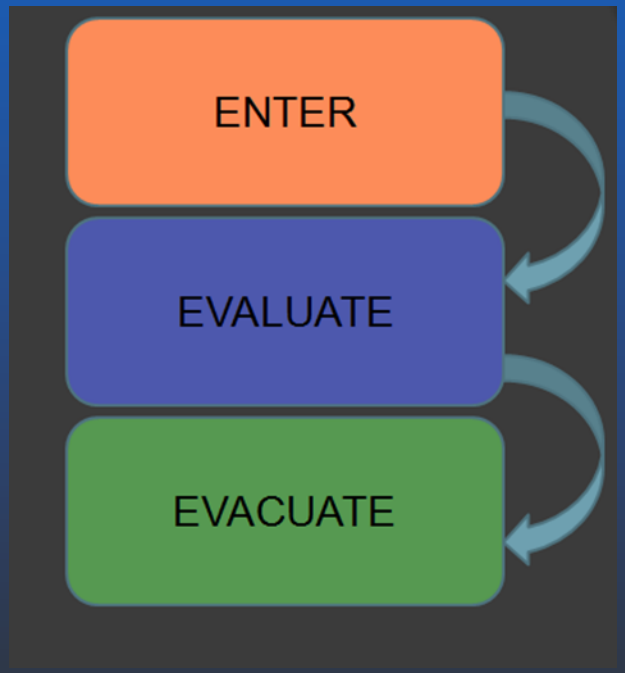

# Bomb Squad Arrival on Scene

- Integrate into Unified Command
- Attempt to manage any IEDs that are located
- Once victims are evacuated, bomb techs will resume conventional procedures

# SUMMARY

NEVER hesitate to call for the bomb squad.

# 3 ECHO MEDICAL RESPONSE




3E ECHO HOSTILE EVENT RESPONSE

**SAVE LIVES**

# ECHO Medical Response


# 3 ECHO Medical Response

# 3 ECHO Medical Response

## Tactical Combat Casualty Care

# 3 ECHO Medical Response

Information based on:

**The committee on TCCC**

**COMMITTEE FOR TACTICAL EMERGENCY CASUALTY CARE**

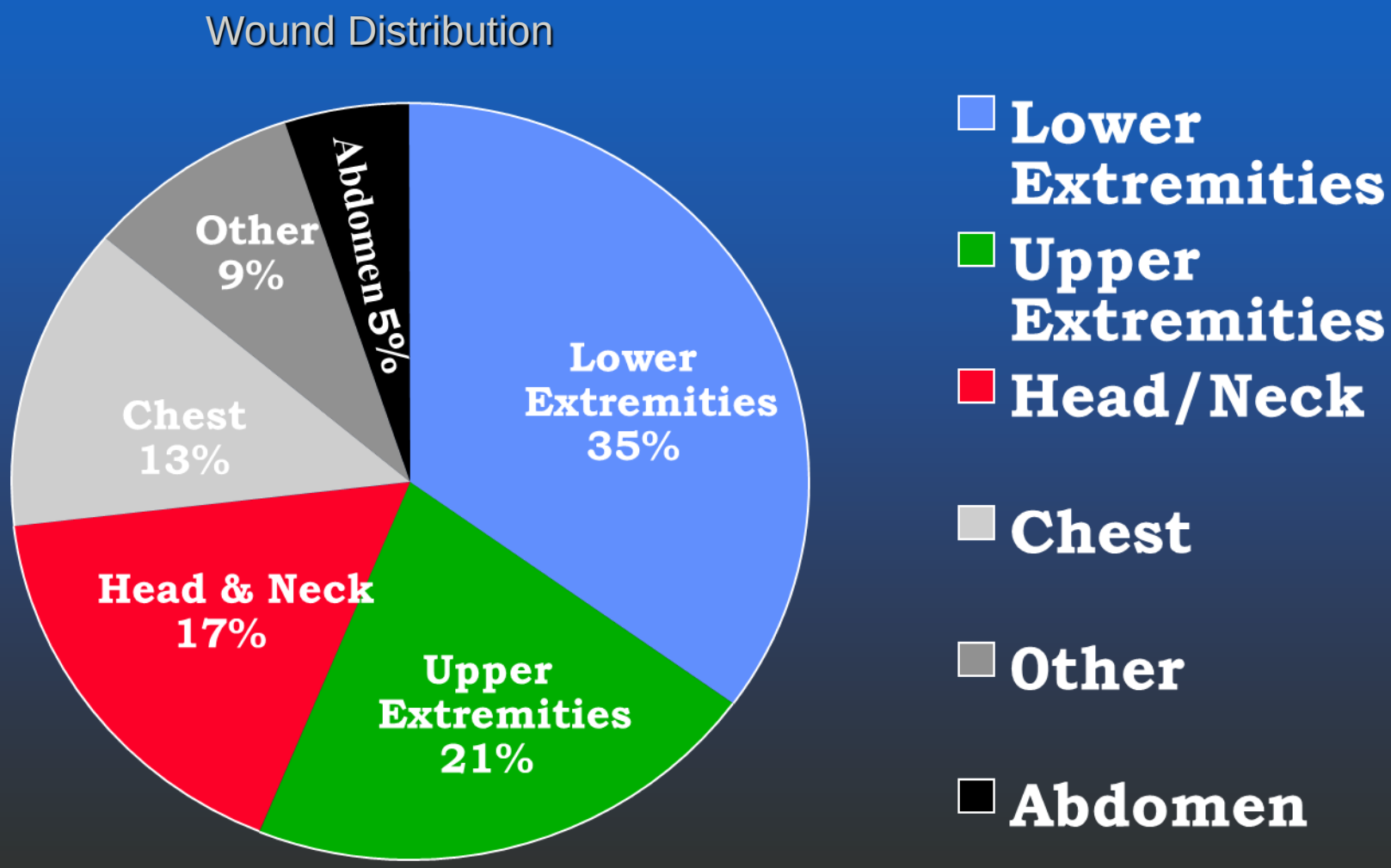
Approved by the American College of Surgeons and National Association of EMTs and is included in the Pre-hospital Trauma Life Support manual.

# 3 ECHO Medical Response

**Three categories of casualties:**

- Those who will do well regardless of what we do for them
- Those who are going to die regardless of what we do for them
- Those who will die if we do not do something for them now!

# 3 ECHO Medical Response



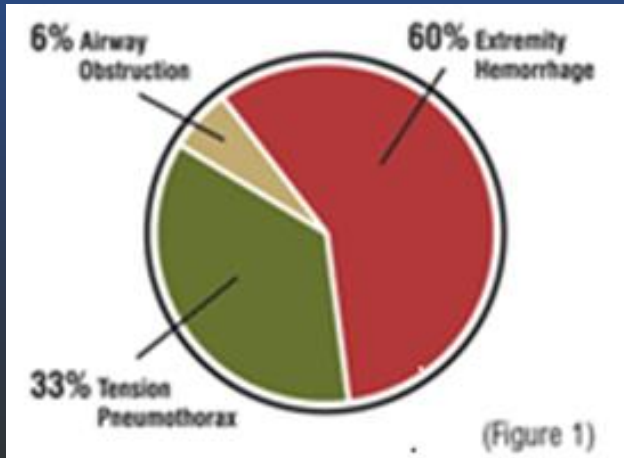
# 3 ECHO Medical Response

**PREVENTABLE Causes of Death from Combat Trauma**

60% Bleeding to Death from Extremity Wounds

33% Tension pneumothorax

6% Airway obstruction



# 3 ECHO Medical Response

Exsanguination from extremity wounds is the **number one cause of preventable death** on the battlefield.

"Up to 80% of civilian trauma fatalities within the US, are attributed to uncontrolled hemorrhage".

- McManus, Wedmore

# 3 ECHO Medical Response

**Treatment / Care:**

ABC? → **CAB!**

TCCC = CAB
TECC = CAB
AHA = CAB
PHTLS =CAB

# 3 ECHO Medical Response

Use of tourniquets to stop the bleeding is essential in these types of casualties.

# 3 ECHO Medical Response

How long does it take to bleed to death from a complete femoral artery and vein disruption?

Answer:
2-4 minutes

# 3 ECHO Medical Response

## Why use tourniquets in Tactical Care?

- **Speed-** It is a quick and **definitive fix** to a life threatening bleed.
- Direct pressure is difficult to maintain in these zones of care.
- **Anyone can use** a tourniquet, with a small amount of training.

# 3 ECHO Medical Response

## Hemostatic Agents:

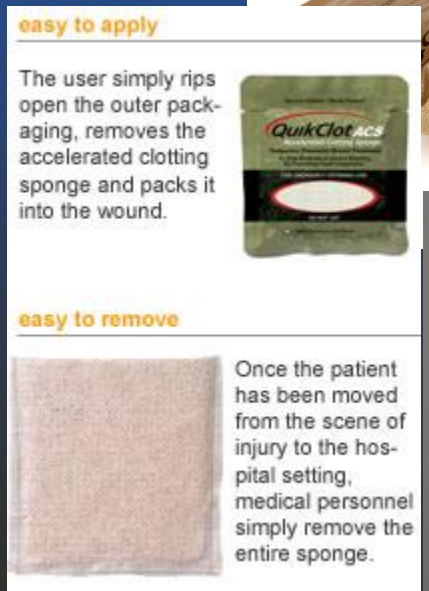
Tourniquets are not appropriate for severe external bleeding from some locations: head, neck, torso, groin.

Hemostatic dressings / agents can be used to allow control of bleeding

# 3 ECHO MEDICAL RESPONSE

## Hemostatic Agents:

Hemostat Bandage
HemCon Dressing
Fibrin dressing
TraumaDex
QuikClot



# 3 ECHO Medical Response

## Combat Gauze

Benefits:

Stops arterial and venous bleeding

Can be used for normal gauze applications without adverse effects

Easy to pack into a wound of any size no matter how large or small the bleed

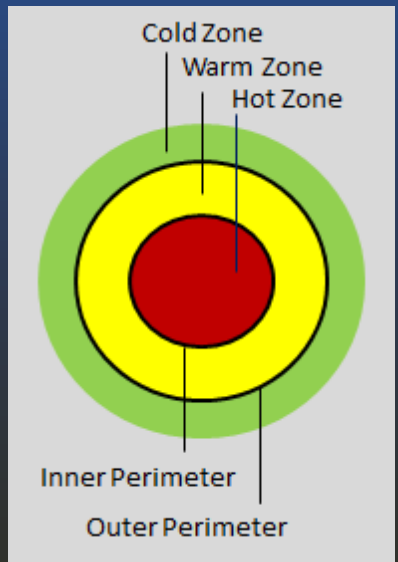
# 3 ECHO Medical Response

## Zones

**Hot:** Under effective hostile fire, in the open.

**Warm:** Under effective hostile fire, behind cover / concealment. No longer under effective hostile fire, but still in the battle area.

**Cold:** Out of the battle area.



# 3 ECHO Medical Response

## Stages of Care

Care Under Fire (Hot Zone Care) On the X

*Field Care (Hot / Warm Zone Care)*

Casualty Evacuation Care (Cold Zone Care)

# 3 ECHO Medical Response

**Tactical Field Care:**

Is the care rendered by the medic once he and the casualty are **no longer under effective hostile fire.**

Available medical **equipment is limited** to that carried into the field by medical personnel.

# 3 ECHO Medical Response

**Tactical Field Care**

**Vs Care Under Fire**

**Moving Casualty:**

**GETTING OFF THE X!**

Drags

Carries

# 3 ECHO Medical Response

## Tactical Field Care:

**Moving Casualty: GETTING OFF THE X!**

Disarm casualties as required / Body sweeps
When to move
Where to move
Cover / Concealment

# 3 ECHO Medical Response

**Body Sweep: Threats to Responders**

1. Active Shooter
2. Secondary Devices

Remember that there may be a mixture of perpetrators and victims who are injured, and that items that are dangerous may not be in view. Check not only the person, but under the person.

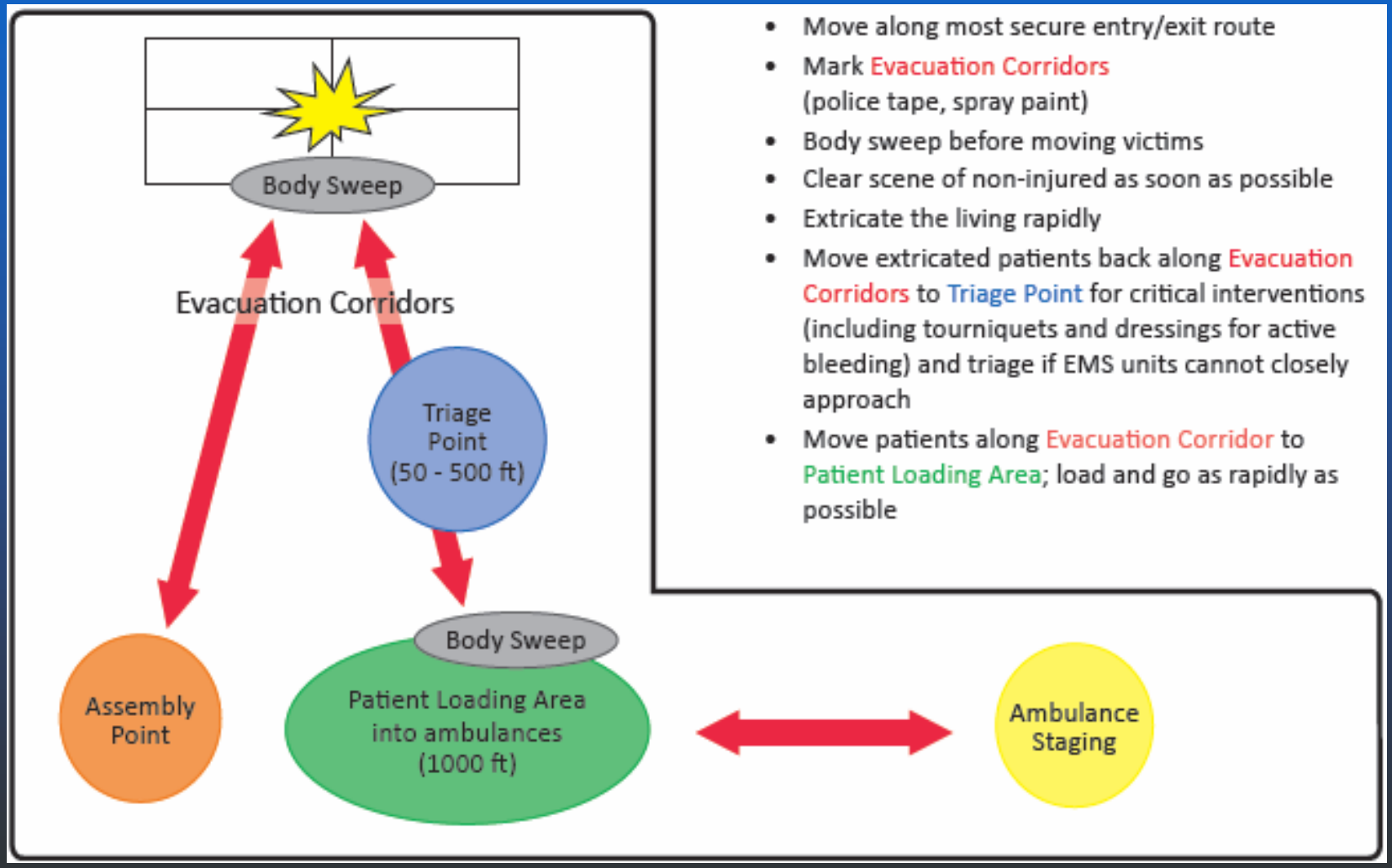
# 3 ECHO Medical Response

**Medical Interventions:**

Only do these things until you can evacuate patients:

1. Control major bleeding with tourniquets
2. Provide airway with nasal airway
3. Decompress tension pneumothorax

# 3 ECHO Medical Response



# 3 ECHO MEDICAL RESPONSE

## Casualty Collection Point

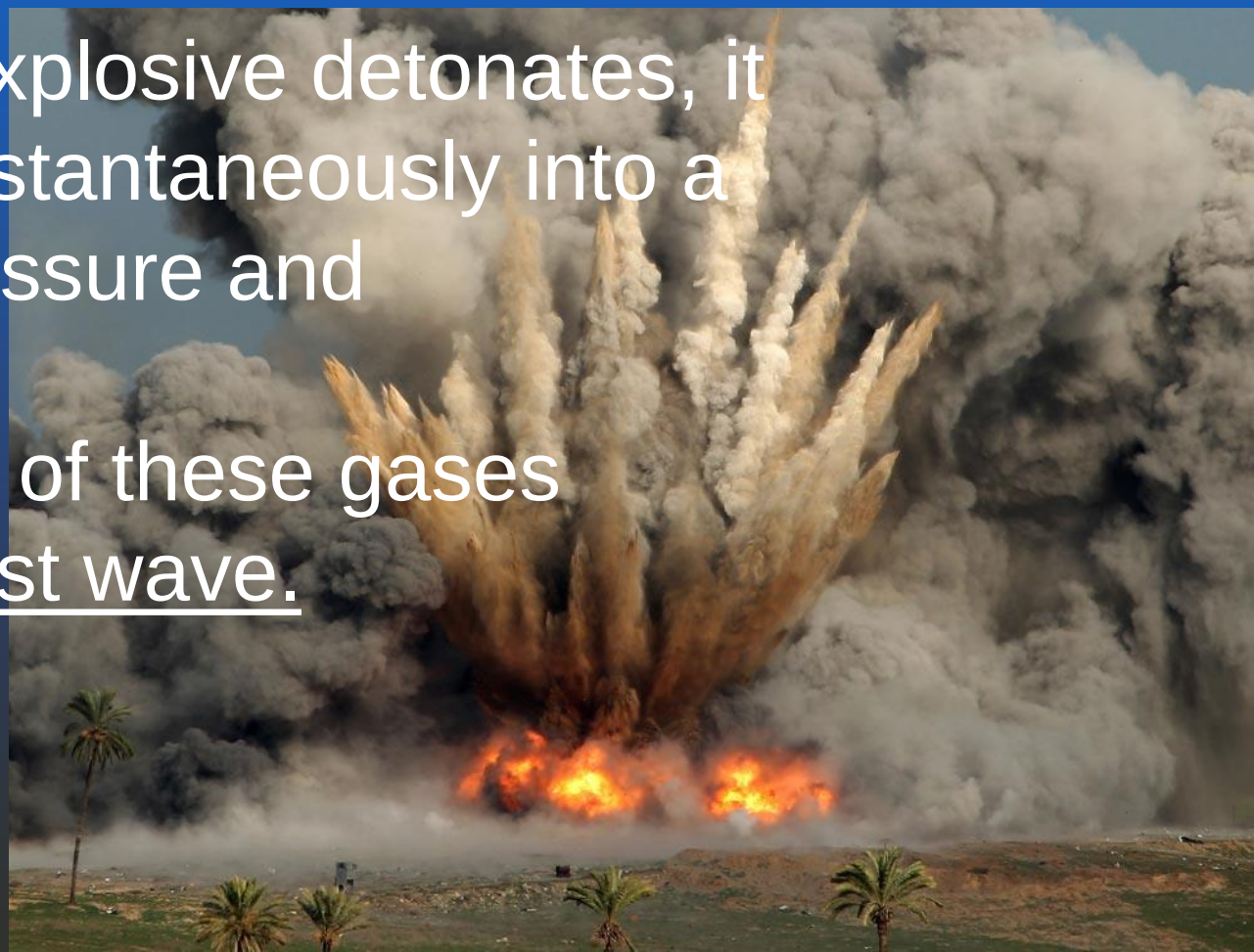
**Ideal CCP:**

- Removed from the problem / Safe Zone
- Sufficient cover, personnel, communication
- Initial triage
- Treatment / Transport
- *Limited information gathering from those who are able to provide it.

# Blast Physics and Post Blast Scenes

# Blast Physics and Post Blast Scenes

When a high explosive detonates, it is converted instantaneously into a gas at high pressure and temperature.
The expansion of these gases creates the blast wave.



# How Bomb Blasts Work



1 The blast wave from the explosion creates highly compressed air particles

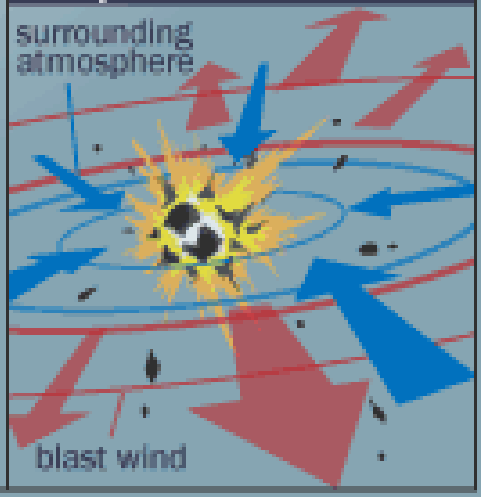

2 Shockwaves carry energy through the medium


3 Fragmentation throws shrapnel outward


4 The explosion creates fire and heat

5 The intense heat can cause secondary fires or explosions

6 The blast wind creates a vacuum that refills itself with air and pulls shrapnel back in



# Blast Physics and Post Blast Scenes

## Blast Injuries: Unique Aspects

Inflict multi-system injuries on large groups of people

Cause many simultaneous life-threatening injuries

Hidden pattern of injury

# Blast Physics and Post Blast Scenes

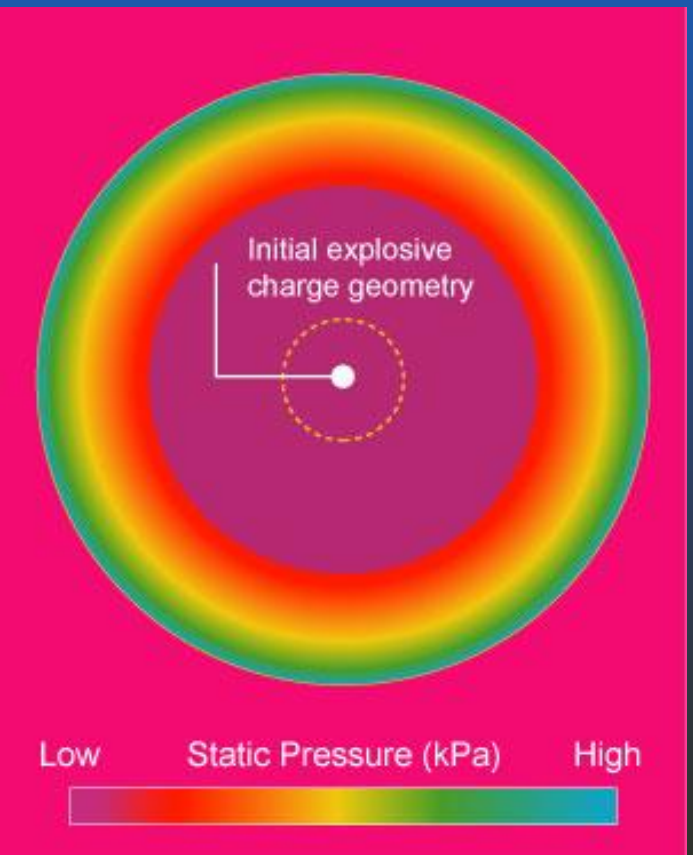
Blast Inside of a Closed Space Reflected Blast Waves

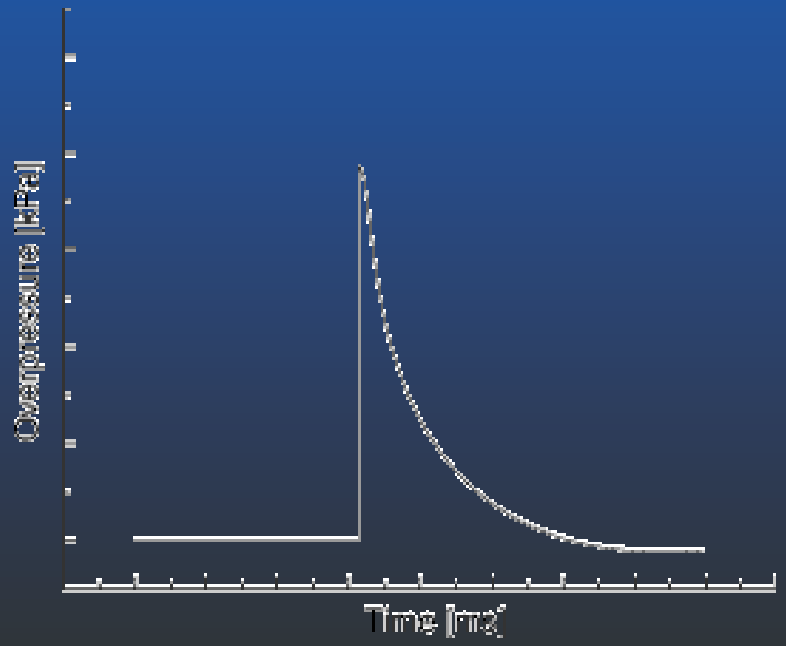
Blast waves inside buildings are repeatedly reflected creating a “complex blast wave”

Marked increase in injuries related to primary blast effects when explosion occurs in a closed space

# Blast Physics and Post Blast Scenes

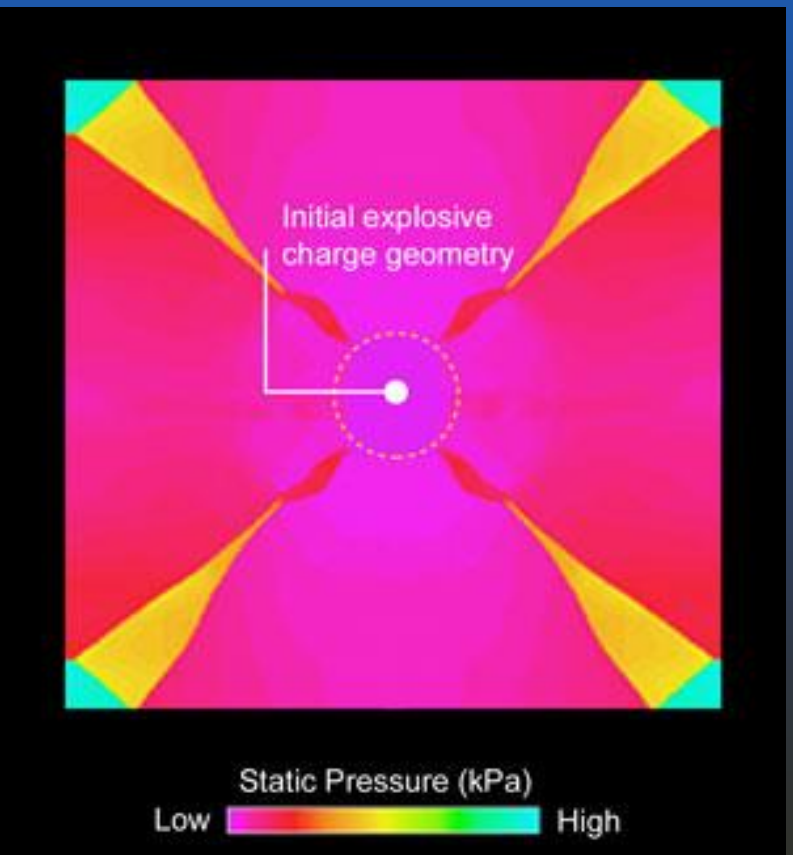
Blast outside of a Closed Space Blast Waves

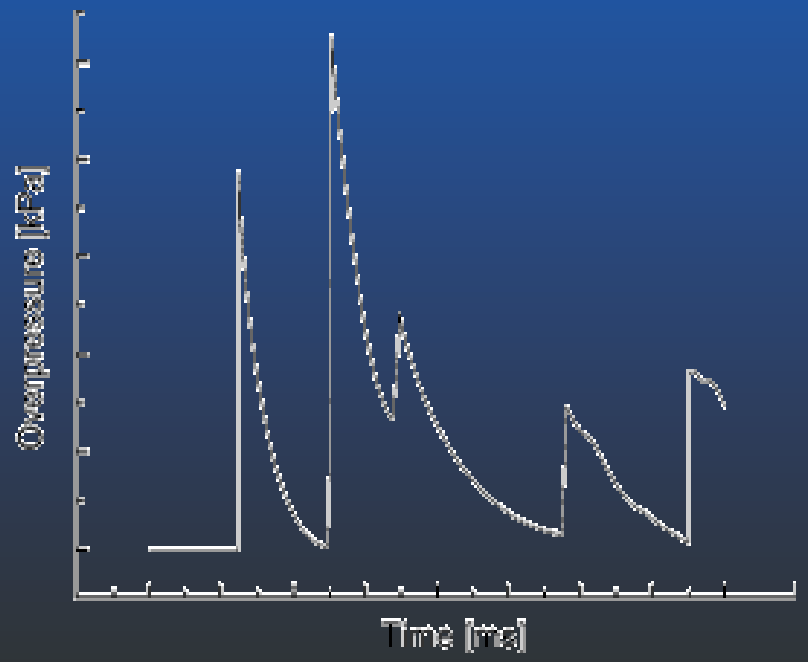


# Blast Physics and Post Blast Scenes

Blast Inside of a Closed Space Reflected Blast Waves



# Blast Physics and Post Blast Scenes

## Blast Injuries: Pathophysiology

Proposed mechanisms:

Spalling

Caused by shock wave moving through tissues of different densities → molecular disruption

Implosion

Caused by entrapped gases in hollow organs compressing then expanding → visceral disruption

# Blast Physics and Post Blast Scenes

## Blast Injuries: Pathophysiology

Shearing

Caused by tissues of different densities moving at different speeds → visceral tearing

Irreversible Work

Caused by forces exceeding the tensile strength of the tissue

# Blast Physics and Post Blast Scenes

## Blast Injuries: Categories

- Primary injury
- Secondary injury
- Tertiary injury
- Quaternary injury

# Blast Physics and Post Blast Scenes

## Blast Injuries: Primary

Blunt trauma from over pressure wave

Unique to high-order explosives

Results from the impact of the over-pressurization wave with body surfaces

Blunt force injuries

Produces barotrauma

# Blast Physics and Post Blast Scenes

## Blast Injuries: Primary

Most common injuries:

Blast lung—pulmonary barotraumas

Traumatic brain injury (TBI), concussion

Tympanic membrane (eardrum) rupture

Middle ear damage

Abdominal hemorrhage

Abdominal organ perforation

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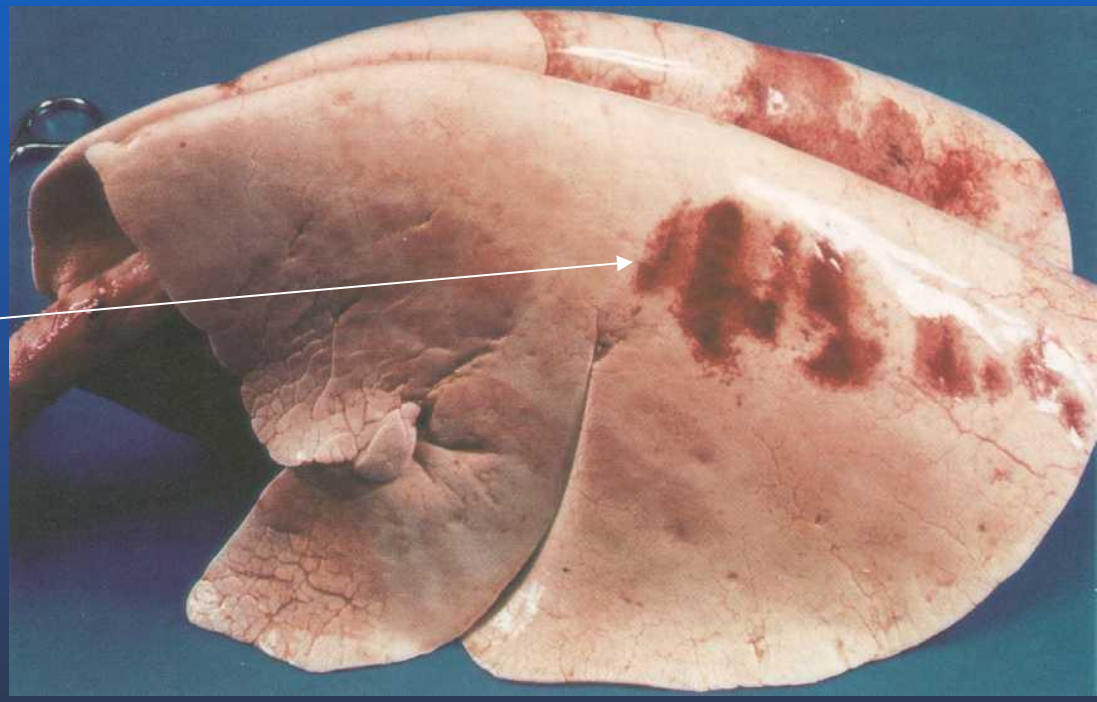
Bruises on lungs produced when primary blast wave rapidly accelerates ribs into underlying lung tissue



# Blast Physics and Post Blast Scenes

## Blast Injuries: Secondary

The most common cause of death in a blast event

These injuries are caused by flying debris generated by the explosion.

Terrorists often add screws, nails, and other sharp objects to bombs to increase injuries.

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## Blast Injuries: Secondary

Secondary blast injuries:

Trauma to the head, neck, chest, abdomen, and extremities in the form of penetrating and blunt trauma

Fractures

Traumatic amputations

Soft tissue injuries

# Blast Physics and Post Blast Scenes

## Blast Injuries: Secondary

Penetrating trauma (shrapnel wounds)

Foreign bodies follow unpredictable paths through body

May have only mild external signs

Consider all wounds contaminated

# Blast Physics and Post Blast Scenes

## Blast Injuries: Tertiary

**Tertiary** injuries result from individuals being thrown by the blast wind.

The most common types of tertiary blast injuries are:

Head injuries

Skull fractures

Bone fractures

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## Blast Injuries: Quaternary

All explosion-related injuries, illnesses, or diseases not due to primary, secondary, or tertiary mechanisms are considered quaternary blast injuries. This includes exacerbation or complications of existing conditions.

# Blast Physics and Post Blast Scenes

## Blast Injuries: Quaternary

The most common quaternary blast injuries include:

Burns

Head injuries

Asthma

COPD

Crush injuries

# Blast Physics and Post Blast Scenes

## The Quinary pattern of blast injury

The patients' hyperinflammatory behavior, unrelated to their injury complexity and severity of trauma, indicates a new injury pattern in explosions, termed the "quinary blast injury pattern." Unconventional materials used in the manufacture of the explosive can partly explain the observed early hyperinflammatory state. Medical personnel caring for blast victims should be aware of this new type of bombing injury.

# Blast Physics and Post Blast Scenes

Management of secondary, tertiary, and quaternary blast injuries is unchanged from usual principles of care.

There may be LOTS of casualties….

They may have LOTS of injuries…

# Blast Physics and Post Blast Scenes

**Scene Precautions:**

Secondary devices
Shrapnel
Building collapse
Air-borne contaminants
Contaminated patients
Contaminated scene/environment
Perpetrators
Terrorist patients

# Blast Physics and Post Blast Scenes

**Scene Precautions:**

Victims with no soft tissue injuries

Vehicles coming or leaving scene (out of place)

People acting oddly

Packages or containers at scene (out of place)

# Blast Physics and Post Blast Scenes

**Scene Precautions:**

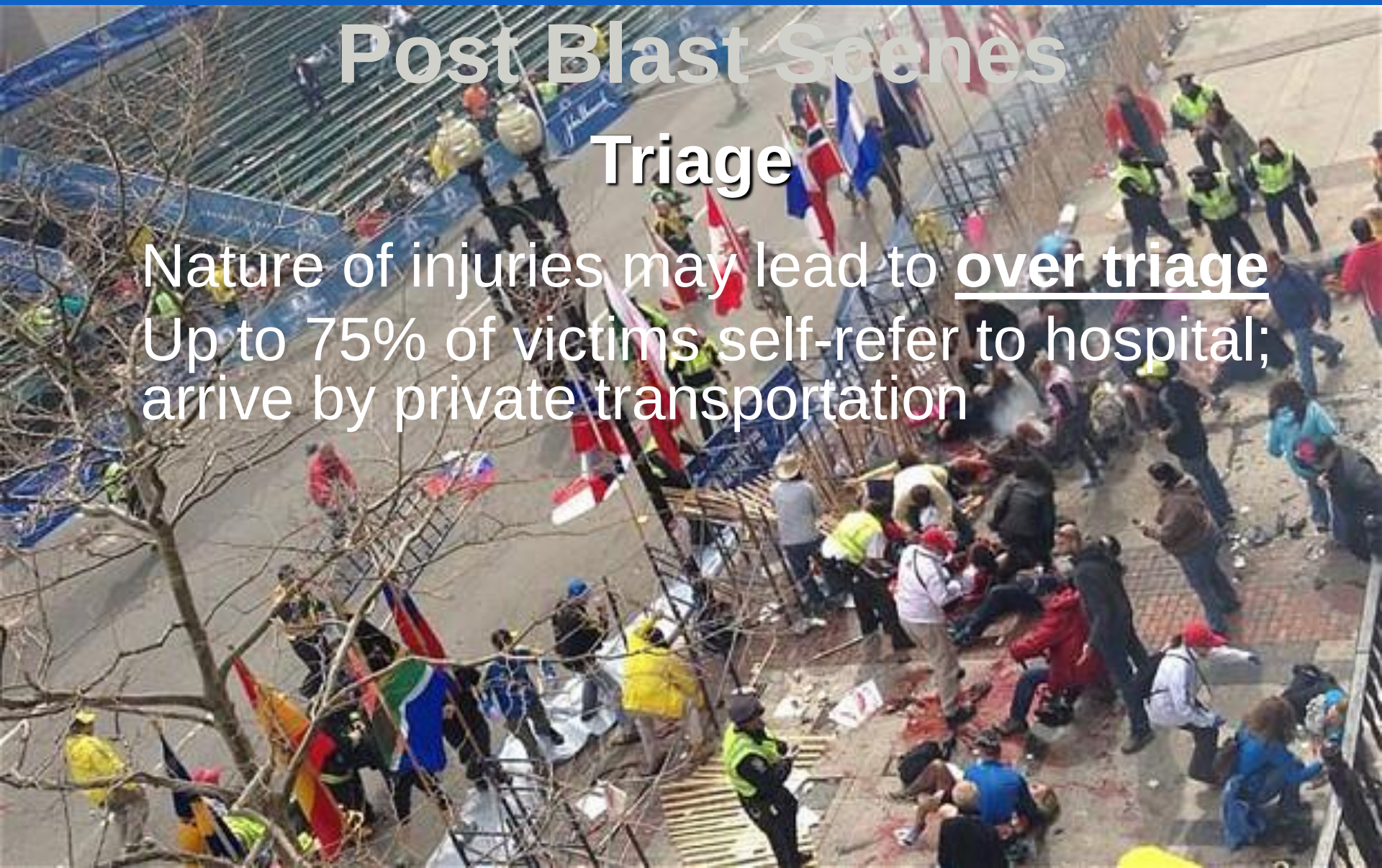
Vehicles not damaged or out of place

Structural damage

Weather

Possible places for secondary devices

# Blast Physics and Post Blast Scenes



## Triage

Nature of injuries may lead to **over triage**

Up to 75% of victims self-refer to hospital; arrive by private transportation

# Blast Physics and Post Blast Scenes

# Questions?