



Tactical Emergency Medicine (TEMS)

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TEMS Overview

- What is TEMS ?
- The Need for TEMS
- The Origin of TEMS
- TEMS Challenges
- Management Guidelines
- Equipment



Tactical Emergency Medical Support (TEMS)



- TEMS is an out-of-hospital system of care dedicated to enhancing the probability of special operations law enforcement mission success and promoting public safety

TEMS Goals

- **Mission accomplishment**
- **Overall team health**
- **“Step into the fray”**
- **Protection of:**
 1. Team Members
 2. Victims/ hostages
 3. Bystanders
 4. Perpetrators

The Need for TEMS

“People sleep peaceably in their beds at night only because rough men stand ready to do violence on their behalf”.

- George Orwell



AP PHOTO



Brief History of Tactical Medicine

- Hippocrates
- Barron de Larrey
- Hawkeye Pierce
- Vietnam
- LAPD SWAT
- Special Operations
- Increased Need



Origin of TEMS

- Special Operations
 - US Army 18D
 - US Navy Hospital Corpsmen
- S.W.A.T.
 - Origin
 - Evolution of Tactical Emergency Medical Support
- The last 2 years
 - Committee on Tactical Combat Casualty Care
 - PHTLS
 - Private Organizations



Unique TEMS Challenges

- Image of the medical provider
- Provision of care in hostile or austere environments
- Limited resources
- No national standard of training
- Ethics

TEMS –v- Conventional EMS

EMS

- Rescuer safety
- Scene safety
- Ambulance based
- BLS
- ALS
- CPR

TEMS

- Mission success
- Team safety
- Zones of Care
- Man pack
- Tactical constraints
- Preventive medicine
- Health maintenance
- Trauma care

Docs with Glocks?

- Tactical Medics
 - Sworn or not
 - Armed or not
- Medical Regulation
- Community Impressions
 - Cowboy's
 - Hippocratic Oath



The working environment



- Special equipment
- The Six “P’s”
- “Man Pack”
- Plan for the worst, hope for the best
 - You can’t go to the supply room in the ED
- Difficult to work in the Hot Zone

Limitation of Resources



*This image is hosted on
ebaumsworld.com*

TEMS Guidelines

- Development has been ad hoc
- Zones of Care
 - Hot
 - Warm
 - Cool
- No national standardized guidelines
- Tactical Combat Casualty Care

TEMS Provider Must Understand

- Chemical Munitions and deployment techniques
- Distraction devices and effects
- **Booby Traps and unconventional weapons**
- Weapons Systems and management
- Active countermeasures
- Dynamic Clearing and movement
- Stealth Movement
- Medical advisor to the mission commander



TEMS Training



- **TEMS providers are trained to work in a tactical environment**
- **Tactical Training**
 - Evidence preservation
 - Weapons trained
 - Law enforcement training
- **Medical Training**
 - Provide care that Officers CANNOT
 - Tactical Combat Casualty Care

Committee on Tactical Combat Casualty Care (CoTCCC)



2004: USSOCOM to BUMED

- 2001: USSOCOM initiated the CoTCCC
- 2004: BUMED assumed sponsorship of TCCC
- Formalized Committee on TCCC
- Coordinated through Naval Operational Medicine Institute (NOMI)

Committee on TCCC (CoTCCC)

■ Responsibilities:

- Draft and update TCCC guidelines for the PHTLS Manual
- Provide recommendations on TCCC implementation to component services
- Evaluate effectiveness of TCCC guidelines in combat

Committee on TCCC (CoTCCC)

■ Membership:

- Chairman: Dr. Steve Giebner
- Medics: 18D, PJ, Rangers, USMC, SEALs
- Physicians: Trauma surgeons, ER, FP, Critical Care and Operational Med
- Military and civilian representation

■ Voting:

- A vote is a vote (equal representation)

Committee on TCCC (CoTCCC)

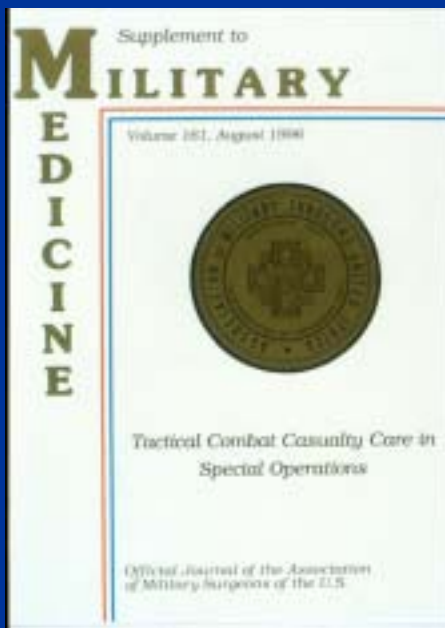
The CoTCCC does NOT mandate medical training or care policy...

We provide recommendations for a basic combat trauma management plan

So what is there?

1996: Publication of Guidelines

Tactical Combat Casualty Care in Special Operations



Military Medicine Supplement August 96

TCCC Summary

1. An evolving set of *Principles* guiding trauma response in the combat environment:
 - Care Under Fire (Hot Zone)
 - Tactical Field Care (Warm Zone)
 - CASEVAC Care (Cool Zone)
2. Teaches operators and medical personnel to manage appropriately the top 3 causes of preventable death on the battlefield within each phase of care:
 - Exsanguination from extremity wound
 - Tension pneumothorax
 - Airway obstruction

TCCC Summary

- TCCC guidelines are tactically and medically sound
- TCCC guidelines are relevant in ITEMMS curriculum design and operational execution

Civilian Applications

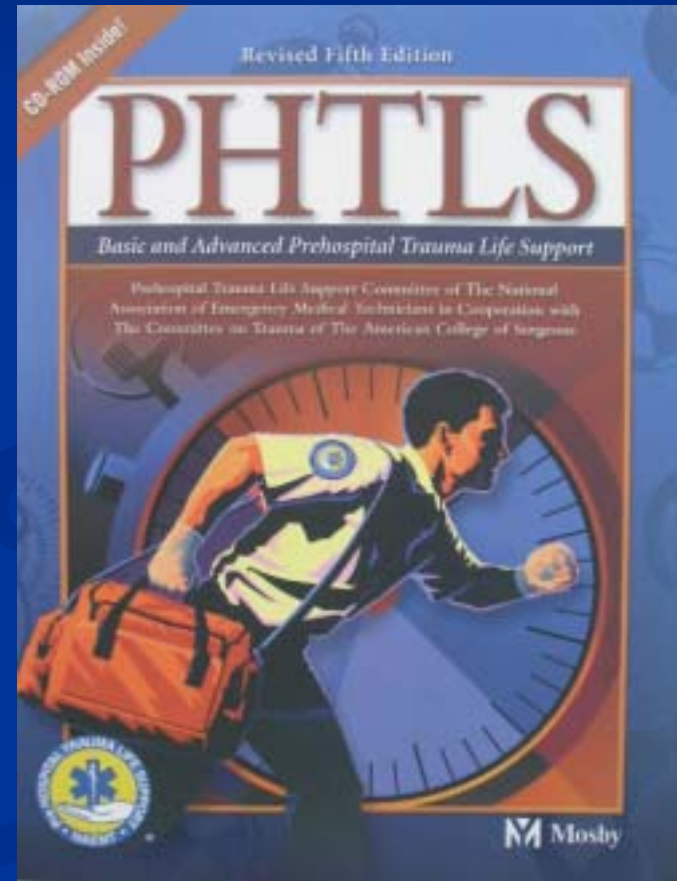
“Care Under Fire” is Care Under Fire

Civilian Applications

- TCCC is not “anti” - ATLS
- Increased tactical medical training for “non medical personnel”
- Emphasis on “Medical” involvement in operational planning
- CASEVAC
 - Vehicle staging/Gear
- Increased acceptance of tourniquets

TCCC Revision 2003

- **First version in 1999**
- **Published in Revised 5th Edition of PHTLS Manual**
- **Per Recommendations of CoTCCC**



TCCC Transition PHTLS Manual

- **Recommendations endorsed by American College of Surgeons**
- **Recommendations endorsed by National Association EMTs**
- ***The TCCC guidelines are the only set of combat trauma care guidelines ever to have obtained this dual endorsement***

So what does TEMS really do?



Pre- Mission

Mission/Operation

Post- Mission

Pre- Mission

- Operational Planning
 - Local Resources
 - Agency coordination
 - Operations Order
- Recon Mission
- Medical Intelligence
 - Prediction of medical problems of suspects and hostages
 - Improves public opinion
 - Reduces Liability
- Team and personal education/training



Mission

- Operator
- Provisions for transport
- Evidence Preservation
- Barricade medicine
- Remote physical assessment
- Extrication and evacuation
- Canine first aid



Mission

■ Situation

- Location
- Suspects
- Number of suspects
- Physical description
- Dogs

■ Mission

- Warrants
- Barricades



Mission Execution

- 6 “P’s”
- Clear Roles
- Communication
- Flexibility
- Alternative plans
- Confidence
- Trust



Basic Trauma Guidelines

- Hot Zone (Care Under Fire)
 - Scoop and run
 - Life threatening bleeding
 - Safe and quick exit to warm zone
- Warm Zone (Tactical Field Care)
 - ABC's
 - C-Spine
- Cool Zone
 - Relative safety
 - Staging area
- Rarely a need to rush into a situation



TEMS Trauma Facts

Same Care, yet not the same

- 90% of victims in war die on the battlefield
- 2,500 died from a simple extremity hemorrhage in Vietnam
- Golden Hour – most die in 30 minutes of injuries that require simple interventions
- Penetrating injury requires different care from blunt trauma
 - Boarded and collared?
 - Forget collar under fire
 - Board and Collar in the Warm Zone
 - Scoop and run?

Care in the Hot zone



- Fire superiority
- Stop life threatening bleeding
- Protect yourself
- Protect the casualty
- Scoop and Go

Care in the Warm Zone

- Airway Management
 - No airway obstruction
 - Chin Lift or Jaw thrust
 - Nasal Airway
 - ETT or Esophageal airway
 - LMA
- Breathing
 - O₂
 - Ventilate
 - Needle Thoracostomy
 - Chest Tube Insertion
- Circulation
 - IV Access/ Intraosseous
 - Control Hemorrhage
 - Hespan



Tactical Movement of Casualties (CASEVAC)

- Monitoring Vitals
- Inspect and dress all wounds
- Analgesia
- Splint fractures and establish neurovascular integrity
- Antibiotics
 - Open Fractures
 - Penetrating abdominal Trauma
- CPR
- Evacuation and Transport



Injury Priority

- Life threatening bleeds
- Breathing
- Bleeding Wounds
- Broken bones
- Burns



Cool Zone

- Staging area
- Relatively safe
- Must stay alert

Texas, August 1st, 1966...

Charles Whitman

- Texas Tower Sniper
- 90 minutes
- 14 dead
- Scores injured



The Toys- I mean Equipment



Medical Gear

- Hemorrhage control pack
- Airway kit
 - Ambu Bag
 - Mechanical Airway
- Chest tubes
- IV's
- Trauma Supplies
- Surgical Kits
- Suture Material
- Burn Supplies
- Personal protective equipment
- Light source
- Drugs



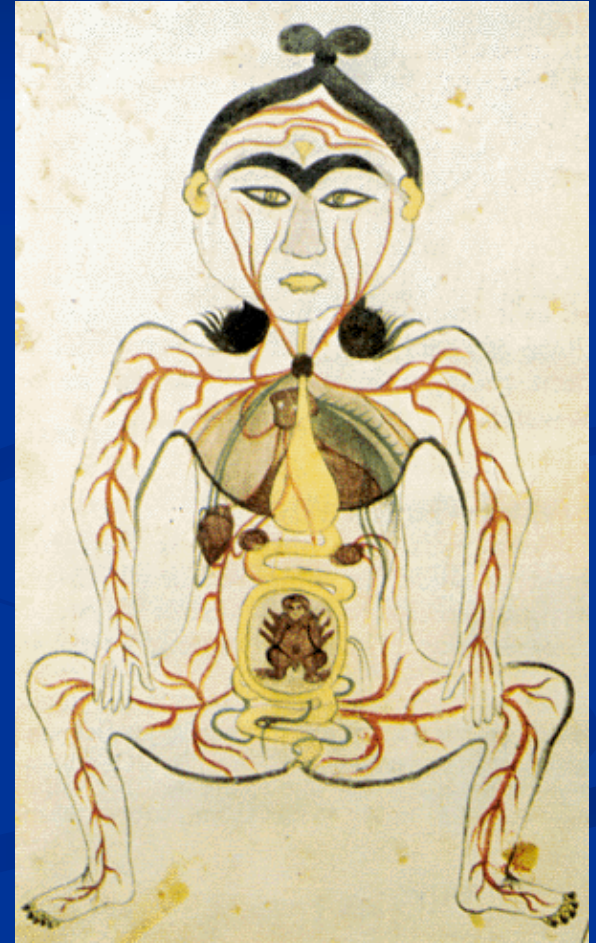
Tactical Gear

- Body Armor
- Side Arm - Long Gun
- Spare magazines/ammunition
- Flash Bangs
- Helmet
- Goggles
- Gloves
- Knee and elbow pads
- Tactical Load Bearing vest or pack
- Protective Shield
- Mirror or Breaching Equipment



On the Horizon

Hemorrhage Control



One Option: Combat Application Tourniquet (CAT)



Chitosan Hemostatic Dressing



- Hold dressing by the non-absorbable polyester backing and discard the foil over-pouch. Hands must be dry to prevent dressing from sticking to hands.

QuikClot

- Accepted by USMC
- IFAK (Individual First Aid Kits)
- Wipe blood and excess water from wound
- Sprinkle in powder
- Caution: Gets very HOT



Future Pain Control

Fentanyl Lozenge



Fentanyl Transmucosal Lozenge

Fentanyl Lozenge

- Comes in three strengths:
 - 400mcg
 - 800mcg
 - 1600mcg
- 400mcg has shown an effect equivalent to morphine injection
- Does not require an IV line
- Simple, easy, and effective

Intranasal Ketamine



- Easy to use
- No drowsiness (unlike narcotics)
- Side effects:
 - Dizziness
 - Nausea
 - Fatigue
 - Increased secretions
 - Hallucinations on withdrawal

Summary

- TEMS is cool, but it ain't easy
- TCCC is solid
- Training is available

So...

Get Involved



- International Tactical EMS Society (ITEMS)
 - <http://www.tems.org/>
- International School of Tactical Medicine
 - <http://www.tacticalmedicine.com>
- C.O.N.T.O.M.S.
 - <http://www.casualtycareresearchcenter.org/>
- Disaster Medicine David E. Hogan and Jonathan L. Burstein Philadelphia, PA: Lippincott Williams & Wilkins, 2002, 2006 US

Questions?



Thanks to all of our men and women in uniform



Thanks for your time

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