Tactical Emergency Medicine
(TEMS)

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25 FEB 2006
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
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
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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
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)
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 ITEMS 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
  - Barricaides
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/
Questions?
Thanks to all of our men and women in uniform
Thanks for your time

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