

Trauma and Injury Subcommittee: Decision Brief



Frank Butler, MD
John Holcomb, MD
8 March 2011



Bottom Line Up Front

Action

- TCCC training emphasis for
 - Combat leaders
 - Medical department personnel
 - All combatants
- Battlefield Trauma Care RDT&E Priorities

Info

- Devastating Dismounted IED Injury Incidence



Marine Fatality in Iraq - 2005

- **Marine shot in leg in Iraq**
- **Femoral bleeding**
- **Corpsman arrived 10 minutes later**
- **Attempted to use hemostatic agent**
- **Failed**
- **IV attempted – failed**
- **Tourniquet finally applied – too late**
- **Casualty died**

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JTTS Trauma Telecon 26 Aug 2010

- **23 y/o male**
- **GSW left infraclavicular area with external hemorrhage**
- **“Progressive deterioration”**
- **External hemorrhage noted to increase as casualty resuscitated in ED**
- **All injuries noted to be extrapleural**
- **No record of Combat Gauze use**
- **Lesson learned?**

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Combat Gauze



It doesn't work if you don't use it. 5



TCCC and Preventable Deaths

- Approximately **20% of fatalities** in Iraq and Afghanistan have been reported to be **potentially preventable** (Holcomb 2007, Kelly 2008)
- **NO preventable deaths** in war to date documented by Rangers and Army SMU in 2009 – these units had been using TCCC from the start





Defense Health Board Memorandum 6 August 2009

- TCCC for all deploying combatants
- TCCC for all deploying medical department personnel
- TCCC overview training for combat leaders
- Capture info from TCCC Casualty Card into the Joint Theater Trauma Registry and the Prehospital Trauma Registry
- Combat Evaluation Program at U.S. Army Institute of Surgical Research

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BUMED TCCC Change Policy Letter



DEPARTMENT OF THE NAVY
BUREAU OF MEDICINE AND SURGERY
2300 E STREET NW
WASHINGTON DC 20372-5300

IN REPLY REFER TO

6000
Ser M3/5/10UM358106
10 Mar 10

MEMORANDUM FOR COMMANDER, NAVY MEDICINE EAST
COMMANDER, NAVY MEDICINE WEST
COMMANDER, NAVY MEDICINE NATIONAL CAPITAL AREA
COMMANDER, NAVY MEDICINE SUPPORT COMMAND

Subj: POLICY GUIDANCE ON UPDATES TO THE TACTICAL COMBAT CASUALTY
CARE (TCCC) COURSE CURRICULUM

1. This policy memorandum provides guidance and establishes Navy Medicine policy and responsibilities for incorporating updates to the TCCC curriculum.

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USAF SG Letter on TCCC Changes – 21 Aug 2010

21 August 2010

MEMORANDUM FOR ALMAJCOM/SG

FROM: HQ USAF/SG
1780 Air Force Pentagon
Washington, DC 20330-1780

SUBJECT: Incorporating Tactical Combat Casualty Care (TCCC) Course Curriculum Updates into Air Force Medical Training

- **TCCC is military counterpart to PHTLS**
- **Changes proposed by CoTCCC – approved thru DHB**
- **TCCC Guidelines posted on MHS and USAF websites**
- “Effective immediately, all applicable Air Force training courses and programs will incorporate the most current TCCC guidelines consistent with their level of knowledge and proficiency instruction related to battlefield medical care. “ 9



MARADMIN 016-11 Jan 11 TCCC Updates

3. TCCC GUIDELINES REFLECTING THE ABOVE MOST RECENT UPDATES ARE POSTED ON THE MILITARY HEALTH SYSTEM WEBSITE UNDER TCCC AT [HTTP://WWW.HEALTH.MIL](http://www.health.mil).

4. EFFECTIVE IMMEDIATELY, THE MOST RECENTLY APPROVED TCCC GUIDELINES WILL BECOME THE STANDARD TO WHICH TRAINING EFFORTS ARE TO BE FOCUSED AND EVALUATION WILL BE BASED. THESE CHANGES WILL AFFECT NUMEROUS TRAINING PROGRAMS AND COURSES. EFFORTS ARE UNDERWAY TO UPDATE TRAINING STANDARDS AND WILL BE ACCOMPLISHED THROUGH THE NORMAL STAFFING PROCESS. A KEY ELEMENT OF THE TCCC GUIDELINES IS THEIR APPLICABILITY TO MEDICAL PERSONNEL, COMBAT LIFESAVERS, AND INDIVIDUAL DEPLOYING COMBATANTS.



Eliminating Preventable Death on the Battlefield



- Kotwal et al – manuscript at JAMA
- All Rangers and docs trained in TCCC
- Ranger preventable death incidence: **3%**
- U.S. military preventable deaths: **20%**

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USAISR – MRMC Fluid Resuscitation Conference 8-9 January 2010

- 100+ person subject matter expert working group
- No recommendation to change from current TCCC fluid resuscitation plan
- **No support for large volume resuscitation with crystalloids**
- Dried plasma studies encouraged
 - Top research priority
- **Multiple participants noted that most fluid resuscitation is done with NS and LR**



Deployed Director JTTS Comments – 16 Nov 10

**Hextend is being used much less
than normal saline as observed in
casualties arriving at the hospital**

LTC Marty Schreiber



USAISR Prehospital Interventions Study: Interim Report Nov 2011

Major Lairet presented preliminary data from a USAISR triservice observational study looking at prehospital trauma care interventions in OIF and OEF. The study was designed to answer such questions as: whether or not an intervention was indicated when it was done; if an intervention was indicated but not done; and how well the intervention was performed. Fourteen specific interventions are being tracked along with morbidity and mortality data out to 30 days after injury. Physician investigators at Bagram, Shank, Gazni, Kandahar, and Dwyer are enrolling the patients in this study. As of September, 2010, data had been collected on 524 casualties who had undergone 678 prehospital interventions. Preliminary findings include:



USAISR Prehospital Interventions Study

- Normal saline was used for fluid resuscitation in 71% of the casualties with Lactated Ringers used in 16% and Hextend used in 10%.
- 83 of 192 casualties had only a wool blanket for hypothermia prevention.
- A TCCC casualty card was filled out on only 14% of casualties. (Major Laird notes that medics might have filled out TCCC cards for other casualties, but the cards may not have made it to the CSH.)
- Twelve of 88 tourniquets were incorrectly applied, including two that were placed below the injury.
- There were 112 interventions that were judged to have been indicated but not performed, including 23 airways (nasopharyngeal airways or cricothyroidotomies), 10 breathing interventions (needle decompression or chest seal), 18 hemorrhage control interventions (tourniquet, hemostatic agents), 15 hypotensive fluid resuscitations, 39 IV/IO placements, and 7 hypothermia prevention interventions.



TCCC Training: Proposed Action

DHB memo to SecDef, USD P+R, Service

Chiefs, Service SGs

- Forward TCCC outcomes information from Kotwal paper
- Recommend TCCC for all deploying medical department personnel
- Recommend TCCC overview training for combat leaders
- Recommend TCCC training for all combatants
- Outcomes: TCCC Casualty Card - Prehospital Trauma Registry – JTTR - AFME



Battlefield Trauma Care RDT&E Priorities

- ***Non-Compressible Hemorrhage Control –
Follow-Up Tranexamic Acid Studies***
- ***Tactical Damage Control/Hypotensive
Resuscitation Studies – Document German
Freeze-Dried Plasma Experience***
- ***Tactical Damage Control/Hypotensive
Resuscitation Studies – Prospective Study Using
FDA-Approved Plasma Alone for Prehospital
Resuscitation Fluid in Patients with Non-
Compressible Hemorrhage***



Battlefield Trauma Care RDT&E Priorities

- *Improved Battlefield Analgesia – Ketamine*
- *Pre-Hospital Care Documentation and Databasing*
 - *PHTR, JTTR, AFME*
- *Enhanced Electronic TCCC Training*
- *Truncal Tourniquet*



Battlefield Trauma Care RDT&E Priorities

- *Use and Outcomes Data for Individual Elements of TCCC*
- *Monitor-Driven Prehospital Fluid Resuscitation*
- *Comparison Testing of Celox Gauze, Combat Gauze, and ChitoGauze*
- *Comparison Testing of New Tourniquets*



Battlefield Trauma Care RDT&E Priorities

- ***Surgical Airway Training Methods***
- ***Clinicopathological Review of Every U.S. Fatality from Iraq and Afghanistan:***
- ***Optimal Management of Traumatic Brain Injury in TCCC***
- ***The Impact of TACEVAC Provider Level and Skill Sets on Survival***

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Battlefield Trauma Care RDT&E Priorities

- ***Hypothermia Prevention Equipment Comparative Studies***
- ***Combat Medic/Corpsman/PJ Equipment Evaluations***
- ***Focused Analysis of JTTR Data Regarding Specific TCCC Interventions***
- ***Veres Needle for Needle Thoracostomy***

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Battlefield Trauma Care RDT&E Priorities

- *Tactical Suction Devices*
- *Improved TCCC Training Metrics*
- *Spinal Cord Protection in Casualties with Suspected Spine Injury in Tactical Settings*
- *Enhanced Pelvic Protection in Personal Protective Equipment*

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Prehospital Trauma RDT&E: Proposed Action

DHB memo to ASD/HA, DDR+E, Service SGs

- **Endorse list of prehospital trauma care RDT&E projects as described**
- **Recommend that they be pursued as high-priority projects that have strong potential for improving outcomes in combat casualty care**

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Discussion