Committee on Tactical Combat Casualty Care
Meeting 14-16 January 2008
Minutes

1. Attendance

CoTCCC Members

Dr Jim Bagian
Dr Brad Bennett
LTC Lorne Blackborne
Dr Dave Callaway
Dr Howard Champion
COL Paul Cordts
SFC Miguel Davila
COL Brian Eastridge
CAPT Doug Freer
COL John Holcomb
COL Don Jenkins
Dr Jim Kirkpatrick
LTC Russ Kotwal
MAJ Bob Mabry
Dr Norman McSwain
MSGT Harold Montgomery
MSGT Chris Murphy
LTC Kevin O'Connor
CDR Luis Ortega
Dr Mel Otten
Mr Don Parsons
Mr Gary Pesquera
Dr Peter Rhee
HMCS Eric Sine
CAPT Jeff Timby

COTCCC Staff

Dr Frank Butler
LTC Jeff Cain

CoTCCC Liasons

Mr. John Correa	FBI
Mr. Dom Greydanus	JTTS
Mr. Lyle Lumsden	State Department

Guest Presenters

Dr. Francois Arnaud	NMRC
Dr. Dave Baer	USAISR
COL Ted Harcke	AFIP

Dr. Bijan Kheirabadi	USAISR
Dr. Dick McCarron	NMRC

Guests

LTC Mark Ervine	AFSOC Chief of Operational Medicine
Mr. Dave Locke	AMEDD CD
LTC Paul Mayer	Director of Combat Medic Training (AMEDD C+S)
LTC Ed Michaud	AMEDD CD
Mr. Ronald Palmer	Product manager for Hemostatics USAMMDA
SCPO Glenn Royes	HQ USCG
SGM Chester Sechrest	AMEDD Asymmetrical Warfare Group
MSG Mike Straight	Senior Medic 160th SOAR
SGM Bruce Timmons	First Army
LTC John Vogel	Ist Army Clinical Ops - FP

2. Dr. Butler - Introduction and Administrative Remarks

LTC Jeff Cain from USAISR was introduced as the Vice-Chair of the CoTCCC.

Retired MSG Rosalie Worthy was introduced as the new Executive Administrative Assistant for the CoTCCC.

Travel Administration Get-Well plan:

- Select dates and locations for upcoming meetings now
- All members send in travel information now
- Head count on meetings 6 weeks out
- Attendee list to travel 5 weeks out
- Fund cite letters from Travel Department to members 4 weeks out

Dates and Location for Upcoming Meetings selected:

April	1-3	San Antonio
July	22-24	San Antonio
October	21-23	Tampa

Honoraria for civilian members

Plan A – Application for honoraria - disallowed by NMPTE

Plan B – Work this issue through USAISR

Plan C – Contracted consultant status for civilian members

Current Subcommittees

Membership and Bylaws

Curriculum

Maritime TCCC

First Responder Input

Hemostatics

Working Groups

TCCC Military Training Network Course

TCCC First Responder Conference

Subcommittee/Working Group Meetings

Have on 3rd Day of TCCC Meetings when possible

3. Dr. Butler - CoTCCC FY08 Funding and Proposed Relocation

The CoTCCC is currently being supported by both the Navy ($280K/year) and the Army (3 staff positions and $220K in FY08). Navy Medicine has recently proposed that the CoTCCC be realigned at a more senior joint command.

Options for relocation of the CoTCCC were briefed in October by Dr. Butler and CAPT Barendse to RDML Dave Smith (J4 Health Services Support at the Joint Chiefs of Staff) and Ms. Ellen Embrey, (Deputy Assistant Secretary of Defense/Health Affairs – Director of Deployed Health Protection.) The options for the proposed relocation of CoTCCC were discussed by the CoTCCC. There was unanimous support among the members present for relocating the CoTCCC at the Joint Theater Trauma System in San Antonio.

4. LTC Cain - TCCC Course for Military Training Network

At a recent meeting between NOMI and NMPTE on how best to accomplish TCCC sustainment training in the Navy, the preferred option was to develop a course that could be administered through the Military Training Network, as BLS, ATLS, ACLS, and PALS are.

LTC Cain has made preliminary contact with the MTN on this issue and is heading the CoTCCC's effort to develop a suitable course.

This course will be sponsored through the PHTLS Group in affiliation with the National Association of EMTs.

There will be a nationally recognized certification card issued at the end of the course.

The starting point for the course will be the recently developed Navy TCCC course, but other service TCCC courses will be reviewed to capture their relative strengths.

The first course – TCCC Advanced – to be developed with be a combination Instructor/Combat Medical Personnel Course. The non-medical – Basic TCCC – course will be developed next. This course may be a subset of the advanced course.

The PHTLS Manual will be the "bible" for the course.

5. LTC Cain - Ranger Casualty Study

LTC Cain, LTC Kotwal, and MSG Montgomery are conducting a retrospective analysis of the 83 Ranger casualties sustained in the Global War on Terrorism from October 2005 through November 2007.

There were 6 Ranger fatalities – two with chest wounds and 4 with head wounds. Four died immediately. Two were probably expectant but triaged as immediate and pronounced at the CSH.

20 tourniquets (all CATs) were applied in the Care Under Fire phase. Eight were applied by non-medics and 12 by medics. All 8 of the non-medic

applications and 8/12 of the medical applications were converted to pressure dressings during Tactical Field Care.

Two individuals in shock were resuscitated with Hextend per the TCCC guidelines. Both survived.

There were 4 uses of HemCon – all successful.

23 individuals received the combat pill pack (with moxifloxacin as the antibiotic.) Four casualties received ertapenam, one got levofloxacin, and one got Rocephin.

Many minimally wounded individuals continued to fight.

The Hyfrin chest seal worked – the Asherman didn't.

There were 5 emergent cricothyroidotomies performed – only one survived.

There was one use of the King LT airway.

The analysis is ongoing and a paper on these casualties will be written.

6. Dr. Butler - TCCC Trademark Update

Dr. Giebner tried unsuccessfully on two occasions to get the term "Tactical Combat Casualty Care" trademarked through BUMED.

There are two reasons why this needs to be done: 1) to prevent somebody else from doing it first and restricting its use; and 2) to prevent organizations from advertising that they are providing TCCC training when their course does not in fact conform to the TCCC guidelines.

A civilian patent attorney has been engaged and a trademark application is underway. One issue brought up by the attorney is that TCCC is so widely used at present that establishing a right to trademark may be a problem.

7. Hemostatics Update

A update on hemostatic research was presented by Dr. Francois Arnaud and Dr. Dick McCarron from NMRC and Dr. Bijan Kheirabadi and Dr. Dave Baer from USAISR. Both labs are observing the animals for up to 3 hours after the injury. NMRC is using both a swine femoral transaction model and a swine 4 mm arterial punch model. Dressings are applied after a two-minute bleeding period and the animals are fluid resuscitated with Hextend. Products doing well in the NMRC trials are Combat Gauze, Celox, and Woundstat. USAISR is using a 6 mm arterial punch and a 45-second bleeding period, followed by Hextend resuscitation. Products doing well in the USAISR trials are Woundstat, Celox, TraumaStat and Super-QR. Data collection is ongoing at both labs. Both labs will be invited to return to the April meeting to update their findings. Dr. Baer from USAISR noted that both USAISR and NMRC now have data that there are better hemostatic agents available than those currently being fielded by the services. He summarized the characteristics of the ideal hemostatic agent:

Stops severe bleeding
No harmful effect
Easy to use and apply

Requires little or no training
Lightweight and durable
Long shelf life (two or more years)
Stable in austere environments
FDA approved
Biodegradable and absorbable
Inexpensive

8. Dr. Ted Harcke - AFIP Findings Related to Tension Pneumothorax, Airway, and Intraosseous Infusion Device Issues

Dr. Harcke is a forensic radiologist who works at the Dover AFB facility. He is currently working with the Virtual Autopsy project. Points covered were:

1) He reviewed 100 cases to evaluate the thickness of the chest wall in the second intercostal space at the mid-clavicular line and found that over half of the chest walls studied were thicker than 5 cm. He recommended the use of an 8 cm needle to ensure reliable entry of the needle into the pleural space during needle thoracostomy.

2) He addressed the issue of whether or not tension pneumothorax is still a significant cause of preventable deaths in combat casualties. He reviewed 497 cases and found that 139 of the fatalities had wounds that were potentially survivable. 85 of these individuals had significant chest injuries and 14 of the 50 autopsies reviewed so far were found to have tension pneumothoraces, although it was not clear that death resulted from them. Major Mabry emphasized that this data indicates that there should be no backing away from the current aggressive approach to treating tension pneumothorax in the TCCC guidelines.

3) Dr. Harcke reported that 61 casualties were reported to have intraosseous infusion devices and that 53 of these were seen in the CT. The IOs were mostly the PYNG FAST device, although there were some tibial IOs as well. He performed post-mortem angiography and noted that infusing through the IO device gets fluid into the venous circulation very quickly. He was impressed with the effectiveness of the IO access technique. He noted that some tibial IOs were incorrectly placed on the lateral aspect of the tibia.

9. Major Mabry - TCCC First Responder Conference

The CoTCCC is currently planning a First Responder Conference. The conference will be held 9-11 September 2008 at the Embassy Suites in Tampa, FL. Approximately 60 combat medics and corpsmen will be invited to present. CoTCCC members will also be funded to attend. Other selected DoD personnel will be invited to attend at their own expense. The conference room at the Embassy Suites can accommodate approximately 200 people.

The First Responder presentations will use the same methodology as the Ranger presentations at the recent SOMA conference, with the CoTCCC-recommended First Responder Card as the standard documentation format.

There will be 3-4 presentations per hour with discussion after the presentations. Major Mabry will provide a Powerpoint shell for presenters to use as a starting point for their presentations.

10. Dr. McSwain - PHTLS Manual Seventh Edition Update

The timeline for the Seventh Edition of the PHTLS Manual and the CoTCCC input for it was reviewed:

PHTLS Manual publication date - Sept 2010
Input from CoTCCC to publisher - June 2009
Updated TCCC chapters to military edition editor - January 2009
Updated TCCC guidelines completed – June 2008

Current TCCC chapter assignments are as follows:

Introduction to TCCC – Frank Butler
Care Under Fire – Shawn Johnson
Tactical Field Care – Frank Butler
CASEVAC – Jay Johannigman
Triage – Paul Cordts
MEDEVAC – Tom Rich
Ethics – Frank Anders
Blast – Howard Champion
Urban Warfare – Bob Mabry

Dr. McSwain noted that the Seventh Edition of the PHTLS Manual will bear the seals of both the ACS and the ACS COT. He also mentioned with regards to the proposed national TCCC certification course that the PHTLS Executive Committee would be willing to assist in running instructor courses. This will help develop a cadre of certified instructors. Individuals must take the course from a certified instructor to get a TCCC certification card. TCCC certification will be tracked in the PHTLS registry.

11. COL Holcomb – Army Combat Shirt

COL Holcomb did a brief presentation on burn prevention. He noted that the Army Combat Shirt has Nomex woven into the fabric that this garment is very protective against burns. The cost is $120 per shirt.

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12. Dr. Butler - Administrative Remarks

There are currently 34 voting members on the CoTCCC, leaving 2 vacant voting positions. New members will be selected from the pool of nominated candidates in the near future.

The process for changing TCCC guidelines as outlined in the CoTCCC charter was reviewed. Proposed changes will be submitted in writing to the

Chairman and then distributed to members. The opportunity for other members to advocate either against the proposed change or for alternate changes on the topic at hand will be provided before it is included as an agenda item for a vote.

The CoTCCC is looking for a photo of a combat medic in action that might be suitable for developing into a logo picture for the committee. Candidate photos should be e-mailed to the Chairman.

13. Major Mabry - Airway

Major Mabry presented his findings from a recent research visit to the AFIP. There have been 1000 fatalities examined by ISR researchers to date. In 36 cases, the airway was involved and 17 look like they may have had a preventable airway death (1.7%). Most are single GSW to neck (10/17) with 6/17 explosive injuries to neck and face. Five of the 17 had attempted crics. One fatality had an endotracheal tube in the esophagus. LTC Kotwal noted that all of the crics done by Ranger medics have been successful. MSG Montgomery noted that careful observation of the airway in a casualty without aggressive intervention is usually successful. Major Mabry is continuing his review of these airway cases.

14. LTC O'Connor – Ketamine

LTC O'Connor discussed the pros and cons of using ketamine at a dose of 50-75 mg slow push IV for battlefield analgesia. Ketamine has the advantage of not causing the cardiovascular and respiratory depression that opiates do. Concerns regarding the use of this agent include emergence reactions (20-30% with adults – can be managed with Versed), hypersalivation, larnygospasm, vomiting, increased intracranial pressure, hypertonicity, and abuse potential. Several of the members noted that this agent is currently being used by medics in their commands. HMCS Sine expressed concern about 8404 corpsmen with the Marines being able to use this agent safely.

15. Dr. Otten - Tactical Extraction

Dr. Mel Otten reviewed the challenges of extracting casualties from the point of wounding in tactical settings. A key problem is that the casualty is often down in a "zeroed-in position." Moving him away from that location – referred to by the combat medical community as "getting him off the X" – is of paramount importance. Dr. Otten has conducted extensive training in this area for the Cincinnati SWAT team.

Key concepts for Care Under Fire include:

a) Casualty crawling to cover when possible
b) Covering fire where possible
c) Shielding techniques where possible
d) Rescue lines to the casualty
e) One or <u>two</u>-man drags

f) Drag lines help significantly
g) Speed

Concepts for Tactical Field Care include:

a) Ability now to use carries and litters
b) Still limited distances feasible for transport
c) Two-man high carry (grab belt - arms over shoulders)
d) Two-man lower carry (belt and shoulder grab)
e) One-man arms-over-shoulders pack carry (no equipment)
f) Skedco litter
g) Talon II litter
h) Israeli litter
i) Stokes basket at an angle
j) 2-wheeled cart-type litters

Additional comments included MSG Murphy noting that the Talon II assault litter should always be carried into the target in urban environments. Rigid litters like the Stokes basket are preferred if the casualty has to be hoisted up into an evacuation helicopter in mountainous terrains or other settings where landing the aircraft is not feasible.

16. Dr. Butler - TCCC Speaker Program

Although TCCC is being widely taught to combat medics and corpsmen in the DoD, many hospital-based physicians and many individuals in the military medical leadership are getting little or no exposure to the concepts of TCCC. Establishing a TCCC Speakers Program for conferences such as the ones listed below would help to resolve this issue:

ATACCC
SOMA
San Antonio Trauma conference
American College of Emergency Physicians
Tricare
Uniformed Services Academy of Family Physicians

There was a good response to this initiative and CAPT Jeff Timby agreed to head it up. Additional audiences identified as good potentials were:

AMSUS
US Army Medical Conference
Asian-Pacific Military Medicine Conference
Army Division/Brigade Surgeon's Conference
COCOM Surgeon's Conference
AMEDD Pre-Command Course
Service Hospital Grand Rounds
National Tactical Officer's Association
European Trauma Conference
European TCCC Conference
MARFORPAC Conference

CAPT Doug Freer agreed to head up a parallel initiative to start aggressively presenting TCCC updates to service line commanders.

17. Dr. Butler - Other TCCC Guideline Issues

a) New Technology - Many requests come in to the CoTCCC to evaluate potential new medical technology for TCCC. New technology evaluations and proposals for incorporation to the TCCC guidelines may be initiated by any CoTCCC member. Requests for evaluations of new technology forwarded to the Chairman will be forwarded to LTC O'Connor and MSG Murphy, who have agreed to head up this effort.

b) Ventilation rate for casualties being ventilated by bag - USAISR is concerned that many casualties being ventilated may be getting too high a minute ventilation volume with an adverse impact on outcome. COL Holcomb will address this issue.

c) Hypertonic saline vs Hextend - The relative merits of these two resuscitation fluids for patients with TBI were discussed. 7.5% HS has been reported to improve outcomes in TBI, but is not FDA approved. HS was noted to not be suitable for administration through an IO infusion device.

d) Use of the MACE test in field for TBI - casualties with suspected TBI may need to be rapidly evaluated for cognitive status in the Tactical Field Care phase. The MACE (Military Acute Concussion Evaluation) was proposed as the best tool to accomplish this screening. This tool is easy to use and has been recommended by the JTTS.

e) Eye trauma – A proposal to include a recommended management plan for eye trauma in the TFC phase was reviewed. Both penetrating eye trauma and suspected retrobulbar hemorrhage were covered. The sense of the group was that lateral canthotomy was not a technique that would be appropriate to teach to combat medics. Dr. Butler will provide this material.

f) Fresh Frozen Plasma and factor VIIa - Use of these two procoagulant blood components was discussed. There is much theoretical benefit for these two agents in some TCCC settings, but there is some risk associated with Factor VIIa and detailed plans for use and logistics would have to be developed.

g) Additional IO devices - The potential for adding the EZ-IO as a recommended TCCC IO item was reviewed. It was noted that the EZ-IO has no target patch for sternal use. Some difficulty has been encountered removing the PYNG-FAST, but the new PYNG-FAST device will not require a removal tool. Dr. Kirkpatrick noted that the AMEDD has recently looked at the EZ-IO and decided not to add it to the Army medical kit.

h) Cricothyroidotomy technique - Cricothyroidotomies may be performed in either a vertical or horizontal orientation. Dr. Bennett recommended that TCCC endorse the vertical option. There was agreement on this point and Major Mabry will address this issue for the updated guidelines.

i) Tournicath – COL Jenkins demonstrated the use of a device called the TourniCath that can be inserted along a wound track and then inflated to help control hemorrhage from a vessel deep in the wound.

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18. LTC Cain - TCCC Course for the Military Training Network

Recap of requirements for this course: 1) Create a standardized training product that can be used to train TCCC and that will result in a certification; 2) the intent is not to create policy or mandate certification requirements to anyone, but rather to provide a better tool with which TCCC training and certification can be accomplished that the services can then consider as a training option.

Major points from the discussions of 14 and 16 January:

1. Goal is to provide a completed product to PHTLS Committee for their endorsement and administrative oversight.

2. TCCC Instructor Manual product will be in the same format as PHTLS Instructor manual and contain:

a. Instructor Notes

b. TCCC Advanced Course (successful completion = certified instructor)

(1) Standardized course for Medical Providers

(2) Mirrors text content for most recent guidelines

(3) Provides in-depth rationale for guidelines – not mere algorithmic approach

c. TCCC Basic Course

(1) Standardized course for non-medical individuals ("tactical first responders"/Combat Lifesaver)

(2) Layman terminology and focused objectives/skills

3. Certification: PHTLS certification is good for 4 years. Group discussion 16 JAN recommended 2 years for Advanced/Instructor Cert; 2 years for Basic (2 year mirrors Navy requirement and is more feasible for operational units to execute).

4. For military training programs currently training TCCC as part of their core curriculum: CoTCCC/PHTLS will review the course curriculum and recommend that if core content/assessment/validation is equivalent AND the instructors are certified TCCC instructors, that certification authority be extended to that training course.

5. Discussion regarding consideration of an abbreviated refresher course: group discussion 16 JAN felt that with requirement to recert at 2 years, client population is best served by completing full course.

6. Recommended course length:

- Advanced Course: 2 options (1) 5 day course if done in conjunction with standard PHTLS course; (2) 2.5 days if conducted as stand-alone
- Basic course: 2 days if done as complete course; will propose "block" format to allow training to be conducted over series of days.

7. Navy TCCC course was developed by CoTCCC Curriculum Subcommittee members and reviewed extensively by Committee members for

content accuracy. Therefore, will use this course as a starting point for developing the Instructor Course.

8. Using 6th Edition Military Version PHTLS Manual, we will develop instructor manual for following chapters (first name listed is coordinating POC for that chapter):

- Introduction to TCCC – Parsons
- Care Under Fire - Bennett, Freer
- Tactical Field Care (which includes Care for Wounded Hostile Combatants) - Otten, Timby, Pasquera, Sine
- CASEVAC Care - Cain, Greydanus
- Tactical Vignettes/Lessons Learned Scenarios - Butler
- TCCC Basic Version - Cain, Parsons

9. Supporting Assignments:

- Montgomery: New photos for all common skills procedures
- McSwain: permission to copy/distribute PHTLS Instructor Manual CD to this working group to use as example for developing TCCC Instructor Resource Manual chapters

10. At this time, the remaining chapters (Triage, CASEVAC/MEDEVAC/Aeromedical Evac, Injuries from Explosions, Medical Support of Urban Operations, and Ethics for Combat Medics) will be regarded as supplemental information and will not be included in the TCCC course development.

FK Butler

Frank K. Butler, M.D.
CAPT MC USN (Ret)
Chairman
Committee on Tactical Combat Casualty Care