

Committee on Tactical Combat Casualty Care Meeting Minutes 1-2 April 2008

1. Attendance

CoTCCC Members

Dr. James Bagian
Dr. Brad Bennett
SFC Miguel Davila
COL Warner Farr
CAPT Ken Kelly
Dr. Norman McSwain
MSG Harold Montgomery
MSG Christopher Murphy
Dr. Edward Otten
Dr. Peter Rhee
HMCS Eric Sine
LTC Lorne Blackbourne
COL John Holcomb
Col Donald Jenkins
Dr. James Kirkpatrick
MAJ Robert Mabry
Mr. Donald Parsons

Liaison Members

Mr. Lyle Lumsden USG

CoTCCC Staff

Dr. Frank Butler
LTC Jeffrey Cain
Ms. Rosalie Worthy

Guest Presenters

Col Roger Gibson	Defense Health Board
Dr. Francois Arnaud	NMRC
LCDR Walter Carr	NMRC
Dr. Bijan S. Kheirabadi	USAISR
LCDR Walter Carr	NMRC

Guests

Mr. John Miles	Field Medical Training BN, USMC
Mr. Bill Cauley	USG
MAJ Nicholas Withers	CANSOFCOM, Canada
SSG John Maitha	75 th Ranger Regiment
SFC Jeremy Williamson	75 th Ranger Regiment
PO Eric Burkholder	USCG DOG
CAPT Efren Saenz	FMTB-E, USMC
HSCS Glenn Royes	USCG DOG
CAPT Chris Daniel	NMRC
HMCS Mike Langley	MARCORSYSCOM
Mr. Ron Palmer	USAMMA
Dr. Dick McCarron	NMRC

1 April 2008

2. Dr. Frank Butler – Introductions and Administrative Announcements

Members/guests sign-in

Introduction of members/guests

Presentation of honoraria for civilian CoTCCC members

Give presentations to Ms Worthy before briefings

Dates and locations for Upcoming Meetings:

22–24 July 2008

San Antonio (Hawthorne Suites)

21- 23 Oct 2008

San Antonio (La Quinta Riverwalk)

Overview of Meeting Agenda

Current Subcommittees

Membership and Bylaws

TCCC Outreach Program

Maritime TCCC

Curriculum

Hemostatics

Working Groups

TCCC Instructor Course

TCCC First Responder Conference

Ms. Rose Worthy – Administrative/Travel Concerns

DTS travel authorizations

She will act as Non-DTS Entry Agent (NDEA) for civilians

Reimbursement Issues

3. COL John Holcomb – USAISR - Helmet Testing.

COL John Holcomb, Commander, U.S. Army Institute for Surgical Research (USAISR), presented a performance comparison between a standard Advanced Combat Helmet (ACH) and one modified with state-of-the art football helmet padding. A 36-inch drop height was used and testing showed that the modified helmet with commercial pads performed better than the standard ACH. These findings have important implications for potentially reducing TBI in blunt trauma such as motor vehicle accidents. COL Holcomb encouraged members to disseminate this information to their respective organizations.

4. Col Roger Gibson – CoTCCC Realignment

Col Roger Gibson, Executive Secretary of the Defense Health Board (DHB), discussed the ongoing realignment of the CoTCCC from its present position as part of the Naval Operational Medicine Institute to being a component of the DHB. This realignment is being carried out as a result of both the CoTCCC's increasing visibility in the DoD and the need to comply with the provisions of the Federal Advisory Committee Act. The CoTCCC will be a subpanel of the newly established Trauma & Injury Subcommittee of the DHB. Changes that this realignment will entail include:

- CVs for all committee members need to be forwarded to ASD/HA
- Minutes and attendance of meetings must be maintained
- A Designated Federal Official must attend CoTCCC meetings to represent ASD/HA
- CoTCCC meeting agendas must be approved by HA in advance
- The Chairman of the CoTCCC must be a government employee

This realignment was effective 28 March 2008. The CoTCCC will need to rely on current funding lines from the Navy and the Army for support in FY09, but funding for the committee will be included in the ASD/HA POM build for FY10. Administrative support for the CoTCCC is currently planned to be provided through the USAISR.

5. LTC Jeff Cain - TCCC Instructor Course

The CoTCCC has been requested by NOMI and the Naval Medical Personnel, Training, and Education Command to develop a TCCC course that could be conducted through the Military Training Network or other similar group and used to train and sustain TCCC in Navy medical personnel.

This project is being carried out by a CoTCCC working group. TCCC certification cards and certification tracking will be carried out in cooperation with PHTLS. The course working group met for 3 days in early March 2008 to review proposed course content. Course presentations will be aligned with the Prehospital Trauma Life Support (PHTLS) chapters on Introduction to TCCC, Care under Fire, Tactical Field Care, and CASEVAC Care. There will also be a section of the course devoted to tactical scenarios and TCCC Lessons Learned.

MSG Montgomery and his Ranger medical cadre are assisting with required photographs. The initial course developed will be for TCCC instructors. Dr. Butler and Dr. McSwain will travel to St. Louis after the CoTCCC meeting to coordinate course details with representatives from PHTLS, the American College of Surgeons Committee on Trauma, the National Association of EMTs, and Elsevier publishing.

6. MSG Chris Murphy – TCCC Technology Evaluations: Tourniquet Uniform

The CoTCCC was asked for input on the recently fielded uniform that incorporates 2 tourniquets into each extremity of the shirt and trousers. This question was referred to MSG Chris Murphy in light of the Combat Evaluation Program in place at his Special Operations unit. MSG Murphy noted that this garment has been evaluated by his unit. Some of the concerns raised by operators during this evaluation were: 1) the extra expense entailed over individually carried CAT tourniquets; 2) concern about defining the life cycle of the garment; 3) concern about the effects of repeated laundering on the tourniquets in the garment; 4) damage to the tourniquets in the garment possibly being sustained at the time of wounding; 5) the lack of good data available regarding the effectiveness of the garment tourniquets at stopping extremity blood flow; and 6) concern that the embedded tourniquet locations might not be optimal for the specific wounds sustained. His unit's decision was not to go forward with acquiring this item.

7. Dr Jim Bagian - Membership Update

Dr. Bagian reviewed the status of CoTCCC membership, noting that there are two open positions on the committee. He noted that the current members of the Membership and Bylaws Subcommittee will be retained. He also asked for additional volunteers for the subcommittee.

8. MAJ Bob Mabry - TCCC First Responder Conference Update

The approval process for the TCCC First Responder Conference is nearly complete. The conference is planned for 9-11 September 2008 at the Embassy Suites hotel in Tampa, Florida. The conference will provide a forum for invited combat medical personnel and other first responders to present casualty scenarios that they have participated in and to discuss the implications of their scenarios for TCCC. Presentations will be in the format used in the Ranger First Responder presentations at last year's SOMA conference. Participants will be chosen by Major Mabry based on both the specific issues raised by the scenarios submitted and the quality of the presentations.

9. Dr. Frank Butler - TCCC Outreach Program

Dr. Butler presented this briefing on behalf of CAPT Jeff Timby, CoTCCC Outreach Coordinator. The TCCC Outreach Program is designed to present current TCCC concepts and outcomes evidence to appropriate audiences and venues. The list of target audiences and identified speakers is still being compiled but tentatively includes:

San Antonio Trauma Conference	MAJ Mabry
ATACCC	
SOMA	Dr. Butler
ACEP	MAJ Mabry
USAFP	Dr. Bennett
MHS (TRICARE)	
Armed Forces EM & Surgery	MAJ Mabry
WMS	Drs. Bennett and Otten
Navy Fleet Health Domain Board of Directors	
ACS COT Meetings – March and October	
PHTLS Annual Meeting/NAEMTP - October	
Basic Service Officer Courses	
Senior NCO Courses	
Navy IDC Conference – May	

10. Dr. Frank Butler - TCCC Trademark Update

The request for trademark protection for the term “Tactical Combat Casualty Care” has been submitted to the U.S. Patent Office for consideration. Dr. Butler has not yet heard back from the Patent Office on this application. The anticipated time frame for the response is July.

11. Update on Hemostatic Agents for First Responders

Dr. Bijan Kheirabadi - USAISR

LCDR Walter Carr/Dr. Francois Arnaud – Naval Medical Research Center (NMRC)

MSG Chris Murphy – Combat Applications Group

A number of new hemostatic agents have recently become available. These new agents have undergone testing both at the USAISR and at NMRC. The findings from these studies were presented to the Committee on TCCC (CoTCCC) on 1 April 2008. Three different swine bleeding models were used: a 6mm femoral artery punch model at USAISR and a 4mm femoral artery punch as well as a femoral artery/vein transaction model at NMRC. Both the NMRC and the USAISR studies found Combat Gauze and Woundstat to be consistently more effective than the hemostatic agents HemCon and QuikClot recommended in the 2006 TCCC guidelines. No significant exothermic reaction was noted with either agent. Celox was also found to outperform the current agents, although it performed less well than WoundStat in the more severe

USAISR model, where 10 of 10 Woundstat animal survived, 8 of 10 Combat Gauze animals survived, and 6 of 10 Celox animals survived. The reports detailing this research will be available shortly from USAISR and NMRC.

MSG Chris Murphy from the Combat Applications Group presented a combat medic perspective on this issue and noted that his experience has caused him to prefer a gauze-type hemostatic agent rather than a powder or granule. This preference is based on his observation that powder or granular agents do not work well in wounds where the bleeding vessel is at the bottom of a narrow wound tract. A gauze-type hemostatic agent is more effective in this setting. This preference was echoed by other members who are combat medics or corpsmen. Combat Gauze was also noted to be more easily removable from the wound site at the time of surgical repair.

Following the presentations, COL Holcomb recommended that the CoTCCC recommend Combat Gauze as the first-line treatment for life-threatening hemorrhage that is not amenable to tourniquet placement. Woundstat was recommended as the backup agent in the event that Combat Gauze does not effectively control the hemorrhage. An unscheduled vote was conducted on this motion and the recommended change was approved.

2 April 2008

12. 2008 TCCC Butler Award

The following individuals were nominated for the 2008 TCCC Butler Award.

COL John Holcomb
Dr. Howard Champion
Mr. Rick Strayer
MAJ Robert Mabry
Dr. Norman McSwain

The results of the voting will be announced at the next meeting.

13. Dr. Norman McSwain - PHTLS Manual Seventh Edition Update

Dr McSwain announced that the PHTLS Manual Seventh Edition will be published in September 2010. In order to meet this deadline, Dr Butler would like to finalize the TCCC guidelines update at the next CoTCCC meeting in July. Once the updates are finalized, chapter authors will have six months to work on chapter revisions. Revised chapters are due to Dr. Butler by 7 January 2009. Dr. Butler will make the final review before submission to Dr McSwain in June 2009.

Current TCCC chapter assignments are as follows:

Introduction to TCCC – Dr. Frank Butler
Care under Fire – SOCM Shawn Johnson
Tactical Field Care – Dr. Frank Butler
CASEVAC – COL Jay Johannigman
Triage – COL Paul Cordts

MEDEVAC – SMSGT Tom Rich
Ethics – COL Frank Anders
Blast – Dr. Howard Champion
Urban Warfare – MAJ Bob Mabry

Dr. McSwain noted that the Seventh Edition of the PHTLS Manual will bear the logos of both the NAEMT and the ACS COT. MAJ Mabry suggested an additional chapter on airway complications and/or airway adjuncts. Traumatic Brain Injury (TBI) was another suggested chapter. LTC Cain proposed a chapter on small-unit casualty response and training in medical mission planning. Another proposed chapter is one on TCCC casualty scenarios.

14. Col Don Jenkins – First Responder Care Documentation

Col Jenkins provided an update on the First Responder TCCC Documentation Reengineering Proposal. Although AHLTA Mobile (B-Mist) is the currently fielded DoD electronic medical record solution, the First Responder is often NOT a medic or corpsman and would therefore not be trained in or have access to AHLTA. Additionally, experience has demonstrated that tactical flow, TCCC, scene security, and rapid evacuation consume the time following injuries sustained in combat, leaving minimal time for medical documentation. A new DoD Form TCCC is being developed for use from the point of wounding until arrival at a medical treatment facility. The intent is to improve outcomes by agreeing on and capturing a standard set of data elements to document First Responder care. The new form specifications are:

- a. Two-sided form made of rigid, waterproof, ruggedized paper.
- b. Pre-attached cord or wire running through a grommet to insure it can be attached to the patient and won't come off.
- c. One side should be first responder and the back should be a run sheet for CASEVAC crews.
- d. Card should be carried in a particular pocket of all soldiers, pre-filled out with demographics.
- e. Medics and evacuation crews will carry blanks.

Adequate documentation of First Responder and CASEVAC care will not happen without a system that is simple, reliable, fast, and effective. Development of an electronic version of the TCCC card is being researched. This electronic tool will be used once the casualty has arrived at a medical treatment facility and will be based on the data contained on the TCCC First Responder form. Features of this electronic TCCC care capture system were discussed. Any additional comments on this issue should be forwarded to Col Jenkins.

18. Dr. Frank Butler – Management of Eye Trauma in TCCC

Dr. Butler proposed that the management of eye trauma be addressed in the TCCC guidelines. The proposed change is outlined below.

Current Wording in the Guidelines

None

Proposed Change

Care under Fire

N/A

Tactical Field Care

If a penetrating eye injury is noted or suspected: 1) perform a rapid field test of visual acuity; 2) cover the eye with a rigid eye shield (NOT a pressure patch); and 3) ensure that the 400 mg moxifloxacin tablet in the combat pill pack is taken if possible and that IV/IM antibiotics are given if oral moxifloxacin cannot be taken.

CASEVAC Care

If a penetrating eye injury is noted or suspected: 1) perform a rapid field test of visual acuity; 2) cover the eye with a rigid eye shield (NOT a pressure patch); and 3) ensure that the 400 mg moxifloxacin tablet in the combat pill pack is taken if possible and that IV/IM antibiotics are given if oral moxifloxacin cannot be taken.

Discussion

When penetrating eye trauma due to missile fragments or other shrapnel is suspected, there are two elements of care that are of paramount importance.

The first is to prevent manipulation or additional trauma to the eye that might raise intraocular pressure and result in the expulsion of intraocular contents through the corneal or scleral defect. This is prevented by taping a rigid shield over the eye.

The second important element of care is to prevent the development of posttraumatic endophthalmitis, an infection of the aqueous and vitreous chambers of the eye. This typically has devastating visual results, with only 30% of victims in one study retaining visual acuity greater than or equal to 20/400. *Staphylococcus epidermidis* is the most common pathogen implicated, but *Bacillus cereus* is another very aggressive pathogen often isolated in this condition. (Butler 2007) The casualty with a penetrating eye injury needs broad spectrum coverage by an agent that has good vitreous penetration and moxifloxacin 400 mg once a day is the agent of choice in the prehospital environment. The casualty should be evacuated as soon as feasible. No topical antibiotics should be given to a casualty with an unrepaired open globe.

These elements of care are consistent with the recommendations in the Emergency War Manual and with the recommendations for managing eye trauma in austere environments found in Auerbach's textbook *Wilderness Medicine*. (Butler 2007)

Casualties in the GWOT with intraocular foreign bodies have been shown to suffer no worsening of their visual outcome from delaying the removal of the foreign body for several days (surgery performed at Walter Reed Army Medical Center) when aggressive antibiotic therapy is provided. (Colyer 2007)

References

1. Ocular Trauma: In, Emergency War Surgery; Third United States Revision; 2004
2. Butler FK. The Eye in the Wilderness. Wilderness Medicine; Auerbach PS, ed: St Louis, Mosby; Fifth Edition, 2007

3. Colyer MH, Weber ED, Weichel ED, Dick JS, Bower KS, Ward TP, Haller JA: Delayed intraocular foreign body removal without endophthalmitis during Operations Iraqi Freedom and Enduring Freedom. *Ophthalmology* 2007;114:1439-1437

The committee conducted a scheduled vote on this proposed change and it was approved.

19. Dr. Frank Butler – Review of TCCC Change Procedures

As outlined in the CoTCCC charter, changes to the TCCC guidelines will be proposed by a Committee member. The Chairman will forward the proposed change to the entire COTCCC membership via e-mail prior to the issue being discussed at a meeting so that individuals who want to oppose the proposed change or advocate for alternative changes will be given ample time and opportunity to do so.

20. Dr. Frank Butler – Review of Potential Changes to the TCCC Guidelines

- a. Use of Ketamine in TCCC – no support
- b. Tactical Extraction Procedures – will be included in the PHTLS chapter text instead of pursued as a guideline change.
- c. Plasma in TCCC – no support
- d. Use of the King Airway in TCCC – MAJ Mabry will address
- e. Cricothyroidotomy Technique – MAJ Mabry will address
- f. Jaw Thrust in Airway Management - MAJ Mabry will address
- g. The SOFT-T Tourniquet in TCCC– SFC Mike Davila will address
- h. Second Tourniquet Side-by-Side PRN - will be included in the PHTLS chapter text instead of pursued as a guideline change.
- i. Checking Distal Pulse in Tourniquet Application - no support
- j. Tourniquets on All Traumatic Amputations – Mr. Don Parsons will address
- k. Specific Litters for TCCC - will be included in the PHTLS chapter text instead of pursued as a guideline change.
- l. TBI testing in TFC – will be included in the PHTLS chapter text instead of pursued as a guideline change.
- m. Needle Thoracostomy Issues – Mr. Don Parsons will address
3.25” and 14 ga
Penetrating trauma only?
- n. Treatment of Open Pneumothorax: 3-sided vs occlusive dressing – Dr. Mel Otten will address
- o. No Hemostatics in CUF – SFC Mike Davila will address
- p. Elimination of Cefotetan – Dr. Peter Rhee will address
- q. CASEVAC vs MEDEVAC Terminology Change – no support

21. The next meeting of the CoTCCC is scheduled for 22-24 July 2008 in San Antonio.

Handwritten signature of Frank K. Butler, Jr. in black ink.

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