
**DEFENSE HEALTH BOARD
 COMMITTEE ON TACTICAL COMBAT CASUALTY CARE,
 A WORK GROUP OF THE
 TRAUMA AND INJURY SUBCOMMITTEE
 MEETING MINUTES
 February 7-8, 2012
 Wyndham Westshore
 700 N Westshore Blvd
 Tampa, Florida 33609**

1. ATTENDEES

MEMBERS			
TITLE	LAST NAME	FIRST NAME	TITLE/ORGANIZATION
Dr.	Bennett	Brad	Tactical Medical Consultant
COL	Blackbourne	Lorne	Commander, U.S. Army Institute of Surgical Research (USAISR)
Dr.	Butler	Frank	Health Science Research Advisor, USAISR
Dr.	Cain	Jeffrey	Medical Director, McKinney SWAT
Dr.	Callaway	David	Director, The Operational Medicine Institute and Associate Professor of Emergency Medicine, Carolinas Medical Center
COL	Czarnik	James	Commanding Officer, Supreme Headquarters Allied Powers Europe and NATO Healthcare Facilities
COL (Ret)	Deal	Virgil	Physician, Fayetteville Veteran's Affairs Medical Center
Dr.	Dunne	James	Chief of Trauma, Walter Reed National Military Medical Center
COL	Eastridge	Brian	Trauma Consultant, U.S. Army Surgeon General
COL	Farr	Warner "Rocky"	Command Surgeon, SOCCENT
Dr.	Flaherty	Stephen	Trauma Medical Director, Cape Fear Valley Health System
CAPT (Ret)	Freer	Douglas	Medical Director, Raytheon Polar Services
Dr.	Gandy	John	Emergency Medicine Physician, Shenandoah Emergency Physicians
Dr.	Johannigman	Jay	Professor of Surgery, Director, Division of Trauma and Critical Care, Department of Surgery, University of Cincinnati Medical Center
CAPT	Kelly	Kenneth	Chief, Emergency Medical Department, Tripler Army Medical Center

MEMBERS (CONTINUED)			
TITLE	LAST NAME	FIRST NAME	TITLE/ORGANIZATION
Dr.	Kirkpatrick	James	Senior Clinical Consultant, Directorate of Doctrine & Combat Development, AMEDD Center and School
COL	Kotwal	Russ	Deputy Command Surgeon, U.S. Army Special Operations Command
LTC	Mabry	Robert	Emergency Services Fellowship Program Director, San Antonio Military Medical Center
MSG	Montgomery	Harold	Regimental Senior Medic, 75 th Ranger Regiment, U.S. Army
COL	O'Connor	Kevin	Physician to the Vice President
Dr.	Otten	Edward	Professor of Emergency Medicine, Medical Director, Division of Toxicology University of Cincinnati College of Medicine
Mr.	Parsons	Donald	Physician Assistant, Department of Combat Medic Training, Fort Sam Houston, Course Director for 68W Training
Mr.	Pesquera	Gary	Medical Training & Operation Specialist
Dr.	Rhee	Peter	Professor of Surgery, University of Arizona; Chief, Division of Trauma, Critical Care and Emergency Surgery; Medical Director, UMC Trauma Center
HMC	Sine	D. Eric	Command Master Chief, Third Marine Division
Mr.	Strayer	Richard	Special Operations Combat Medic Course Instructor, John Fitzgerald Kennedy Special Warfare Center and School, U.S. Army
HMC	Torrisi	Jeremy	Corpsman, Marine Corps Special Operations Command

GOVERNMENT, CONTRACT STAFF & INVITED GUESTS			
TITLE	LAST NAME	FIRST NAME	TITLE/ORGANIZATION
CDR	Brunstetter	Tyson	Chief, Joint Medical Test and Evaluation, Defense Medical Materiel Program Office
Ms.	Davis	Danielle	Senior Administrative Assistant, USAISR
Dr.	Champion	Howard	Professor of Surgery and Senior Advisor on Trauma, USUHS and President/CEO, SimQuest, LLC
COL	Hachey	Wayne	Executive Secretary, Defense Health Board
COL	Harcke	Howard	Chief, Forensic Radiology, Office of the U.S. Armed Forces Medical Examiner
GOVERNMENT, CONTRACT STAFF & INVITED GUESTS (CONTINUED)			
TITLE	LAST NAME	FIRST NAME	TITLE/ORGANIZATION

COL	Hildabrand	Annette	Associate Director, DoD Animal Use Programs, Office of the Secretary of Defense/Assistant Secretary of Defense (Research and Engineering)
SSG	Holt	Karl	Combat Medic, Joint Special Operations Medical Training Center
Dr.	Kheirabadi	Bijan	Researcher, USAISR
Dr.	Kragh	John	Orthopedic Surgeon, USAISR
Mr.	Lueder	Mark	Tactical Combat Casualty Care Coordinator, Pre-Hospital Trauma Life Support/National Association of Emergency Medical Technicians
Ms.	Peabody	Hillary	Defense Health Board Analyst, Grant Thornton LLP
Col	Rasmussen	Todd	Deputy Commander, USAISR

The guest attendee list is provided as Attachment A.

2. NEW BUSINESS – February 7, 2012

a. Administrative Remarks

Discussion:

Dr. Frank Butler requested that attendees introduce themselves. Dr. Butler indicated that the Committee on Tactical Combat Casualty Care (CoTCCC) will tentatively meet on May 1+2, 2012 in New Orleans, Louisiana.

Dr. Butler provided an overview of the meeting agenda. He asked members to disclose any potential conflicts of interest related to the topics scheduled for deliberation; no disclosures were indicated. COL Hachey noted that the former Trauma and Injury Subcommittee members that were nominated for reappointment were reappointed the previous day. He also noted that HMC Torrisi was also appointed to the Work Group.

Action/POC: None.

b. Combat Medic Presentation

Discussion:

SSG Karl Holt described the situation he experienced on October 26, 2009. He was in a Chinook helicopter that crashed in Afghanistan. To quote SSG Holt: “Due to the confusion of battlefield conditions our helo was on a collision course with a cliff. Realizing a moment before impact, the pilots attempted to maneuver away but lost control. Falling back into the village, the helo broke in half upon impacting a two-story compound, burst into flames, and the building collapsing on top of the wreckage. Within 4 ½ minutes over 10,000 rounds of munitions “cooked off,” and within 17 minutes the

entire CH-47 had completely burned. I had been seated on the floor directly behind the cockpit, and with nothing to hang on to, fell back. After realizing that we had stopped falling and that I was still alive, the priority was to get out from under the crushing weight of gear and bodies that were inhibiting my breathing. The light from the fires gave me a good view of what was left.“

SSG Holt was the only survivor from the 11 souls in the forward half of the helicopter. As the only medic on-scene, he immediately began to care for the 15 individuals who had been present in the aft section of the aircraft, despite having sustained an L1 fracture, facial fractures, and other assorted injuries himself.

Nearly all weaponry and medical equipment were destroyed. SSG Holt noted that there were propane gas tanks in the immediate vicinity of the crash, which required that casualties be quickly moved away from the site of a potential secondary explosion. One casualty had a spinal cord injury; another had a closed-tib/fib fracture. Several other casualties with significant injuries did not present for treatment during the scenario, but continued to provide scene security.

SSG Holt’s observations, comments, and lessons learned included the following:

- Be prepared for medical supplies to be destroyed. Bring a “butt pack” with essential medical supplies for contingencies like this.
- Cross-training is essential for all parties, including sister organizations. In this situation, SSG Holt’s unit had received extensive TCCC training, but the Afghan partner team had not received equivalent training, and as a result had divergent skill sets. For example, the partners were unfamiliar with triage, litter carrying methods, principles of splinting (to include with nonconventional tools), etc.
- It is important that the “butt pack” include pain management supplies.
- One casualty received 20 mg of IM morphine with little to no improvement in his pain. SSG Holt also noted that in his experience, 800 ug of OTFC fentanyl has not proven to be very effective.
- Translation capabilities in casualty scenarios involving host nation partner forces are critical. The interpreter in this scenario was alive but of minimal help after the crash.

Action/POC: None.

c. Tactical Combat Casualty Care Update

Discussion:

Dr. Frank Butler reviewed the following recently published articles pertaining to TCCC:

- Butler FK and Carmona R. “Tactical Combat Casualty Care: From the Battlefields of Afghanistan and Iraq to the Streets of America,” *The Tactical Edge*, Winter 2012: 86-91.
- Savage E et. al. “Tactical Combat Casualty Care in the Canadian Forces: Lessons Learned from the Afghan War.” *Can J Surg* 2011; **54**: S118-S123.

- Pannell D et. al. “Causes of Death in Canadian Forces Members Deployed to Afghanistan and Implications on Tactical Combat Casualty Care Provision.” *J Trauma* 2011; **71**(5): S401-S407.
- Martinaud C et. al. “Use of Freeze-Dried Plasma in French Intensive Care Unit in Afghanistan,” *J Trauma* 2011; **71**(6): 1761-1778.

Other items of interest that Dr. Butler noted were:

- The Colombian Ministry of Defense has mandated TCCC training for all military personnel.
- The Special Operations Forces of the North Atlantic Treaty Organization (NATO) nations use the Guidelines created by the CoTCCC. Once the updated TCCC Guidelines are posted on the Military Health System web site, NATO posts them on the NATO Special Operational Medical Branch Web site as well.
- During the December 22, 2011 Joint Theater Trauma System teleconference, three casualties were described with very proximal lower extremity amputations and significant hemorrhaging. There was no record of Combat Gauze™ having been used. These casualties might all have been good candidates for the Combat Ready Clamp™.
- Dr. Butler reviewed the process by which the TCCC Guidelines are reviewed and updated, as well as the relationship between the Guidelines, the TCCC Curriculum, and the Pre-Hospital Trauma Life Support (PHTLS) Manual (Military Version). The TCCC Guidelines present **what** to do; the TCCC curriculum aids in teaching combat medics, corpsmen, and pararescuemen **how** to perform TCCC; and the PHTLS Manual provides the scientific basis for **why** the TCCC Guidelines contains the recommendations made.

In the ensuing discussion, COL Hachey stated that the Assistant Secretary of Defense (Health Affairs) (ASD(HA)) decides whether the recommendations pertaining to TCCC Guidelines should be forwarded (to Force Health Protection and Readiness Operational Medicine) for implementation. If so, various entities review the recommendations before they are approved as guideline changes.

Action/POC: None.

d. Feedback to the Field: King LT® Airways

Discussion:

COL Ted Harcke gave an overview of “Feedback to the Field,” (F2TF) a Joint project of the Office of the Armed Forces Medical Examiner and the Defense Medical Materiel Program Office (DMMPO). F2TF provides case-based observational data regarding medical devices to medical providers and trainers. The data are derived from autopsies conducted at the Port Mortuary at Dover Air Force Base. COL Harcke noted that the Chief Medical Examiner recently determined that F2TF PowerPoint presentations would

be marked For Official Use Only, thus limiting their distribution. (Note: since this meeting, the OAFME has reconsidered the restriction and now all of the FT2F presentations are no longer designated FOUO. DMMPO has resent the last two (#10 and #11) cleared of the FOUO label.) Dr. Harcke reviewed recent AFME findings:

- Four of seven King LT[®]-D Number Four (supraglottic airway) tubes were not positioned according to manufacturer specifications.
- Single slit routing was used in 23 of 66 lower extremity CAT tourniquet applications instead of the recommended double slit routing.

Action/POC: None.

e. Naval Operational Medical Lessons Learned Center (NOMLLC) TCCC Equipment Evaluation Update

Discussion:

Dr. Butler indicated that Mr. Gerry Williams from NOMLLC was unable to attend the meeting and provided the update on his behalf. There were 285 equipment evaluations submitted as of 1 February 2012 that collectively represent the experience gathered in treating a reported 20,533 casualties. Respondents were Army medics and Navy corpsmen who had supported USMC combat operations as well as USAF Pararescuemen. Since the briefing delivered at the November 2011 meeting, survey analysts have begun calculating a weighted rating average for each question in the survey. Among the points made in the presentation were:

- The CAT tourniquet was the most frequently used tourniquet with 2802 uses and a rating of 4.39 (out of 5); the SOFT-T was used 1006 times and received a rating of 4.83.

- Combat Gauze was used on 1889 casualties and was rated at 4.39; Celox Gauze was used 80 times and was rated at 4.74.

- The nasopharyngeal airway was used on 1655 casualties and received a rating of 3.88; endotracheal intubation was used 790 times and was rated at 4.78.

- The Asherman chest seal was most-used chest seal at 566 uses but was also the lowest rated chest seal at 2.96; the Halo chest seal was used 218 times and received the highest rating of any device in the survey at 4.99.

- The Pyng FAST-1 was the most-used and the highest-rated intraosseous device with 260 uses and a rating of 4.72.

- IV morphine was reported to be used on 1645 casualties and was rated at 4.37; ketamine was used 578 times and was rated at 4.90.

Combat medics, corpsmen or pararescuemen who have personally treated casualties on the battlefield and who have not already participated in this TCCC Equipment Evaluation

project can do so at this link:

[https://www.surveymonkey.com/s/TCCC Equipment Evaluation](https://www.surveymonkey.com/s/TCCC_Equipment_Evaluation)

Action/POC: None.

f. Quality Assessment and Simulation in Combat Medic Training

Discussion:

COL Annette Hildabrand provided an overview of her forthcoming briefing to Congress (to be delivered March, 2012) regarding the Secretary of Defense's strategy to integrate simulation technology to refine, reduce and replace the use of animals in medical education and training. She noted that animal rights lobbyists want to eliminate the practice of live tissue training on animals. A bill is being considered that would prohibit the use of live animals for medical training. COL Hildabrand requested input regarding how to communicate the importance of live tissue training for ensuring military medical readiness. As part of the research portfolio to examine live animal use compared to simulation technology for medical training, a comprehensive cost analysis has been initiated.

Action/POC: None.

g. TCCC Equipment Issues – NO CHANGE - TB

Discussion:

CDR Tyson Brunstetter provided an update of DMMPO activities. He indicated that compromised sterile gauze investigations are underway. CDR Brunstetter stated that DMMPO is planning a large scale full lifecycle test and evaluation of gauze integrity; however, funding has not yet been secured for this evaluation. He also noted that the original FAST1[®] Intraosseous device, which has a clear collar, expired in July 2010. DMMPO found that they are still being used in some units. The unexpired version has a blue collar. A study in 2011 demonstrated that the mask on the Simplified Automated Ventilator is ineffective; DMMPO is discussing this issue with the manufacturer. CDR Brunstetter recommended that providers continuously monitor patients when using this device. He stated that although the recent shipment of Combat Application Tourniquets[®] (CAT[®]) did not include any counterfeits, a new counterfeit CAT[®] tourniquet was discovered at a German medical trade show. Lastly, CDR Brunstetter noted that discussions are ongoing between the Services and DMMPO regarding the possibility of creating a Joint Improved First Aid Kit with DMMPO.

Action/POC: None.

h. Pre-Hospital Trauma Life Support (PHTLS) TCCC Courses Update

Discussion:

Mr. Mark Lueder noted that four new PHTLS sites were established since the last update, provided at the November 2011 CoTCCC meeting. A course was taught in Colombia, which followed from discussions at the PHTLS course provided in Ecuador. PHTLS is planning a pre-conference TCCC course for the October 2012 Emergency Medical Services exposition. Mr. Lueder also stated that PHTLS efforts in Europe are expanding and that a TCCC course will be taught for the Swedish military in March.

Action/POC: None.

i. Committee for Tactical Emergency Casualty Care

Discussion:

Dr. Dave Callaway, Co-Chair of the Committee for Tactical Emergency Casualty Care (CTECC), provided an overview of the CTECC. CTECC is an independent non-profit organization created to develop best practices, guidelines and recommendations for civilian high-threat prehospital medicine. The Committee and its Board of Advisors include many CoTCCC members as well as experts from a variety of civilian first responder agencies. CTECC uses the TCCC Guidelines as the basis for its TECC Guidelines. The members review the TCCC Guidelines (including changes recommended by the Defense Health Board (DHB)) for applicability to civilian tactical medicine and tailor them as appropriate. He described the primary similarities and differences between the TCCC Guidelines and TECC Guidelines.

Action/POC: None.

j. Cryoprecipitate in Trauma: Matters II

Discussion:

Col Todd Rasmussen reviewed the follow-on study to the Military Application of Tranexamic Acid in Trauma Emergency Resuscitation Study (MATTERS). After discovering that tranexamic acid (TXA) reduces mortality following major trauma when administered as part of component based resuscitation, the principal investigators sought to characterize the impact of the fibrinogen-containing product, cryoprecipitate, on survival in casualties receiving TXA. Investigators queried the United States and United Kingdom Joint Trauma Registries to identify patients admitted to a level III hospital that required one or more units of packed red blood cells (PRBCs). Injury severity scores and

PRBC requirements were compared across four groups (TXA, cryoprecipitate, TXA and cryoprecipitate, and no TXA or cryoprecipitate). Col Rasmussen noted that their preliminary findings suggest that cryoprecipitate improves the survival benefit of TXA in those seriously injured who require transfusion. He stated that the effect was additive rather than synergistic.

Action/POC: None.

k. Hemostatic Research at the U.S. Army Institute of Surgical Research

Discussion:

Dr. Bijan Kheirabadi provided an overview of new hemostatic agents being tested at the U.S. Army Institute of Surgical Research. He stated that there is a program underway at USAISR in which new hemostatic agents are screened for efficacy using the ISR 6mm femoral arteriotomy model in a 3-animal protocol. If the agents are absorbable, then they are tested on a venous model as well. Nine Food and Drug Administration (FDA) - approved agents have been tested; none have been found to be significantly better than Combat Gauze. Of the agents tested, ActCel™, ChitoGauze® and Celox™ Gauze were effective at stopping bleeding in pigs with normal clotting function. Further testing determined that none were effective in stopping coagulopathic hemorrhage. In other research, Dr. Kheirabadi discussed preliminary findings that standard negative pressure wound therapy at 150 mmHG does not provide any hemostatic benefit. However, using increased negative pressure (500 mmHG) and Combat Gauze was found to improve survival in a coagulopathic bleeding model. Negative pressure therapy may also be an effective adjunct when combined with Combat Gauze or regular gauze for stopping potentially lethal coagulopathic bleeding in large soft-tissue wounds.

Action/POC: None.

l. TCCC Skill Sets by Provider Level

Discussion:

Dr. Butler reviewed proposed changes to the TCCC Skill Sets by Provider Level matrix. He noted that the ASD(HA) may have imposed the restrictions present in his memo of 4 November 2011 with respect to the recommendation to use TXA in casualties who are at risk for hypovolemic shock because the CoTCCC did not specifically state what level of provider would be permitted to administer it at the time that the recommendation was made. Dr. Butler proposed that with increasingly advanced interventions being recommended as part of TCCC that the group consider adding a fourth level of provider to the skill sets matrix: combat paramedic. He further recommended that an indication of who on the battlefield should be trained to provide the intervention be part of any changes to TCCC recommended in the future. He also shared feedback from Mr. Parsons

regarding the skill sets and which skills the Army includes in its combat medic training. Discussion ensued regarding the skill levels. Members agreed with adding the combat paramedic category and noted that it should include such groups as critical care flight paramedics (CCFP), Special Operations Combat Medics, and Pararescuemen. The members will further examine the current TCCC Provider Skill Sets and vote on any changes at the CoTCCC meeting the following day.

Action/POC: Review and vote on proposed changes to the TCCC Skill Sets by Provider Level matrix in meeting the following day/CoTCCC.

m. Proposed Change: Management of Traumatic Brain Injury in TCCC

Discussion:

Dr. Mel Otten reviewed the changes made to the proposed recommendations for the management of TBI in TCCC since his presentation at the November 15, 2011 CoTCCC meeting. Dr. Otten stated that the following people also reviewed the proposed change and provided feedback prior to the meeting: CAPT Paul Hammer, Director of the Defense Center for Psychological Health and Traumatic Brain Injury (TBI), Dr. Allen Frankfurt, COL Lorne Blackbourne, and CDR Dave Tarantino from Headquarters, U.S. Marine Corps. Dr. Otten mentioned that CDR Trantino's comment regarding urgent evacuation for casualties with "red flag" signs will be added to the TCCC Curriculum's "Tactical Evacuation (TACEVAC) Rules of Thumb."

Dr. Peter Rhee noted that it is difficult to elevate casualties' head during transport to a hospital and that this measure was not necessary as a routine step in managing casualties with significant head injury. COL Lorne Blackbourne also commented that this measure might not be advisable in casualties with a suspected spinal fracture. Master Chief Glenn Royes recommended that the word "aggressive" be removed from the hypothermia prevention because it might lead to casualties with TBI being over-treated in this regard and made hyperthermic. A similar point was raised by others with respect to fluid resuscitation. Dr. Jay Johannigman noted that capnography does not always provide accurate data in the field.

Action/POC:

1. Add TBI TACEVAC Rule of Thumb to TCCC Curriculum/Dr. Butler.
2. Review and vote on proposed change in meeting the following day/CoTCCC.

n. Survival in Women with Isolated Limb Trauma

Discussion:

COL John Kragh reviewed a recently-published paper by Cross and her co-authors regarding survival among women injured in combat. COL Kragh also analyzed Joint Theater Trauma Registry data and found that women with isolated limb trauma have a higher case fatality rate than men and are less likely to have a tourniquet applied (despite higher rates of limb injury). Mr. Parsons noted that men and women are not allowed to touch each other in certain areas during training; anecdotal reports suggest that this practice may be carried over to the battlefield. For example, a male medic may be hesitant to fully undress a hemorrhaging female to provide treatment. Another possibility discussed was that women are more frequently assigned to units not intended to serve primarily as ground combatant units and that these units may not reliably obtain predeployment TCCC training. COL Harcke pointed out that it would be useful to know how males assigned to these units do in terms of casualty survival.

Action/POC: None.

Following COL Kragh's presentation, Dr. Butler adjourned the meeting.

3. NEW BUSINESS – February 8, 2012

a. Administrative Remarks

Discussion:

Dr. Butler provided an overview of the meeting agenda. He asked members to disclose any potential conflicts of interest related to the topics scheduled for deliberation; no disclosures were provided. Dr. Butler asked the CoTCCC members for preferred times for the August CoTCCC meeting; the recommended time was immediately following the Advanced Technology Applications for Combat Casualty Care meeting on August 13-16, 2012. Dr. Butler indicated that he would work with the DHB staff and the ATACCC organizers to try to schedule the meeting for 17-18 August at the ATACCC conference site.

Potential changes to the TCCC Guidelines were then reviewed. Dr. Cain suggested that the CoTCCC consider adding the analgesic tramadol to the TCCC Guidelines. He also suggested that the members consider Zofran instead of Phenergan as the preferred anti-emetic, since Zofran is now relatively inexpensive. A brief discussion followed regarding the optimal site for needle decompression. Dr. Callaway volunteered to review the issue of the preferred site for needle decompression of tension pneumothorax, looking

at the 4th or 5th intercostal space at the anterior or mid-axillary line as the preferred site. If his research indicates that this site may be a better choice than the currently used second intercostal space at the midclavicular line, he will propose a change to the TCCC Guidelines to reflect that. Dr. Otten also indicated that he would review the recommendations for advanced airways in the TACEVAC section of the TCCC Guidelines and propose changes as indicated.

Action/POC:

1. Dr. Callaway – proposed change on needle decompression
2. Dr. Otten – proposed change on supraglottic airways

b. Combat Medic Scenario Review

Discussion:

Members reviewed the combat medic casualty vignette provided by SSG Holt the previous day. Dr. Otten stated that having critical medical tools in the “butt pack” was an important lesson. Dr. Callaway stated that casualty collection point best practices should be noted in the TCCC Curriculum and the PHTLS Manual. He also noted that planning for evacuation over physical obstacles is a key lesson.

Action/POC: None.

c. Freeze Dried Plasma Protocol

Discussion:

COL Peter Benson and COL Russ Kotwal gave an update on the Freeze Dried Plasma (FDP) treatment protocol. They noted that DHB support was instrumental in obtaining DoD support for the protocol. At the recent Military Health System (MHS) conference, DoD leaders identified this as the most important military medical research protocol. Although significant hurdles remain in obtaining approval for the U.S. FDP product by the FDA, COL Benson and COL Kotwal expect that domestic FDP production will start in 2016. The French FDP product will be used in the interim; it is expected to be fielded in theater by mid-March 2012.

Action/POC: None.

d. Discussion/Vote: TCCC Skill Sets by Provider Level

Discussion:

Members further discussed the TCCC Skill Sets by Provider Level recommendations. Members agreed to add the fourth category of provider on the battlefield: the Combat Paramedic. The combat paramedic definition will include critical care flight paramedics, Special Operations Combat Medics, and Air Force Paraescuemen. Members agreed that advanced airways in TACEVAC (other than surgical airways) should be combat paramedic level skills. They also agreed that chest tube insertion should be a combat paramedic level skill. The administration of IV, IM, and intranasal medications should be skills that both combat medics and combat paramedics possess, but not combat lifesavers. Traction splinting was recommended as a skill that should be retained by combat medics and combat paramedics, but not by combat lifesavers. The group agreed that all providers on the battlefield should be able to assess for a change in mental status and to cover burned areas in casualties.

Dr. Rhee noted that needle thoracostomy has a significant potential for harm and should not be performed by all providers. Dr. Callaway stated that a study of needle thoracostomy by police force members showed that they were able to successfully perform the procedure. These changes to the recommended skill sets by provider matrix were approved by the CoTCCC.

Action/POC:

1. The revised TCCC Skill Sets by Provider Level matrix is provided as attachment C; it will be forwarded to the Trauma and Injury Subcommittee of the DHB for their consideration.

e. Discussion/Vote: Management of TBI in TCCC

Discussion:

Members discussed the proposed addition to the TCCC Guidelines regarding TBI management. The members agreed with the general recommendations, but rearranged the proposed text to simplify it into bullet points and ensure that it matched the existing format of the TCCC Guidelines. Other changes included removing the recommendations regarding head elevation (except in casualties with impending cerebral herniation) and noting that hyperventilation is not indicated in TBI unless there is impending herniation. CoTCCC members voted to approve the recommendation at attachment B. New additions or changes to the TCCC Guidelines are underlined. The recommendation will be forwarded to the Trauma and Injury Subcommittee for their consideration.

Action/POC:

1. Forward recommendation at attachment B to Trauma and Injury Subcommittee for vote/Dr. Butler.

f. CoTCCC Way Ahead

Discussion:

Dr. Butler described the remarkable advances that have been made in battlefield trauma care over the last decade and noted the leadership role played by the CoTCCC in pioneering these lifesaving innovations in prehospital care. He emphasized the excellent relationship that the CoTCCC has always had with the Defense Health Board and mentioned the strong support that the DHB has always provided for CoTCCC recommendations. Dr. Butler observed that for the first 3.5 years of the CoTCCC's association with the DHB that FACA and other administrative issues did not impede the TCCC work process. The required FACA appointment process was initiated by the DHB staff in 2008 and pursued accordingly. The CoTCCC charter was rewritten to be a "Mission Statement" in compliance with FACA and DHB Bylaws in 2009. This effort was coordinated with the DHB Trauma and Injury Subcommittee and the Executive Secretary of the DHB. DHB leadership staff has since challenged the validity of this Mission Statement.

Dr. Butler went on to note that multiple administrative issues have arisen regarding the CoTCCC in the last 12 months. There have been reappointment delays that almost resulted in the cancellation of the April 2011 CoTCCC meeting. Dr. Butler pointed out the FACA reappointment problems were not limited to the CoTCCC. He also noted that there have been recent changes in interpreting FACA guidelines for the CoTCCC, to include membership issues, voting procedures, committee size, and the issue of whether the TCCC Guidelines are recommendations or policy. Dr. Butler pointed out that the TCCC Guidelines were being increasingly used throughout the DoD by 2007, when the CoTCCC was moved to the DHB, and that they were not being used because they were mandated – they were being used because they have been proven to save lives on the battlefield. Dr. Butler also noted that the DHB staff in recent months has made a number of statements about CoTCCC work products that are at odds with the CoTCCC Mission Statement and the historical role of the CoTCCC:

- That the TCCC Guidelines don't belong to Health Affairs or DHB; they belong to USAISR
- That the TCCC curriculum is not a CoTCCC responsibility; it belongs to USAISR
- That the PHTLS Manual chapters are not a CoTCCC responsibility; they belong to USAISR
- That the practice of posting the TCCC Guidelines and Curriculum on the MHS web site has been questioned.

Dr. Butler pointed out that the above statements are inconsistent with the long-standing mission of the CoTCCC and are at variance with ASD/HA memos of 4 March 2009 and

23 August 2011. He also stated that if ISR/JTS is to own these functions, then they should also own the CoTCCC. He noted that having a FAC produce a work product that is or should be intrinsic to the DoD, such as the TCCC Guidelines, is at odds with the “external advisory board” function of the DHB and other FACs.

COL Hachey stated that because the CoTCCC Charter was not endorsed by the Under Secretary of Defense (Personnel and Readiness), the CoTCCC must follow the DHB Charter. With regard to the publication of the TCCC Guidelines on the MHS Web site, he stated that this would no longer be done because it suggested an endorsement of the Guidelines by MHS. COL Hachey explained that in order for a document to be considered formally as a “guideline” by DoD, it must be produced by DoD, rather than by a Federal Advisory Committee. Dr. Callaway suggested that the CoTCCC show the ASD(HA) the value of CoTCCC by providing concrete evidence of lives saved as a result of its efforts to maintain the TCCC Guidelines.

Dr. Butler outlined three potential courses of action:

COA #1

Review the CoTCCC Mission Statement and confirm its continued function as part of the Defense Health Board; maintain traditional CoTCCC work products as outlined in the ASD/HA memos of 4 March 2009 and 23 August 2011.

COA #2

- If COA #1 Is Not Feasible
- Reconfigure the CoTCCC to be active duty military and federal government employees only – FACA would then not apply
- Move the reconfigured CoTCCC to ISR/JTS with POM support
- Civilian CoTCCC members remain on Trauma and Injury Subcommittee
- Trauma and Injury Subcommittee continues to review CoTCCC recommendations
- Both groups meet together but vote separately

COA 3

- Move the CoTCCC to another location within the DoD where it would function under a line command. (SOCOM? JCS?)

Members further discussed potential courses of action, and indicated a preference for the second course of action (as noted in the PowerPoint slides) if the present administrative issues cannot be resolved. This course of action would involve reconfiguring CoTCCC to include only Active Duty Service members and federal government employees (so that it would not have to comply with the Federal Advisory Committee Act), and realigning it under USAISR. The Trauma and Injury Subcommittee would remain under the DHB and would continue to review CoTCCC recommendations; the Subcommittee and CoTCCC would meet together but vote separately.

Action/POC:

1. This issue will be discussed at the DHB Trauma and Injury Subcommittee meeting to follow.

g. New Business

Discussion:

COL Swann indicated that the FDA is currently developing guidance that may restrict the use of fentanyl lozenges for battlefield analgesia. Members discussed the implications of this recommendation on TCCC. COL Swann stated that this issue is currently being addressed by the U.S. Army Surgeon General Pharmacy consultant.

Action/POC: Track this issue and support USSOCOM efforts to keep OTFC available for units that want it/Dr. Butler.

4. NEXT MEETING

The next meeting of the CoTCCC is tentatively scheduled for May 1-2, 2012 in New Orleans, Louisiana.



Frank K. Butler, M.D.
CAPT MC USN (Ret)
Chairman

31 March 2012

Date

ATTACHMENTS:

- A. Guest Attendees
- B. Recommended Change to the TCCC Guidelines: Management of TBI in TCCC
- C. TCCC Skill Set by Provider Level

Attachment B

Management of TBI in TCCC RECOMMENDATIONS

The CoTCCC recommends that the DoD incorporate the following changes regarding the management of TBI to the TCCC Guidelines (addition is underlined below):

Tactical Field Care

3. Breathing

- a. In a casualty with progressive respiratory distress and known or suspected torso trauma, consider a tension pneumothorax and decompress the chest on the side of the injury with a 14-gauge, 3.25 inch needle/catheter unit inserted in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is not medial to the nipple line and is not directed towards the heart.
- b. All open and/or sucking chest wounds should be treated by immediately applying an occlusive material to cover the defect and securing it in place. Monitor the casualty for the potential development of a subsequent tension pneumothorax.
- c. Casualties with severe TBI should be given supplemental oxygen when available to maintain an oxygen saturation > 90%.

10. Monitoring

Pulse oximetry should be available as an adjunct to clinical monitoring. All individuals with severe TBI should be monitored with pulse oximetry. Readings may be misleading in the settings of shock or marked hypothermia.

13. Provide analgesia as necessary.

a. Able to fight:

These medications should be carried by the combatant and self-administered as soon as possible after the wound is sustained.

- Mobic, 15 mg PO once a day
- Tylenol, 650-mg bilayer caplet, 2 PO every 8 hours

b. Unable to fight:

Note: Have naloxone readily available whenever administering opiates.

- Does not otherwise require IV/IO access
- Oral transmucosal fentanyl citrate (OTFC), 800 ug transbuccally
 - Recommend taping lozenge-on-a-stick to casualty's finger as an added safety measure
 - Reassess in 15 minutes

- Add second lozenge, in other cheek, as necessary to control severe pain.
- Monitor for respiratory depression.
- IV or IO access obtained:
 - Morphine sulfate, 5 mg IV/IO
 - Reassess in 10 minutes.
 - Repeat dose every 10 minutes as necessary to control severe pain.
 - Monitor for respiratory depression
- Promethazine, 25 mg IV/IM/IO every 6 hours as needed for nausea or for synergistic analgesic effect

Note: Narcotic analgesia should be avoided in casualties with respiratory distress, decreased oxygen saturation, shock, or decreased level of consciousness.

Tactical Evacuation (TACEVAC) Care

New #6. Traumatic Brain Injury

a. Casualties with suspected TBI should be monitored for:

- 1) decreases in level of consciousness
- 2) pupillary dilation
- 3) SBP should be >90 mmHg
- 4) O2 sat > 90
- 5) Prevent hypothermia
- 6) If capnography is available, PCO2 should be between 35-40 mmHg.
- 7) Give antibiotics for penetrating head trauma.

b. Unilateral pupillary dilation accompanied by a decreased level of consciousness may signify impending cerebral herniation; if these signs occur, take the following actions to decrease intracranial pressure:

- 1) Administer 250 cc of 3 or 5% hypertonic saline bolus.
- 2) Elevate the casualty's head 30 degrees.
- 3) Hyperventilate the casualty.
 - a) Respiratory rate 20
 - b) Capnography should be used to maintain the end-tidal CO2 between 30-35
 - c) The highest oxygen concentration (FIO2) possible should be used for hyperventilation.

Notes:

- Do not hyperventilate unless signs of impending herniation are present.
- Casualties may be hyperventilated with oxygen using the bag-valve-mask technique.

10. Monitoring

Institute pulse oximetry and other electronic monitoring of vital signs, if indicated. All individuals with severe TBI should be monitored with pulse oximetry.

13. Provide analgesia as necessary.

a. Able to fight:

These medications should be carried by the combatant and self-administered as soon as possible after the wound is sustained.

- Mobic, 15 mg PO once a day
- Tylenol, 650-mg bilayer caplet, 2 PO every 8 hours

b. Unable to fight:

Note: Have naloxone readily available whenever administering opiates.

- Does not otherwise require IV/IO access
 - Oral transmucosal fentanyl citrate (OTFC), 800 ug transbuccally
 - Recommend taping lozenge-on-a-stick to casualty's finger as an added safety measure
 - Reassess in 15 minutes
 - Add second lozenge, in other cheek, as necessary to control severe pain.
 - Monitor for respiratory depression.
- IV or IO access obtained:
 - Morphine sulfate, 5 mg IV/IO
 - Reassess in 10 minutes.
 - Repeat dose every 10 minutes as necessary to control severe pain.
 - Monitor for respiratory depression
- Promethazine, 25 mg IV/IM/IO every 6 hours as needed for nausea or for synergistic analgesic effect

Note: Narcotic analgesia should be avoided in casualties with respiratory distress, decreased oxygen saturation, shock, or decreased level of consciousness.

Attachment C
TCCC Skill Sets by Provider Level