

Committee on Tactical Combat Casualty Care Meeting Minutes 20-21 April 2010

Tampa, Florida

Attendance:

CoTCCC Members

Dr. Frank Anders	USAR
Dr. James Bagian	VA
Dr. Brad Bennett	USUHS
Dr. Howard Champion	USUHS
SFC Miguel Davila	USASOC
COL Tom Deal	USSOCOM
Col Warren Dorlac	USAF
COL Warner Farr	SOCCENT
Dr. Doug Freer	Raytheon Polar Services
Dr. John Gandy	Emergency Medicine – Las Vegas, NV
Dr. John Holcomb	Texas Health Science Center - Houston
COL Jonathan Jaffin	OTSG Army
CAPT Kenneth Kelly	Tripler AMC
LTC (P) Russ Kotwal	75 th Ranger Regiment
MAJ Robert Mabry	USAISR
Dr. Norman McSwain	Tulane University
MSG Harold Montgomery	75 th Ranger Regiment
Dr. Edward Otten	University of Cincinnati
Mr. Don Parsons	DCMT
Mr. Gary Pesquera	MARFORCOM
HMCM Eric Sine	JSOMTC
Mr. Richard Strayer	JSOMTC
CAPT Jeff Timby	NMCP

CoTCCC and Defense Health Board Staff

Dr. Frank Butler	CoTCCC
Ms. Danielle Davis	CoTCCC
CDR Ed Feeks	DHB
Dr. Steve Giebner	CoTCCC
Ms. Olivera Jovanovic	DHB

Guests

CDR Linda Beltra	BUMED
Dr. Jeff Cain	McKinney, TX SWAT
SFC Jon Clouse	JFKSWCS

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CAPT Tim Coakley	COMNECC
SFC Marc Ervin	HHC TSMTTC
MAJ Colleen Forestier	Canadian Forces
MAJ James Fulton	DMMPO
SFC Kenneth Hale	82 nd ABN
Lt Col Douglas Hodge	DMMPO
Mr. Kevin Joyner	MARCORSYSCOM
Lt Col Pamela Lucas	AF/SG
Mr. Lyle Lumsden	State Department
SSG Charles McAdams	75 th Ranger Regiment
LCDR Anne McKeague	NAMRU, San Antonio
Mr. John Miles	FMTB East
Dr. David Morehouse	DMI
Mr. Jeff Mott	CPDM
COL Karen O'Brien	TRADOC
MAJ John Paul	SOCCENT
COL Andre Pennardt	USASOC
CAPT Scott Rineer	MARCENT
MAJ Brandi Ritter	DMMPO
CPT Rory Saliger	82 nd ABN
MAJ Erin Savage	Canadian Forces
SGM Chester Sechrest	91 st CA Bn
LT Eric Shafer	2 nd BN, 8 th Marines
CPT Heath Shehan	75 th Ranger Regiment
Ms. Jan Skadberg	DMMPO
CAPT Robert Sorenson	MARFORCOM
LCDR Julia Springs	HQMC
Lt Col Steve Ward	AFSOC

Tuesday 20 April CoTCCC Public Session

Administrative Remarks

Dr. Frank Butler

Dr. Butler called the meeting to order and asked CoTCCC members and guests to introduce themselves. He reviewed the agenda for the meeting and asked that individuals in the audience reveal any financial interests in the agenda items to be discussed. There were no financial interests disclosed. The next CoTCCC meeting is planned for 3 August 2010 in Denver, CO. Dr. Butler recognized Ms. Danielle Davis, Mr. Dom Greydanus, and Dr. Steve Giebner for their outstanding efforts in setting up the CoTCCC meetings.

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Combat Medic Presentation

SFC Jon Clouse

SFC Jon Clouse is an Army SF Medic with D Co 1/1 SWTG(A) at Camp MacKall, NC, serving as an instructor in the Robin Sage Exercise (the culminating event in Army Special Forces training). He was first exposed to TCCC early in his career, and has taught it in Civil Affairs courses. The feedback that he receives from his former students is that TCCC works. After his time in Civil Affairs, he returned to Special Forces in 2006. In 2008, he was assigned as a liaison to the Marine Corps Special Operations Command (MARSOC) in western Afghanistan.

SFC Clouse presented a combat casualty scenario that occurred in June 2008 during his deployment to Afghanistan with MARSOC. On this operation, two Marine Special Operations Teams accompanied a platoon from the Afghan National Army on a sensitive site exploitation (SSE) after a planned bombing of the quarters of a mid-level enemy commander. The bombing mission was cancelled, but the ground force was ordered to proceed into the target canyon. About half the force had advanced into the canyon on foot (since vehicular access was blocked by abandoned enemy vehicles) when the enemy attacked with machine gun and sniper fire from concealed positions in the cliffs above. Casualties included:

- U.S. casualty #1 - gunshot wound (GSW) upper thigh with open femur fracture; fell in the open; dragged to cover by another operator; Combat Application Tourniquet (CAT) applied; morphine auto-injector administered
- U.S. casualty #2 - GSW upper thigh; self-applied CAT; continued to return fire while in the open
- ANA casualty #1 - GSW upper thigh with massive soft tissue damage; a self-applied tourniquet improvised from a boot lace was ineffective at stopping the bleeding; a CAT was subsequently applied but kept slipping down over wound; it was finally secured with a cravat passed through the CAT and tied to his belt
- U.S. casualty #3 - GSW to head; penetrated helmet and skull; unable to speak or respond coherently
- U.S. casualty #4 - GSW through hand, wrist, and shoulder
- U.S. casualty #5 - GSW enters left flank; exit wound to right of umbilicus; visible intestines and lung tissue; remained conscious and said "you need to needle me;" got repeated needle decompressions for suspected tension pneumothorax; blood return on decompressions; hemothorax recognized; chest tube considered but deferred because of risk of increased bleeding from chest wounds
- U.S. casualty #6 – MARSOC corpsman assisting casualty #5; GSW to the upper leg.

The unit was pinned down and CASEVAC was requested. SFC Clouse: "For close to four hours, nothing changed. We were still trapped in the kill zone under heavy fire; close air support (CAS) was ongoing but not making much difference. We were notified that the MEDEVAC choppers were critically low on fuel and would depart shortly, with or without the wounded in the canyon. We made a "now or never" decision to get out of the canyon under heavy fire using CAS, smoke, and covering fire, and leap-frogged personnel from location to location in the canyon, moving south, until all personnel were exfiltrated from the kill zone. All seriously wounded personnel were MEDEVACed within minutes of getting out of the canyon, essentially going from Care Under Fire to "CASEVAC" without any Tactical Field Care."

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SFC Clouse's comments, observations, and lessons learned were:

1) Never get in a firefight without all of your equipment on you. Throughout the entire incident, I rendered all treatments using items from on my person or taken from other operators' Individual First Aid Kits (IFAKs). My aid bag was sitting in a vehicle. Fortunately, I was carrying a large amount of supplies on my person.

2) Have a plan for what to do if Care Under Fire lasts for a long time. During the entire time I was in the canyon (4 hours), I was receiving accurate enemy fire.

3) Be careful about when you call for a MEDEVAC.

4) All operators must be trained in TCCC to a standard while under stress. All of the procedures I performed while in the kill zone were basic, operator-level TCCC tasks. I did not perform any higher level, Special Forces Medical Sergeant-type tasks or procedures.

5) Due to lack of battlefield trauma care training conducted while under stress, none of the operators in the canyon were able to recognize and treat a chest compromise, which is a basic TCCC task. As a result, they called for my assistance, causing me to twice break from cover and run through the kill zone (and violate basic TCCC principles.)

TCCC Update

Dr. Frank Butler

The Defense Health Board (DHB) Core Board met on 1 March 2010 at Cape Canaveral and was briefed on the changes to the TCCC Guidelines regarding the management of burns that were approved by the CoTCCC in November 2009. After the brief and discussion, the Core Board voted to approve these changes.

The TCCC curriculum revision to incorporate these new changes on burns has now been completed. The curriculum now also has a new presentation called "Direct from the Battlefield" (credit to retired Master Chief Gerry Williams from the Naval Operational Medical Lessons Learned Center for that title) that covers new TCCC Lessons Learned from Iraq and Afghanistan. It also has additional material on how to complete the new Department of the Army Form 7656 (TCCC Casualty Card) and the videos that describe how to start a ruggedized IV have been re-inserted. The updated curriculum will be posted on both the Military Health System and the Prehospital Trauma Life Support (PHTLS) websites in the near future.

TCCC courses are now available through the PHTLS office. Since TCCC training is available through all of the military services in the U.S. at present, the PHTLS course was implemented primarily for coalition partner nations and for tactical law enforcement groups who need TCCC training for their units. PHTLS issues a TCCC certification card at the end of the course that incorporates the logos of the CoTCCC, the American College of Surgeons Committee on Trauma, PHTLS, and the National Association of Emergency Medical Technicians. They also maintain a registry of both TCCC students and instructors. Course information is available through Ms. Corine Curd at corine.curd@naemt.org

The CoTCCC maintains a Journal Watch to ensure that current publications relating to TCCC are reviewed. Recent publications of interest include:

- Holbrook et al, NEJM 2010: casualties who received IV morphine for

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their injuries were found to have a significantly lower incidence of Post-Traumatic Stress Disorder (PTSD) than those who did not.

- Fleischman et al, Prehosp Emerg Care 2010: 2-5 mg of morphine and 50 ug of fentanyl given IV in civilian prehospital settings by paramedics on protocol provided similar degrees of pain relief and were observed to have similar low rates of easily managed adverse effects.

- Hillier et al, Retina 2010: 200 ug of oral transmucosal fentanyl citrate (OTFC) used for analgesia in painful retinal laser surgical procedures was found to provide significantly reduced pain levels with no significant effect on respiratory rate, blood pressure, or oxygen saturation. COL Chester Buckenmaier, the Chief of the Army Regional Anesthesia and Pain Management Initiative, was originally scheduled to speak at the meeting on the current TCCC analgesic regimen as outlined in the draft Tactical Field Care chapter for the upcoming Seventh Edition of the PHTLS Manual (Military Edition). The current TCCC regimen includes oral acetaminophen and meloxicam if the casualty is able to continue as a combatant and fentanyl lozenges or IV morphine for more severe pain. His e-mailed comments on this regimen were: "...I believe the information provided in this e-mail is timely and accurate. I believe we should continue to favor IV administration of morphine. This is especially true after our experience in WWII when IM morphine, administered in the thigh, would often adversely affect a casualty when the patient was warmed (reduced peripheral vasoconstriction) and volume was replaced. I would consider adding information on IV use of low doses of Ketamine (10 mg bolus) as a far forward analgesic. This medication is an excellent analgesic and can be used as a chemical restraint in combative casualties. It also tends to support ventilation and does not contribute to hypotension....I still believe the use of oral fentanyl should be limited to Special Forces medics or air evacuation teams.....I believe IV (acetaminophen) paracetamol will be available soon. This will be an excellent Level 1-3 analgesic with a good safety profile in trauma."

- Mabry et al, Prehosp Emerg Care 2010: This paper does a subgroup analysis on the 232 fatalities that had potentially survivable injuries as reported in the 2008 Kelly Journal of Trauma paper. Of this cohort, 18 (1.8%) had airway problems as the primary cause of death. All 18 had penetrating head or neck wounds. Five were noted to have had attempted surgical airways – all unsuccessful.

A number of process improvement issues involving prehospital care noted on recent Joint Theater Trauma System weekly teleconferences were presented and discussed.

Live Tissue Training: TCCC Student Feedback

A survey was done by a contractor to a government agency in which students were asked to evaluate the relative efficacy of Powerpoint presentations, simulators, and live tissue training (LTT) in training combat trauma skills. There were 9000+ students over an 18-month period; approximately 4000 students fully completed the surveys. The data were strongly supportive of the value of LTT in trauma training, but it was subsequently revealed that the individual gathering the data had a financial interest in LTT training, so this data will not be presented in detail here.

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Preferred Features for Cricothyroidotomy Kits **MAJ Jim Fulton**

Major Fulton from the Defense Medical Materiel Program Office (DMMPO) noted that there are a number of problems at present with cricothyroidotomy (cric) kits: 1) medics are being trained on one cric set, but being issued another; 2) we don't know where cric sets are being stored or carried in the battle space; 3) there is no general agreement on the optimal length and diameter of the cric tube; and 4) several different cric sets are fielded across the DoD.

The DMMPO has identified a need to define the preferred features for a surgical airway set and has asked for the assistance of the CoTCCC in this effort. MAJ Fulton presented the results of a DMMPO/CoTCCC working group effort that has been developing a list of preferred features. This list was reviewed; it will be reviewed again by the CoTCCC in the internal administrative session scheduled for 21 April. The results will be presented in the minutes from that session.

Preferred Features for Chest Seals **MAJ Jim Fulton**

The DMMPO has also identified a need to define the preferred features for chest seals asked for the assistance of the CoTCCC in this effort. MAJ Fulton presented the results of a DMMPO/CoTCCC working group effort to develop a list of these desired characteristics. This list was reviewed; it will be reviewed again by the CoTCCC in the internal administrative session scheduled for 21 April. The results will be presented in the minutes from that session.

U.S. Army TRADOC TCCC Initiatives **COL Karen O'Brien**

COL O'Brien outlined recent TCCC-related training initiatives in the Army Training and Doctrine Command. Among the major points from her talk were:

- Level 1 casualty care belongs to combat leaders, not medical treatment facilities.
- IV training has been taken out of the Combat Life Saver (CLS) course. It has been replaced with increased emphasis on hemorrhage control.
- CLS training is now fully aligned with TCCC.
- In theater, there are increasing injuries from explosions, and increasing attacks on squad-sized units. Attacks are also becoming more complex (secondary attacks are more common, for instance). Commanders want more training on medical planning for patrols and convoys.
- There is no formal combat leader instruction in tactical casualty response, in how soldiers die in combat and how to prevent these deaths, or in the tactical implications of casualty care. A course in Casualty Response Training for Mission Leaders is being developed. TRADOC is working to install tactical casualty response into the Army training culture.
- Casualty response system training should include planning for every phase of the mission. Some key elements are casualty response Tactics, Techniques, and Procedures (TTPs), casualty collection point (CCP) site selection and operations (based on the casualty response chapter written by the 75th Rangers for the upcoming PHTLS Manual 7th Edition); planning for multiple casualty

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evacuation options, and preparing after-action Reports on casualty response issues.

- TRADOC is working to get TCCC Training into professional development courses for junior leaders and to establish training for all non-medics in appropriate levels of TCCC. All soldiers now get CLS in basic training. Army personnel who joined prior to this development need a patch for TCCC training.
- A recent TRADOC survey of Soldiers in combat units found that TCCC is the second most valued element of their training, exceeded only by training in the use of their individual weapon.

Unit-based TCCC Training Issues

SGM Chester Sechrest

SGM Sechrest has worked with multiple brigades within the Asymmetric Warfare Group in pre-deployment training for medics and by the medics for their units. He has observed significant problems with pre-deployment TCCC and casualty response training. His observations include:

- We currently do not train as we are required to fight.
- TCCC should be trained to a standard while under stress. Medics should be trained to think on their feet in realistic training settings
- Senior leaders do not observe or assess TCCC training. They should.

The SGM had the following recommendations:

- We need to accomplish consistency and standardized content in all TCCC courses.
- Training methods should be standardized techniques that are known to work.
- Casualty response should be proactive, not reactive. It should be integrated into unit mission planning and should not be stand-alone training.
- We need to train as we fight, using real fighting gear - kit, vehicles, etc. For instance, we should practice patient movement and loading in realistic conditions using the actual litters and vehicles that will be used in theater.
- We should add more training on prevention of casualties, such as TTPs for avoiding IEDS.
- We need to provide instructors with better tools, such as improved instructor manuals.
- We should train to demonstrated proficiency, including thinking and acting – not to simply passing a written test.
- Casualty response should be a true core warrior task. It should be included in all battle drills and Standard Operating Procedures (SOPs.)

DoD Overview of Combat Medical Sets and IFAKs

MAJ Jim Fulton

MAJ Fulton presented a comparison of the Combat Medical Sets and IFAKs used in the Army, the Marines, the Air Force, and Special Operations and reviewed the critical equipment items present in these kits in comparison to those recommended by TCCC. The kits which best approximated the TCCC recommendations for equipment were those used by the Army and Special Operations forces.

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It was noted during the discussion that inclusion of an item in the IFAK does not necessarily mean that the individual combatant must be trained to use it. Having a 3.25 inch needle for chest decompression in the IFAK may simply indicate that each individual will have one available for use on him or herself by a combat medic or combat lifesaver. The comparative lists are included as Attachment 1 to the minutes.

TCCC: The View from a Pakistani BAS

MAJ John Paul

MAJ Paul has recently returned from a deployment to OEF where he worked in a Pakistani Battalion Aid Station (BAS). This facility contained 15-bed triage unit and a 15-bed holding capacity. There was only a single surgical table. It was winter, the weather was cold, and the facility had very limited electrical power. There was no way to wash linens, so they used foil blankets.

From January to March of 2010, this facility received 101 casualties. All of these were Pakistani soldiers, not U.S. forces. 26% had major limb injuries; 14 % had thoracic injuries. Five casualties arrived with CATs applied; 4 with Combat Gauze; Hextend was used on 59 casualties, and oral transmucosal fentanyl citrate (OTFC) was given to 10 casualties. All KIAs died prior to arrival at the BAS. Among the KIAs, there were 5 potentially preventable deaths: 1 airway, 2 tension pneumothoraces, and 2 extremity hemorrhages – one a traumatic amputation and the other a GSW to the calf. MAJ Paul's observations, comments, and lessons learned included:

- A number of the casualties had TBI associated with explosions.
- Combat Gauze saves lives
- A Bolin[®] chest seal was used and leaked, but the casualty did well.
- The King LT airway worked well when needed.
- OTFC (400µg) was used mostly for orthopedic injuries and it worked well for these.
- Nubain[®] was also used for analgesia instead of morphine with good results.
- A SOFT-T was used on a casualty with a gunshot wound to his hand. Due to its rigidity, it did not work well to control bleeding and it caused a significant amount pain. A CAT was substituted for the SOFT-T and worked well.

The items that MAJ Paul found most useful (in no particular order) were: CAT tourniquets, King LT airways, the Oxylator, Combat Gauze, pulse oximeters, OTFC, headlamps, Hypothermia Prevention and Management Kits, chest tubes, and Hextend. Items that he described as less helpful were seatbelt cutters, SOFT-T tourniquets, and chest seals. Items that Major Paul would like to see fielded more widely included: foil blankets in CLS bags, headlamps in CLS bags, lightweight fluid warmers, and an inexpensive, lightweight trainer for chest tubes, airways and intraosseous (IO) devices.

TCCC: The View from a USMC Company Aid Station

LT Eric Shafer

LT Shafer is the Battalion Surgeon for the Second Battalion, 8th Marine Regiment. He presented a casualty scenario from his recent deployment to southern Afghanistan, where his unit's mission was to construct a patrol base near the village of Lakari.

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The casualty was a local Afghan who sustained a gunshot wound high on his left thigh. There was an open fracture of the femur with severe external bleeding. A makeshift tourniquet was ineffective and when the casualty arrived at the aid station, he was cold and clammy with a blood pressure of 70 palpable. Two side-by-side CATs stopped the bleeding. IV access could not be obtained, but an IO device was used successfully. The casualty was given 1000 ccs of normal saline IO. A peripheral IV was able to be started after about 400 ccs of NS was in and he was then given an additional 500 ccs of Hextend IV with good recovery of his blood pressure. His pain was managed with 600 ug of OTFC. Hypothermia prevention was employed and he was given a dose of Ancef. At the receiving facility, the femur fracture was externally fixated. The patient survived his injuries and his leg was saved.

LT Shafer's comments, observations, and lessons learned included: 1) as a deploying physician, he was largely responsible for obtaining TCCC training and equipment on his own; 2) failures in managing this casualty were the makeshift tourniquet and the initial attempts at a peripheral IV; 3) successes were IO access, side-by-side CATs, and OTFC for pain control. LT Shafer noted that with respect to casualty care at his aid station, "a lot of the success that we had was a direct result of TCCC."

"Feedback to the Field" Program

COL Doug Hodge

The DMMPO is working with the Armed Forces Institute of Pathology (AFIP) and the office of the Armed Forces Medical Examiner (AFME) to gather and disseminate information on equipment-related issues. This information concerns what is being used in the field, how well it works, and problems associated with its use or misuse.

Feedback can then be provided to users in the field. Examples:

- Tibial IO devices are more likely to be properly inserted into the marrow space of the bone if applied on the medial aspect of the tibia instead of the lateral.
- Suboptimal results can be achieved when the Pyng T-POD Pelvic Stabilization Device is applied with variation from the manufacturer's recommended steps.
- In an ongoing focus on tourniquets, problems such as bunching of the belt fabric, and deformity or breakage of the device have been documented. Underlying causes include operator error, device failure, and possibly improper tourniquet storage and handling.

The DMMPO also informed the committee on the discovery of counterfeit CAT tourniquets. Briefings on identification of fake CATs and correct procedures for ordering genuine CATs have been developed and distributed.

Hextend for Trauma Resuscitation

Dr. Ken Proctor

Dr. Proctor is Professor of Surgery and Anesthesiology at the Miller School of Medicine, University of Miami Health System (UMHS). He presented an overview of the study done at his institution looking as the use of Hextend for initial resuscitation of trauma patients. Points made included:

- There is no broad consensus on the optimal IV fluid for trauma resuscitation.

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- Crystalloids remain the civilian standard of care, although there is no good data that they improve survival in trauma patients.
- The high cost of colloids is a serious consideration in civilian Emergency Departments. (Lactated Ringer's costs \$13.80 per liter; Hextend \$38 per liter.)
- The treatments were not randomized because that requires either informed consent, or waiver of informed consent. Informed consent is generally impossible in trauma patients. Additionally, Florida law prohibits community consent and community consent is one of five absolute requirements under 21 CFR 50.24 to grant a waiver of informed consent.
- Hextend was added to the formulary at UMHS in April of 2008 and has been available for clinicians to use since that time.
- From June 2008 until December 2008, trauma patients received initial resuscitation with either standard of care IV fluids (which consisted of crystalloids, blood products, pressors, etc) or standard of care IV fluids plus 500 to 1000mL of Hextend within 2 hours of admission at the surgeon's discretion. 805 patients received Hextend; 909 did not.
- This was the first human trial of Hextend in trauma patients.
- There was no increase in coagulopathy and no increase in morbidity in trauma patients resuscitated with Hextend.
- There may have been less mortality in trauma patients *in extremis* resuscitated with colloids as compared to crystalloids. This result may be due to chance, selection bias, or true treatment effect. Additional studies are needed on this topic to help make this determination.
- The weight and volume advantage of Hextend and its prolonged clinical effect make it the preferred choice for battlefield fluid resuscitation, given that it has safety and efficacy at least equal to crystalloids.

Wednesday - 21 Apr 10 - CoTCCC Internal Administrative Session

Admin Remarks

Dr. Frank Butler

A number of the CoTCCC members have experienced difficulties with travel arrangements. Civilians have had the most travel problems. CDR Feeks noted that the staff at the DHB does not handle travel for the CoTCCC, but he is drafting a memo from the DHB to the approving travel officials involved with CoTCCC travel that explains the status and function of the CoTCCC and the need to be as flexible as allowed by the travel regulations. This scheduling flexibility will minimize the adverse impact on the committee's mission resulting from member non-attendance because of travel issues. He stated that he will remain engaged until these problems are solved. Mrs. Davis reminded members to 1) use tax exempt forms at hotels; 2) make sure the final hotel bill shows a zero balance; and 3) provide required receipts with travel claims.

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The Chairman asked members to provide contact information for any combat medics who may have encountered complex or difficult combat casualty care scenarios that might be suitable for presentation at future meetings.

The next meeting of the CoTCCC will be held August 3-4 in Denver at the Loews Hotel. Funding for FY11 may not arrive in time to be used for the November meeting. Members selected November 16th and 17th as the preferred dates for the meeting should funding be secured. Mrs. Davis will check for hotel availability in both New Orleans and San Antonio.

CDR Feeks provided an update on the Defense Health Board: The new administration's appointments are not yet all nominated and confirmed; some of the individuals who would be instrumental in renewing appointments for positions on the CoTCCC and the Trauma and Injury Subcommittee have not yet been appointed. The new ASDHA has not been nominated at this time. As a result, many of the subcommittees of the DHB are currently inactive. The CoTCCC is an exception - its members' appointments have been renewed for another year. T&I Subcommittee members have been extended for six months. Dr. Clifford Stanley has recently been appointed Under Secretary of Defense for Personnel and Readiness. It is anticipated that the necessary individuals for the re-appointment process will be in place by the time that re-appointment again becomes necessary for CoTCCC members.

The Chairman reviewed the day's agenda and asked for attendees to disclose any conflicts of interest with the agenda items to be discussed. No one disclosed any conflicts of interest.

There has been at least one unlicensed commercial use of the copyrighted TCCC logo. Dr. Butler will seek assistance with the DHB legal office to proceed with assigning the TCCC logo to the CoTCCC/DHB and obtain their help in sending a cease and desist letter to the organization involved. The CoTCCC members present agreed that it is important to respond quickly and aggressively to any legal trespass on the use of the logo.

The Chairman asked members to submit nominations for the next TCCC Award to him via e-mail within the next two weeks.

Potential Changes to the TCCC Guidelines

Dr. Frank Butler

Dr. Butler reviewed several potential changes to the TCCC Guidelines in the areas of hypothermia prevention and fluid resuscitation in TACEVAC.

The current Hypothermia Prevention and Management Kit (HPMK) contains a Heat Reflective Shield (HRS), not a Blizzard Rescue Blanket as called for in the current TCCC Guidelines. The HRS is felt to be superior to the Blizzard Blanket because it allows easier access to the casualty for evaluation and treatment. The HRS has a Velcro[®] closure along both sides to facilitate access to the casualty. The HRS also has a built-in hood, so the HPMK also no longer contains a hypothermia prevention cap. Mr. Don Parsons indicated that he would take this proposed change for action.

For fluid resuscitation in the Tactical Evacuation Care phase, the only blood product currently mentioned is Packed Red Blood Cells (PRBCs). Other blood products such as thawed plasma, however, could be also be given in the field in scenarios where PRBCs are available. Current theater trauma practice is to infuse casualties anticipated

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to need significant amounts of blood products with a 1:1 ratio of plasma to PRBCs to help minimize the coagulopathy of trauma. Additionally, this section of the guidelines needs to be reworded to more clearly define the maximum volume of Hextend. CAPT Jeff Timby will author a proposed change to the TACEVAC Fluid Resuscitation Guidelines.

Overview of TCCC Equipment in the DoD

Group

The overview charts prepared by the DMMPO team documenting the equipment items contained in the service IFAKs and combat medical sets will be included in the minutes (Attachment 1) and tracked periodically at future meetings.

TCCC Skills by Provider Level

Group

The following additions to the TCCC recommended skills chart were approved by voice vote of the CoTCCC:

For Burn Care:

	All Deploying Combatants	CLS	Medic
Stop the Burning Process	X	X	X
Cover Burns		X	X
Burn-Related Fluid Resuscitation			X

For Penetrating Eye Trauma:

	Individual	CLS	Medic
Rigid Eye Shield	X	X	X
Combat Pill Pack	X	X	X

The updated TCCC skills sheet by provider level is found at the end of the minutes as Attachment 2.

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Preferred Features for Cricothyroidotomy Kits

Group

The Committee returned to yesterday's discussion of the preferred features for surgical airway sets. Note that the COTCCC has not recommended a particular device or set. The strategy is to define a set of *preferred* features and then ask DMMPO to provide a list of devices or sets that most closely approximate the items in the preferred features list. After discussion by the Committee, the list of preferred features is as follows:

- An open technique is preferred over percutaneous or Seldinger techniques
- The set or its individual components must be FDA-approved
- Scalpel: #10 blade
- Should include a tracheostomy hook or other instrument to help define and expose the opening
- Tube features:
 - 6-7 mm internal diameter
 - Balloon cuff
 - Flanged
 - 5-8 cm intratracheal length
- 5 cc syringe to inflate cuff
- Puncture resistant packaging
- Either clean or sterile is acceptable
- Long shelf life
- Lightweight, durable material
- Ruggedized - (Military Standard 8.10G)
- Inexpensive
- Minimized weight and cube
- Good clinical outcomes after review of battlefield use data
- Easy to use in battlefield environment
- High rate of user acceptance
- Configured for ease of use in low-light environments
- Includes means of securing tube after insertion

Preferred Features for Chest Seals

Group

The Committee returned to yesterday's discussion of the preferred characteristics for chest seals. Note that the COTCCC has not recommended a particular chest seal, but a list *preferred* features as determined in the Committee's review is as follows:

- FDA approved
- Device adheres despite the presence of blood, sweat, hair, and sand
- Adheres despite storage as defined in Military Standard 8.10G
- Minimum incidence of allergic reactions to adhesive
- Self-adherent
- Oval shape
- 6-8 inches or larger in size
- Either clean or sterile is acceptable
- Creates an occlusive seal

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FK Butler

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

10 August 2010

Date

Attachments:

- 1) DoD Overview of Combat Medical Sets and IFAKs
- 2) TCCC Skill Sets by Provider Level 100421

Attachment 1
DoD Overview of Combat Medical Sets and IFAKs



**Overview of Combat Medical Sets
and IFAKs in the DoD**

Presented by MAJ James Fulton- PA-C
April 20, 2010

Final Draft

1

Attachment 1

DoD Overview of Combat Medical Sets and IFAKs



Combat Medical Sets

TCCC Item	USA 68W	USMC CAP	USAF PJ	SOF ATP
Tourniquet				
CAT				
SOFT-T				
Combat Gauze				
Elastic Bandage				
Nasopharyngeal Airway				
Surgical Airway Set				
14ga. 3.25" Needle				
Chest Seal				
Hextend				
IV Supplies				
IV Tubing				
IV Catheter				
Saline Lock				
Tape				
Tegaderm Dressing				
Intraosseous Device				
Hypothermia Prev Kit				
Blizzard Blanket				
Ready Heat				
Hypothermia Cap				
Rigid Eye Shield				
Pulse Oximeter				
TCCC Card				

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Attachment 1 DoD Overview of Combat Medical Sets and IFAKs



DEFENSE
MEDICAL MATERIEL
PROGRAM OFFICE

Service IFAKs

TCCC Item	USA IFAK	USMC IFAK	USAF IFAK	SOF IFAK
Tourniquet		TK-4		
CAT				
SOFT-T				
Nasopharyngeal airway				
Combat Gauze				
Elastic Bandage Pressure				
14ga 3.25" Needle				
Chest Seal Dressing				
Rigid Eye Shield				
Combat Pill Pack				
Tylenol ER				
Moxifloxacin 400mg				
Mobic 15mg				
TCCC Card				

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Attachment 1

DoD Overview of Combat Medical Sets and IFAKs



Medications

TCCC Item	USA 68W	USMC CAP	USAF PJ	SOF ATP
Combat Pill Pack				
Tylenol ER	Red	Red	Red	Yellow
Mobic 15mg	Red	Red	Red	Yellow
Moxifloxacin 400mg	Red	Red	Red	Yellow
Analgesics				
OTFC 800ug	Red	Red	Red	Green
Morphine 5mg IV/IO	Morphine 10mg IM	Red	Red	Yellow
Naloxone	Green	Red	Red	Yellow
Promethazine 25mg IV	Red	Red	Red	Green
IV/IM Antibiotics				
Ertapenem 1gm	Red	Red	Red	Green
Cefotetan 2gm	Red	Red	Red	Yellow
Fluids for mixing meds	Green	Green	Red	Yellow

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Attachment 2 Tactical Combat Casualty Care (TCCC) Skills List 21 April 2010

Skill	All Deploying Combatants	Combat Lifesaver	Corpsman/ Medic/PJ
<u>Overview of Tactical Medicine</u>	X	X	X
<u>Hemostasis</u>			
Apply Tourniquet	X	X	X
Apply Direct Pressure	X	X	X
Apply Bandage	X	X	X
Apply Combat Gauze	X	X	X
Apply Pressure Dressing	X	X	X
<u>Casualty Movement Techniques</u>	X	X	X
<u>Airway</u>			
Chin lift/Jaw Thrust Maneuver	X	X	X
Nasopharyngeal Airway	X	X	X
Recovery Position	X	X	X
Sit Up/Lean Forward Position	X	X	X
Laryngeal Mask Airway (LMA)			X
Surgical Airway			X
Endotracheal Intubation			X
Combitube			X
<u>Breathing</u>			
Treat Sucking Chest Wound	X	X	X
Needle Thoracostomy		X	X
Chest Tube			X
Administer Oxygen			X
<u>Intravenous Access and IV Therapy</u>			
Assess for Shock	X	X	X
Start IV Line/Saline Lock			X
Obtain Intraosseous Access			X
IV Fluid Resuscitation			X
IV Analgesics			X
IV Antibiotics			X
Administer Packed Red Blood Cells			X

Attachment 2
Tactical Combat Casualty Care (TCCC) Skills List
21 April 2010
(cont.)

<u>Prevent Hypothermia</u>	X	X	X
<u>Penetrating Eye Injuries</u>			
Cover Eye with Rigid Shield	X	X	X
Administer Oral Moxifloxacin	X	X	X
<u>Oral and Intramuscular Medications</u>			
Oral Antibiotics	X	X	X
Oral Analgesia	X	X	X
IM Morphine		X	X
<u>Fracture Management</u>			
Splinting	X	X	X
Traction Splinting		X	X
<u>Management of Burns</u>			
Stop the burning process	X	X	X
Cover the burned areas		X	X
Burn Fluid Resuscitation			X
<u>Electronic Monitoring</u>			X