

CoTCCC Meeting 4-6 August 2015 Bethesda, MD

Meeting Minutes

18 December 2015

Dr. Frank Butler

Dr. Stephen Giebner

4 August 2015

1. Combat Medic Presentation: SGM F Bowling, Senior Enlisted Medical Advisor for the U.S. Special Operations Command, presented information on the current state of simulation training for combat casualty care and ideas for moving forward in this area. As background he showed two films; *The Gravity of Combat Casualty Care* and *To Bring Them Home*. Both films put forth the basic message that the quality of trauma care that a medic can deliver on the battlefield is directly proportional to the quality of the medic's training, and that live tissue training is a very important component of medic training. SGM Bowling discussed a proposed enhancement of the Army Medical Simulation Training Centers (MSTC). Enhanced MSTCs could provide integration of training for both special operations and conventional forces, as well as for all levels of trauma care skills on the battlefield, from non-medical combatants to advanced medics. Enhanced MSTCs could also provide increased student throughput, broader accessibility (nights and weekends), better exportability (medical simulations for unit training), support for development of more advanced medical simulations, and casualty response training for combat leaders.

2. Senior Leader Remarks: Dean Arthur Kellerman of the Uniformed Services University of the Health Sciences noted in his welcoming remarks that his institution is dedicated to military medicine, including research, and TCCC is an important topic appropriate for the University. Accordingly, the CoTCCC can count on the University's support. He urged Committee members and advisors to remain relentlessly unsatisfied in their efforts to improve care for our country's combat casualties.

3. TCCC Update: CAPT (ret) Frank Butler, Chairman of the CoTCCC, reviewed recent changes to the TCCC Guidelines; optimizing limb tourniquet use, ondansetron for treatment of nausea and emesis, and CricKey for surgical airways. He announced the imminent release of the 2015 update of the TCCC curriculum and reviewed the recent changes to the TCCC Guidelines, including the addition of ondansetron as the preferred anti-emetic and the CricKey as the device of choice for surgical airways. Di Butler also discussed the March Defense Health Board Trauma Care Lessons Learned that recommended that “TCCC shall continue to form the basis for battlefield trauma care and be integrated as the minimal accepted standard of training for all military members, initial enlisted medical training, and specialized enlisted medical training.” He noted the 7 May BUMED directive that states that: “TCCC applies to all HMs, Physicians, PA’s, APNs, and Nurse Generalists assigned to Budget Submitting Office (BSO) 18 patient care facilities” and requires that all of these personnel “...shall complete TCCC training (to include the EMWBT if not already completed) within 180 days prior to each Individual Augmentee (IA) or Health Services Augmentation program (HSAP) deployment or every 3 years in order to maintain readiness.”

4. JTS Director’s Brief: COL Kirby Gross discussed administrative matters of near-term importance to the Joint Trauma System (JTS). Current JTS initiatives include standardization of TCCC training courses across the DoD, updating the JTS Clinical Practice Guidelines (perhaps as a supplement to Military Medicine), and movement of trauma care concepts out to the battlefield. He reviewed recent and upcoming personnel changes, most important among which is his relief as Director, JTS by CAPT Zsolt Stockinger.

5. TCCC Action Items: Dr. Butler began by summarizing guideline changes achieved over the past three years.

Guideline changes currently being considered by the CoTCCC are the addition of XStat and the ITClamp as adjuncts to assist in the control of external hemorrhage.

Other potential changes to the TCCC Guidelines includes have have been proposed for the groups consideration include:

- Casualty positioning for needle decompression
 - Injured side up
 - Blood lower
- Increase the recommended dose of ketamine
- Foley balloon catheter treatment of head and neck bleeding (Weppner 2013)
- Other options for needle thoracostomy devices
 - Veres needle
 - 10 Fr Vygon thoracic trocar

- Manual compression of the abdominal aorta for junctional hemorrhage if no junctional tourniquet is available and Combat Gauze is not working
- Review the use of cervical collars and spinal immobilization in TCCC
- The use of pelvic binders to stabilize suspected pelvic fractures
- Rework the acetaminophen recommendation
- Revisit traction splinting recommendations
- ResQFoam (after FDA approval)
- Compensatory Reserve Index Monitor (after FDA approval)

6. Current TCCC Challenges within Naval Special Warfare: CAPT Barbara Drobina is the Force Medical Officer for the Naval Special Warfare Command. She presented a synopsis of the problems she is currently addressing in the implementation of TCCC across her community. These include:

- Too much reliance on external instructors/courses
- Variability in the TCCC courses provided
- Live tissue training too intertwined with TCCC
- Lack of Medical Department involvement in the training
- Medical Officers not fully embracing all TCCC concepts
- Lack of a tracking mechanism to determine status
- NSW Combat Medics are not career combat medics

NAVSPECWARCOM is working to overcome these challenges in order to ensure that TCCC remains at the core of component medical capability.

7. TCCC Feedback from SOCMSSC: Mr. Win Kerr discussed concerns arising from feedback from students in the Special Operations Combat Medic Skills Sustainment Course (SOCMSSC):

- Remarkably few SOF Medics are equipped with the entire complement of medical items mentioned in the TCCC guidelines.
- Many SOF Medics must use alternate means to accomplish TCCC treatment objectives.
- Many SOF medics are faced with reduced medical supply budgets now that the conflicts in Iraq and Afghanistan are considered to be concluded.
- SOF Medics are reluctant to carry medical equipment items that have only one use.

Mr. Kerr also noted that SOCMSSC is a clearing house for ideas on battlefield trauma care, and showed examples of some that might be useful, including:

- A junctional tourniquet made from a SAM splint.
- A simple cravat tourniquet for extremity bleeding.

- A pelvic sling made from uniform pants.

He also presented a list of other ideas deemed to have potential for battlefield trauma care such as:

- Hasty endotracheal tube suction catheter with IV tubing
- IV tube as an airway securing device
- Field expedient femoral traction device
- Use of a water filled syringe to detect airflow through a decompression needle
- 1" Tubular nylon as an alternate means to move patients

8. TCCC Mobile Application: Dr. Steve Steffensen (Chief of Innovation, Military Health System), MSG Curt Conklin (Senior Enlisted Medical Advisor, 75th Ranger Regiment) and SFC Danny Morissette (Senior Medical NCO, SOCOM-WO) presented the concept of a TCCC Mobile App as a means to enhance TCCC knowledge management and enhance the availability of TCCC work products. TCCC material is currently posted on several websites, but medics, corpsmen, and PJs often deploy to locations where internet service is not reliably available. A TCCC mobile application would overcome this knowledge management shortfall and enable an enhanced learning approach. Such an approach would have great appeal to younger medical personnel and could be tailored to their preferences. All TCCC deliverables could be disseminated via mobile devices. Social media may be another way to more effectively communicate with TCCC stakeholders; many military organizations, including medical groups, already use social media effectively. Dr. Steffensen's office will work with CoTCCC personnel to develop and distribute a survey to capture requirements from end-users in the near term as a step leading to making TCCC materials downloadable in mobile-ready formats. The CoTCCC could help to acquire funding for the project by writing a letter of support.

9. Proposed TCCC Guidelines Change - iTClamp: MAJ Kyle Faudree, Regimental Physician Assistant for the 160th Special Operations Aviation Regiment, updated the Committee on the iTClamp proposal. He reviewed the latest case reports and lab studies, discussing efficacy, safety and usability. He concluded by presenting the first draft of the recommended changes to the guidelines, which would add the device as an IFAK item. The discussion will continue and the Chairman will bring the proposal to a vote in the near future.

10. Blood Products at the Point of Injury: LTC Andrew Cap talked about resuscitating casualties at the point of injury (POI) using blood products. He pointed out that it is well-known that early resuscitation works better than delayed resuscitation and that blood products are more effective than crystalloids and

colloids. In his opinion, fresh whole blood (FWB) from a walking blood bank is better functionally, financially, and logistically than anything else that could be used for POI resuscitation. He recommends adopting the Ranger Type O Low Titer Universal FWB donor protocol into TCCC.

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11. TCCC Training Standard: Brig Gen Robert Miller, Director of Education and Training for the Defense Health Agency, presented an update on TCCC from his organization's perspective. TCCC is recognized as a proven lifesaver on the battlefield, but is not consistently trained or implemented across the DoD in a standardized manner, and sustainment is poorly defined. The TCCC course originally developed by the CoTCCC in 2009 and now updated every year is recognized as the standard. Through the efforts of the NAEMT and PHTLS educational infrastructure, it has been taught to militarys around the world. NAEMT/PHTLS TCCC courses follow the JTS-developed curriculum, are delivered via the NAEMT educational system, and provide continuing education credit approved by the Continuing Education Coordination Board of Emergency Medical Services. A partnership between the Military Training Network and the NAEMT could offer TCCC to the military as an MTN-sponsored course just as we do with BLS, ACLS, ATLS and other nationally-recognized, card-producing courses. Standardization, sustainment, and accreditation must all be effectively addressed as we move TCCC forward to become a real standard across the DoD.

12. Teaching TCCC through the NAEMT System: Pam Lane, Executive Director of the National Association of Emergency Medical Technicians (NAEMT), briefed the Committee on the history, structure, and educational products of the NAEMT. TCCC is one of their courses, and they teach the JTS curriculum with no deviation. Theirs is the only TCCC course endorsed by the American College of Surgeons. Current TCCC guidelines and course materials published by the JTS are maintained on the NAEMT website. Their course uses the PHTLS Military textbook, the military-specific content of which is also developed by the CoTCCC. The NAEMT TCCC course is approved by the Continuing Education Coordinating Board for EMS (CECBEMS) and recognized by the National Registry of EMTs (NREMT). Graduates receive 16 hours of CE, and a TCCC certificate and card. In 2014, 1,438 NAEMT-certified TCCC Instructors (208 on U.S. military bases) trained 5,501 students in 433 courses. The NAEMT is willing and able to help the military expand and standardize its TCCC training program.

13. Combat Medic Presentation: HM1 Robert Maldonado from Walter Reed National Military Medical Center (WRNMMC) presented a mass casualty scenario from Afghanistan in 2005 caused by a roadside IED. There were four casualties from the incident – including himself. Three of the four casualties required lower extremity tourniquets. Lessons learned from this incident include: emphasizing that self-assessment and self-aid in TCCC is crucial, and that, even if you must improvise with field-expedient materials to provide care, you still have to adhere to TCCC principles.

14. TCCC Curriculum for Medical Personnel version 150603: Dr. Stephen Giebner, the CoTCCC Developmental Editor, provided an overview of the TCCC curriculum update for this year. The TCCC-MP 150603 file set comprises 161 files in 22 folders totaling 138 GB. There were three major changes to the TCCC guidelines included in this year's version; 14-02 (Optimizing Tourniquet Use in TCCC), 14-03 (Ondansetron), and 15-01 (Cric-Key.) The test question bank was updated with questions covering the three guideline changes. All videos were embedded in the PowerPoint files so users no longer have to build links between slides and videos, and there is no longer a separate folder containing the videos. Three new videos appear in 150603. The first depicts correct use of the Cric-Key to introduce a Melker airway in cases of upper airway obstruction requiring a surgical airway. The second illustrates re-inflation of a lung following needle decompression of a tension pneumothorax. This remarkable video is courtesy of Dr. Alex Linchevsky from the Ukraine. The last new video (produced by the DoD Vision Center of Excellence and provided by COL (Ret) Robb Mazzoli) reinforces the need for eye shields in penetrating eye injury and shows the proper application thereof. A new optional Student Note-Taking Handout is included in the Instructor Guides folder.

15. TCCC Simulation at PEO STRI: COL Dan Irizarry (of the Program Executive Office for Simulation, Training, and Instrumentation in Orlando, FL) proposed that TCCC should be included in a Point of Injury Care Program of Record developed by the DHA Joint Program Office for Military Medical Simulation. TCCC is not currently a part of any program of record. COL Irizarry stated that the TCCC methodology has not been fully developed and optimal training formats have not been identified. These things can be accomplished through the capability development and acquisition process, and should include advanced simulation training. He urged the Committee to develop and disseminate recommendations for how best to train TCCC in addition to its traditional focus on determining best practice battlefield trauma care standards.

16. TCCC Training at USUHS: Lt Col Craig Goolsby briefed the Committee on TCCC as taught at the Uniformed Services University of the Health Sciences. He

reviewed the medical student curriculum, showing where TCCC is built into the schedule for the medical students.

17. Proposed TCCC Guidelines Change – XStat: SGM Kyle Sims from USASOC presented a proposal to add XStat to the TCCC guidelines. The XStat system is composed of compressed, non-absorbable, expandable, hemostatic mini-sponges designed to be placed temporarily into junctional wounds that are not amenable to tourniquet use. XStat is used to control bleeding for up to four (4) hours until surgical care is available. The compressed mini-sponges are coated with the coagulant substance kaolin and expand upon contact with blood to fill the wound cavity and provide internal wound pressure and contact with the hemostatic agent kaolin on the surface of the wound. Both of these properties are designed to facilitate the formation of a clot. XStat consists of a sterile, syringe-like applicator filled with the compressed mini-sponges and is intended for use on the battlefield.

XStat is NOT indicated for use in: the thoracic or pleural cavities; the mediastinum; the abdomen; the retroperitoneal space; the sacral space above the inguinal ligament; or tissues above the clavicle. SGM Sims concluded with suggested changes to the wording of the guidelines. His presentation was followed by a group discussion of XStat's approved uses and limitations. The Chairman will bring the proposed change to a vote following a future teleconference.

18. TCCC-Related Policy Documents at DHA: Mr. Ed Whitt from the Defense Health Agency (DHA) provided remarks on the status of pending policy documents that will help define the future location and function of the JTS as well as promulgating the DoD policy on TCCC training across the force. The staffing process for both DoD instructions is ongoing.

19. Pro/Con – Should the Dose of Ketamine in TCCC Be Increased?: MAJ Andy Fisher (Regimental PA for the 75th Ranger Regiment) argued for increasing the recommended initial dose of ketamine when treating severe pain from combat trauma. Major Fisher stated that: pain is often inadequately treated on the battlefield; low-dose ketamine is no better than morphine; low dose ketamine often doesn't help when used as an adjunct to opioids; 30% of combat trauma patients need two medications for adequate analgesia; and that low-dose ketamine as currently recommended in the TCCC guidelines is often not used because of variable effects.

LTC Steve Rush, Medical Director for USAF Pararescue, presented the case for maintaining the currently recommended initial dose. He noted that ketamine has been successful in the PJ community when used at the doses in the TCCC Guidelines. If the initial dose of ketamine does not provide sufficient

analgesia, re-dosing as outlined in the guidelines allows for additional ketamine to be used as needed.

After discussion, the Chairman invited submission of proposals to change the dose of ketamine recommended in the guidelines if CoTCCC voting members believe that this change is warranted.

20. ResQFoam Update: LTC Dave King, a trauma surgeon from Harvard Medical School and the Massachusetts General Hospital delivered a presentation on ResQFoam. This product is a hydrophobic polyurethane foam formed when 2 liquid components are mixed as they are injected into the abdomen to control abdominal non-compressible hemorrhage. Inside the abdomen, it molds around the internal organs, conforming to their shapes. The foam expands to approximately 39 times the initial volume of the component liquids. This expansion produces compression that, in turn, leads to hemostasis. The foam “cast” does not interfere with respirations. The optimal dose for adult humans is 65 ml. The manufacturer is seeking FDA approval for ResQFoam at present.

21. Army Health Readiness Center of Excellence: MSG Mike Eldred discussed the Center’s organization, mission, vision, and tenets. He gave an overview of training courses at the Center and noted that all of their courses focus on TCCC. The Brigade Combat Tactical Trauma Training course is designed for 68W medics E-6 and below. The Tactical Combat Medicine Course is aimed at physicians and PAs. There are usually 2 courses per month, each lasting 5 days.

22. TCCC Issues in Fleet Forces Command: CAPT Jim Hancock briefed the CoTCCC on TCCC in the Fleet Forces Command (FFC). He presented details of medical facilities and manning aboard various types of ships in the fleet. He noted that the Naval Expeditionary Combat Command and the Naval Special Warfare Command are Navy type commands with relatively straightforward TCCC requirements. The Afloat Training Group is developing Maritime Lifesaver training based on TCCC tenets for Naval Air Forces and Naval Surface Forces and Authorized Medical Allowance Lists are being reviewed and revised to include TCCC-recommended equipment and medications.

23. CoTCCC-Recommended Battlefield Trauma Care RDT&E Priorities: Dr. Butler reviewed TCCC research, development, test, and evaluation (RDT&E) priorities identified by the Committee earlier this year. The top 10 are:

1. An FDA-approved dried plasma product
2. A DoD-FDA Military Use Panel
3. Electronic methodology to document prehospital care

4. Better technology to judge the adequacy of fluid resuscitation
5. Research to evaluate outcomes from TCCC interventions
6. A 50 mg ketamine auto-injector
7. (Tie) Analysis of outcomes from ketamine use at the point of injury.
7. (Tie) Better methodology for far-forward fresh whole blood transfusions
9. (Tie) Research on intra-abdominal hemorrhage control methods
9. (Tie) Project to collect feedback from combat medical personnel on battlefield trauma care equipment they have used
9. (Tie) Effects of immediate versus delayed TXA resuscitation
9. (Tie) Bolus vs infusion administration of TXA

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24. 2015 Frank K. Butler TCCC Award: Dr. Butler presented this year's CoTCCC "Frank K. Butler" Award for Outstanding Contributions to TCCC to Mr. Don Parsons, Director, Department of Combat Medic Training at the U.S. Army Medical Department Center and School.

25. Joint Trauma System Weekly Trauma Teleconference: COL Kirby Gross conducted the JTS weekly trauma teleconference from the meeting room.

26. JTS Combat Casualty Care Recommendations for COCOMS: CAPT Zsolt Stockinger, incoming JTS Director, gave his recommendations for JTS Casualty Planning for the Geographic Combatant Commanders (COCOMs). The problems he sees now:

- The trauma care advances made by the military in OEF and OIF need to be implemented throughout the DoD and preserved for potential future conflicts.
- TCCC is not consistently implemented by combat units.
- Clinicians in medical treatment facilities are not consistently trained in the JTS Clinical Practice Guidelines (CPGs).

CAPT Stockinger's recommendations include:

- COCOM commanders should require TCCC training, CPG training, and that all casualties in their command be entered in the Department of Defense Trauma Registry (DoDTR).
- COCOMs should consider requesting that the Joint Staff identify and task a Forward Surgical capability from the US military (either the active or reserve component) to deploy on short notice to support contingency operations in that theater.
- Combatant Commander Surgeons should designate someone from his or her staff to coordinate with the JTS as a point of contact for combat casualty care planning.

- Combatant Commander Surgeons should identify a medical treatment facility for planning purposes (in consultation with the JTS) as the Role 4 medical treatment facility for casualties coming out of that theater.
- Combatant Commander Surgeons, in conjunction with the JTS and the USUHS Department of Surgery, should identify medical treatment facilities in that theater to which it would be appropriate to send US casualties. Coordination should be conducted with those facilities in Phase 0 planning to ensure maximum compliance with the JTS Clinical Practice Guidelines.

27. Combat Medic Conference: Mrs. Rosie Babin did a moving presentation on her son's long and complicated recovery after being wounded in Iraq in 2003.

28. Senior Leader Remarks: Dr. Jonathan Woodson, Assistant Secretary of Defense for Health Affairs, thanked Mrs. Babin for a truly remarkable presentation. He also offered his thanks and congratulations to the JTS, the CoTCCC, and everyone present at the meeting for their contributions to improving combat casualty care. Dr. Woodson noted that every organization is perfectly designed to obtain the results that it obtains. Inasmuch as both the DoD and the world that we live in will continue to change and present new challenges, the JTS must have an organization that transcends its current personnel. He observed that TCCC represents the kind of new standard that we need and that, as Margaret Meade said, it just takes a small group of dedicated people to change the world. Dr. Woodson also reminded the group that the JTS is a center of excellence and that it needs to be completely joint. He noted that military trauma care will need strategic partnerships, such as those that exist with our CSTARS facilities and the American College of Surgeons, and will need to sharpen its focus on the activities that are key to success in order to ensure continued excellence in the future.

29. USUHS Global Trauma System Development: CAPT Eric Elster, Chair of the Department of Surgery for Walter Reed National Military Medical Center (WRNMMC) and USUHS, briefed the Committee on the USUHS capability for evaluating OCONUS medical treatment facilities via its Center for Global Trauma System Development (GTSD). This capability is critical for ensuring that casualties that occur in areas where there is not a readily available US Military medical treatment facility are taken to a host country facility that can provide the needed level of trauma care. The Center's mission is to leverage a multidisciplinary team of trauma experts from USUHS and WRNMMC to: 1) provide comprehensive trauma system assessments in low- and middle-income countries (LMIC); and 2) to develop LMIC Partner Nation trauma system capabilities to an acceptable standard. The vision of this effort is to collaborate

with and enable the JTS, COCOMs, and other DOD organizations to provide non-wartime, US Standard Role 2/3 resuscitation and surgical care for US Military personnel operating in low-resource and remote locations globally.

30. Measuring the Return on DoD's Investment in the JTS: COL Jeff Bailey, Director of Surgical Services at WRNMMC, discussed his observations on measuring the return on the DoD's investment in the JTS. He pointed out that there are unanswered questions about how to define the value and benefits accrued and measure the costs but that the JTS has been a key enabler in helping the DoD to achieve the highest casualty survival rate in history during the recent conflicts in Afghanistan and Iraq.

31. TCCC Issues in III Corps: COL Jim Geracci, III Corps Command Surgeon, presented a synopsis of TCCC in the conventional forces. He noted that, although TCCC originated in Special Operations, it is applicable to conventional forces as well. Deploying medics should be getting TCCC training at the Brigade Tactical Trauma Training Course and physicians and PAs should be getting their training in TCCC from the Tactical Combat Medicine Course, but that this does not always happen. COL Geracci noted that the new Joint First Aid Kit that supports TCCC concepts is now available. He also noted that there is an administrative challenge with respect to having operational medicine physicians credentialed to perform TCCC interventions. He also noted that he had discussed with his commander the fact that battlefield trauma care falls squarely within his area of responsibility.

In the follow-on discussion, Dr. Butler commended both COL Geracci and CAPT Timby for their successes in advocating for TCCC training and equipment in their combat units.

32. Battlefield Trauma Care in the IDF: COL Elon Glassberg, Command Surgeon for the Israeli Defense Force (IDF) Northern Command, provided an overview of combat trauma care in the Israeli Defense Force from first responders to Role 3 hospitals. Battlefield trauma care as practiced by the IDF has significant overlap with TCCC, including tourniquets, Combat Gauze, and TXA. Freeze-dried plasma is their prehospital resuscitation fluid of choice. The IDF does not use junctional tourniquets; they have had good success with using Combat Gauze to control junctional bleeding. Physicians or paramedics and medics form medical squads that are embedded in the fighting forces with up to four squads per battalion. These squads are able to get to casualties in 4-7 minutes. They also perform humanitarian missions. Their medical department can draft and promulgate a new clinical practice guideline in one day, and their trauma registry has been in place since 1997.

33. Current TCCC Issues in the Marine Corps: CAPT Jeff Timby, Deputy Director of Health Services at HQMC, discussed the implementation of TCCC in the Marine Corps. He presented the contemporary organization of the Corps and its geographical areas of responsibility. All Marines will be Combat Life Saver (CLS) qualified and CLS includes TCCC. All Navy medical personnel assigned to the USMC units will be certified in TCCC. Contracted live tissue training will be limited to medical personnel. Shock Trauma Platoons and Forward Resuscitative Surgical Systems will be reconfigured to make them more flexible, capable, responsive and independent.

34. Senior Leader Remarks: Dr. David Smith, Deputy Assistant Secretary of Defense for Health Readiness Policy and Oversight, updated the Committee on DoD-level policy issues pertaining to TCCC training. As of this date, there is no DoD requirement for TCCC capability, and TCCC remains inconsistently implemented across the DoD. The DoD instruction covering medical training currently in staffing will require standardized TCCC training. The JTS is the Center of Excellence for combat casualty care, including prehospital trauma care. It is a Program of Record with its own funding line. A new DOD instruction currently in staffing will specify JTS functions in support of the COCOMs. CPGs published by the JTS will determine the standard of care. Where the JTS will reside within the DoD has not yet been decided. Live tissue training will remain until such time as simulation gets as good or better than LTT at providing realism.

35. Proposed TCCC Guidelines Change – AAJT: COL Sam Sauer presented the Abdominal Aortic Junctional Tourniquet (AAJT) to the working group. The AAJT is an pneumatic device that can be used as a junctional tourniquet in either the upper or lower extremity junctional regions. When applied at the abdominal site, it produces occlusion of the aorta just above the bifurcation. Points made during the discussion of this device included:

- There is no firm consensus on the increased benefit of the AAJT as compared to other junctional tourniquet devices.
- The TCCC Working Group's trauma surgeons expressed concerns about the potential of the AAJT to exacerbate hemorrhage if there is vascular injury proximal to the aortic occlusion produced by application of the AAJT. There is at present no published experimental evidence to address that concern.
- There were concerns expressed about the potential for ischemic damage in structures distal to the aortic occlusion.
- There were questions raised about the maximum application times in the device's instructions for use: 1) the current language states that the recommended application is up to four hours and that 2) the AAJT should not be removed until directed by a physician. No distinction is made between abdominal placement as opposed to inguinal or axillary placement with respect to the 4-hour time limit. Additionally, there is no time limit mentioned that is specific to the

abdominal placement and there are no instructions that inform the physician as to when it is advisable to remove the AAJT. As yet unpublished animal studies conducted at the USAISR found severe adverse effect produced from applying the AAJT for 2 hours at the abdominal site.

- There is no contraindication listed for abdominal placement of the AAJT in the presence of penetrating abdominal or thoracic trauma despite the lack of published studies that address that concern.

Although the AAJT holds promise as a device that could provide life-saving hemorrhage control for pelvic hemorrhage or junctional hemorrhage not well controlled by other means, at this time, the working group recommends further studies on the AAJT to address the issues raised above.

Acknowledgments

The authors gratefully acknowledge the ongoing efforts of all of the members of the TCCC working group to improve the battlefield trauma care provided to our countries' combat wounded.

Disclaimers

The opinions or assertions contained herein reflect the events of the August CoTCCC meeting. They are not to be construed as reflecting the views of the Department of the Army or the Department of Defense.



18 December 2015

Stephen D. Giebner, M.D.
CAPT, MC, USN (Ret)
Developmental Editor
Committee on TCCC

Date



18 December 2015

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

Date

Enclosure (1) – Meeting Attendance

Enclosure 1

Meeting Attendance

CoTCCC Voting Members

Col Jeff Bailey
CAPT Sean Barbabella
SGM F Bowling
Dr. Frank Butler
MSG Curt Conklin
COL Jim Czarnik
COL Brian Eastridge
COL Erin Edgar
Cpt Kyle Faudree
Dr. Doug Freer
COL Kirby Gross
CAPT Matt Hickey
Dr. Jay Johannigman
Mr. Win Kerr
CAPT Bill Liston
LTC Bob Mabry
SFC Danny Morissette
LCDR Dana Onifer
Dr. Mel Otten
Mr. Don Parsons
Col Todd Rasmussen
CMSGT Tom Rich
Lt Col Steve Rush
COL Samuel Sauer
Col Stacy Shackelford
Mr. Rick Strayer
CAPT Jeff Timby
HMCS Jeremy Torrisi
CMDCM Steve Viola

TCCC Subject Matter Experts

Dr. Brad Bennett
Dr. Jeff Cain
Dr. Howard Champion
Dr. Paul Cordts
Dr. Warren Dorlac
Mr. Bill Donovan
Dr. Jim Dunne
Dr. John Gandy

Dr. Russ Kotwal
Dr. Peter Rhee

VIP Guests

Brig Gen James "Jay" Burks
CMS Gerald Ecker
MG Brian Lein
Brig Gen Robert Miller
CMSgt E. Jason Pace
MCPO Terry Prince
USUHS President Charles Rice
Lt Gen Douglas Robb
Lt Gen (retired) Eric Schoomaker
Dr. Dave Smith
Dr. Jon Woodson

Military Liaisons

Lt Col David Carey
Ms. Elizabeth Fudge
COL Jim Geracci
CDR Carl Goforth
CAPT Jim Hancock
LTC Dan Irizzary
MAJ Kevin Cron
LtCol Ed Mazuchowski
Mr. John Miles
LTC Kyle Remick
SGM Kyle Sims
Ms. Mary Ann Spott
CAPT Zsolt Stockinger
Mr. Ed Whitt
COL Mike Wirt
CDR Rick Zeber

Allied Liaisons

COL Elon Glassberg
Lt Col Christopher Wright
LTC Kazumichi Yoshida

Interagency Liaisons (6)

Dr. Bruce Cohen
Mr. Steven David
Dr. David King

CoTCCC Staff

Dr. Steve Giebner
Ms. Danielle Davis
Mr. Harold Montgomery

Speakers

Mrs. Rosie Babin
LTC Andre Cap
CAPT Barbara Drobina
MSG Michael Eldred
CAPT Eric Elster
MAJ Andy Fisher
COL James Geracci
Lt Col Craig Goolsby
COL Kirby Gross
Dr. Arthur Kellerman
Dr. Dave King
Ms. Pamela Lane
HM1 Robert Maldonado
Dr. David Smith
Dr. Steve Steffensen
ASD Jonathan Woodson

USUHS Faculty

COL Francis O'Connor
COL Trip Buckenmaier
CAPT Eric Elster
Dr. Arthur Kellermann
Lt Col Craig Goolsby
LCDR Mike Melia
CAPT Tim Davis

Invited Guests

Mr. Mike Aviles
Dr. Dave Baer
Mr. Christopher Banks
Ms. Cynthia Barrigan
LTC Ian Beck
HMCS Dave Clipson
COL K.B. Chou
LTC Kevin Chung

Dr. Vic Convertino
HMCM Brent Cummings
Cpt George Diaz
MSG John Dominguez
CAPT Barbara Drobina
MAJ Walter Engle
Col Ray Fang
LTC David Freel
Mr. Ted Fyock
Ms. Michelle Gioe
SMSgt Thomas Grantland
Mr. Jason Harrington
Dr. Annette Hildabrand
Dr. Boots Hodge
MCPO James Holmes
MAJ Felix Islas
Dr. Daniel Johnson
Mr. Kevin Kelley
Ms. Allison Kumar
COL Drew Landers
Ms. Tracie Lattimore
CDR Lanny Littlejohn
Dr. Victor MacDonald
Dr. Robb Mazzoli
MSgt Velvet McAlister
MAJ Martha Montjano
COL Sean Mulvaney
LTC Jim Paimore
COL Luis Rivero
Dr. Mark Shapiro
MSgt Travis Shaw
Dr. Sean Siler
CSM Timothy Sprunger
MAJ Al Taylor
Mr. Stephen Toth
LTC Avi Yitzhak