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# J SOM

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THE JOURNAL FOR OPERATIONAL MEDICINE AND COMBAT CASUALTY CARE



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Indomitable Spirit  
and Sacrifices of  
the SOF Medic*



## TCCC UPDATES

# Committee on Tactical Combat Casualty Care Meeting Minutes

Davis Conference Center  
MacDill AFB, FL, 4–5 February 2014

Attendance: See Enclosure (1)

Agenda: See Enclosure (2)

### CoTCCC Action Items

- a. Vote – Proposed hemostatic dressing change
- b. Teleconference/Vote – Proposed surgical airway change
- c. Teleconference/Vote – Proposed fluid resuscitation change
- d. Remove the pressure-patch ocular injury first aid kit from Department of Defense inventories and purchase lists
- e. Pursue selected action items from Enclosure (3)

### Combat Medical Presentations

Corporal Bryan Anderson (75th Ranger Regiment) presented the cases of six casualties from a multiple (12 detonation) dismantled IED incident. This scenario included the first use of freeze-dried plasma by a U.S. medic on the battlefield.

### LESSONS LEARNED

#### Sustains

- First responder training is done on a weekly basis and paid dividends on the night of the incident.
- Fentanyl lozenges did an outstanding job controlling pain while allowing the patient to remain conscious.
- Knowing exactly where everything is located in my aid bag made it easy to quickly communicate to others exactly what I needed and where they could find the items.
- The use of pressure points on the femoral arteries bought me time while acquiring extra tourniquets.
- Regular SKEDCO training with first responders allowed for medical personnel to continue treatment while patients were being prepared for transport.
- The use of ketamine to sedate a casualty allowed for a medic to use his fingers to find and stop an arterial bleed inside of the patient's face.
- A quick call on the ground to not package a casualty allowed for a quick manual carry of an urgent patient and ultimately led to a faster evacuation.

- The ability to adapt to and overcome obstacles is something that needs to be taught to medics at all levels.

#### Improves

- Do not have loose items in the aid bag.
- When time permits, be sure to record vital signs.
- Always carry webbing to use to drag and carry patients, especially when dealing with pressure-plate IEDs.
- Consider cricothyroidotomy early if the patient is not guarding his or her airway.
- Never leave your aid bag at the casualty collection point.
  - A Servicemember left his bag at the casualty collection point, thinking that was the location where he would be working on casualties. However, he was unable to return there until just before evacuation.
  - All WALK bags [Warrior Aid and Litter Kit; an NAR product] were also lying on the ground by time the initial blast went off. This made getting to extra medical supplies extremely difficult.
- Communicate with leadership early and often.
- Two C-A-T® Tourniquets broke while being applied.
  - Ensure that, if you are carrying C-A-T tourniquets, they are new and have not been previously used for training or have been exposed to the elements for an extended period. Approximately one-tenth of the tourniquets broke while being applied.
- Ensure that all IV sites are properly secured.
  - If possible, use saline locks and attach an 18-gauge needle to the set to administer fluids.

CPT Andy Fisher (75th Ranger Regiment) presented a series of nine casualties whose pain was managed successfully with ketamine. His view is that ketamine is much better than any other medication that is used on the battlefield for analgesia.

### LESSONS LEARNED

- Ketamine has been far superior to any other drug that is used at the point of injury (POI).

- Ketamine works well for tourniquets, long bone fractures due to penetrating trauma, and amputations.
- Dosing between 75–100mg works best, but 50mg IV is a good initial dose when given with midazolam.
- Without midazolam, most patients moved their extremities and talked or sang, mostly in incomprehensible sentences.
- The prehospital combat setting requires a larger dose of ketamine than would be expected.
- It is difficult to stop patient movement and administer more medications.
  - First rotation, we used 50mg/mL, which was not an issue other than the size of the bottle.
  - On other rotations, we used 100mg/mL, and the bottle was much smaller so we were able to carry two bottles in the medication case.
- Autoinjectors could be beneficial for certain situations.
- When using ketamine, I drew up 200–250mg and dosed as needed.
- All patients who are critically injured or will need surgery should receive two saline locks.
- Although pain scores were not available on all casualties, four reported a pain level of 10/10 before ketamine and, if they recalled, 0/10 after ketamine.
- Ketamine is a safe and effective form of pain management at initial doses of 50–100mg IV.
- Midazolam should be used in conjunction with ketamine if possible.

## Prehospital Blood and Plasma at the Mayo Clinic

### Dr. Don Jenkins

Dr. Jenkins discussed the prehospital use of plasma and platelets at the Mayo Clinic: 479 patients have received thawed plasma to date, and 442 have received packed red blood cells (PRBCs). This practice is resulting in improvement in international normalized ratios (INRs) by the time the patients arrive at the hospital. Dr. John Holcomb noted that liquid plasma (refrigerated immediately after donation, never frozen) is good for 20 days and also is a good option for prehospital use. Dr. Jenkins also discussed the use of tissue oxygen saturation monitoring as a good method of tracking the adequacy of resuscitation. This new monitoring technology is now in use at the Mayo Clinic.

## C-A-T® Tourniquets and Combat Gauze™ at the Mayo Clinic

### Dr. Scott Zeitlow

Dr. Zeitlow reviewed the prehospital use of tourniquets (C-A-T Tourniquets used on 73 patients with a 98% success rate) and Combat Gauze (used on 52 patients with a 95% success rate) in the Trauma Service at the Mayo

Clinic. He added that “improvised tourniquets were uniformly unsuccessful.” Dr. Zeitlow also noted that the Mayo protocol calls for MeansQuikClot Combat Gauze™ to be used only after failure of standard gauze. There are two C-A-T Tourniquets and two packages of Combat Gauze on each prehospital vehicle or aircraft.

## TCCC Update

### Dr. Frank Butler

Dr. Butler noted that, by direction of the Acting Undersecretary of Defense (Personnel and Readiness), the Committee on Tactical Combat Casualty Care (CoTCCC) was moved to the Joint Trauma System (JTS)/U.S. Army Institute of Surgical Research (USAISR) in February 2013.

There have been four changes to the TCCC Guidelines approved by the CoTCCC since it has been relocated to the JTS:

- 1) The TCCC Casualty Card has been updated and a companion electronic after-action report (AAR) have been developed and recommended for use as described below.

*Reference:* Kotwal RS, Butler FK, Montgomery HR, et al. The Tactical Combat Casualty Care Casualty Card. *J Spec Ops Med.* Summer 2013;13(2):82–86.

- 2) The TCCC Guidelines now specify the use of a vented chest seal for the treatment of open pneumothorax.

*Reference:* Butler F, Dubose J, Otten E, et al. Management of open pneumothorax in Tactical Combat Casualty Care: TCCC Guidelines Change 13-02. *J Spec Oper Med.* Fall 2013;13(3):81–86.

- 3) There are now three CoTCCC-recommended junctional tourniquets: the Combat Ready Clamp (CRoC™), the Junctional Emergency Treatment Tool (JETT™), and the Sam® Junctional Tourniquet.

*Reference:* Kotwal RS, Butler FK, Gross KR, et al. Management of junctional hemorrhage in Tactical Combat Casualty Care. *J Spec Oper Med.* Winter 2013;13(4):85–93.

- 4) A new triple-option analgesia plan has been incorporated into the TCCC Guidelines: (1) oral analgesics for less severe pain: (2) oral transmucosal fentanyl citrate (OTFC) for severe pain in the absence of shock or respiratory distress; or (3) ketamine for severe pain with in the presence of (or with significant potential for) shock or respiratory distress.

*Reference:* Butler FK, Kotwal RS, Buckenmaier CC III, et al. A triple-option analgesia plan for Tactical

Combat Casualty Care. *J Spec Oper Med. Spring* 2014;14(1):13–25.

## Joint Trauma System Director's Report

### Col Jeff Bailey

Col Jeff Bailey provided a JTS Director's Brief. Since the implementation of the Theater and DoD Trauma System in 2005, the U.S. military has recorded a steady decrease in the case-fatality rate to the lowest level in the history of modern warfare, despite an increasing burden of injury. He emphasized the importance of injury prevention when possible, such as through the use of blast-protective pelvic undergarments. Col Bailey also noted the positive impact on survival from the Secretary of Defense's 2009 mandate that evacuation missions be accomplished within 60 minutes of mission approval.

## Deployed JTTS Director's Report

### Col Stacy Shackelford

Col Shackelford reviewed a number of issues that were identified during her time as the Joint Theater Trauma System (JTTS) deployed director. The first prehospital JTTS team was established during her time in theater, DUSTOFF platforms began a trial program of carrying red blood cells (RBCs) on their aircraft, the JTS/CENTCOM Prehospital Trauma Care System Assessment was carried out, and the first CENTCOM/JTTS Theater Trauma Conference was held at Bagram in November 2012 with 107 participants. Col Shackelford also reviewed recent JTS performance improvement efforts on analgesics (ketamine was found to be as safe as narcotic pain medications for prehospital use), and DUSTOFF transfusions to date were reviewed (no adverse events were reported in 61 transfusions).

## TCCC Equipment

### CDR Tyson Brunstetter

CDR Brunstetter from the Defense Health Agency Medical Logistics office (DHA MEDLOG) discussed TCCC equipment issues. He noted that most tourniquets purchased by the DoD in 2013 were C-A-Ts (\$18.5 million in purchases in FY13) with SOF® Tactical Tourniquets being the second most common (\$3 million). Combat Gauze was the predominant hemostatic dressing purchased. CDR Brunstetter also noted that work on the Joint First Aid Kit (JFAK) is progressing and that it should be fielded in the near future. The Air Force is anticipated to purchase the first large increment of JFAKs in the near future.

The inappropriate military eye injury first aid kit that encourages pressure patching and antibiotic ointment use

for open globe eye injuries will, it is hoped, soon have its availability eliminated for DoD purchases. The effort to have the newly updated TCCC Casualty Card approved as the new DD Form 1380 is nearing completion.

## Documentation of Care in TCCC

### COL Russ Kotwal

COL Kotwal reviewed the progress that has been made in improving documentation and data capture for prehospital care in the U.S. military. The CoTCCC recommended a revised and updated TCCC Casualty Card in April 2013. It was forwarded to DHA MEDLOG and Health Affairs and staffed with the Services and COCOMs as the proposed new DD Form 1380—the standard prehospital casualty care card for the U.S. military. This action was adjudicated and approved through all of the Uniformed Services, the Combatant Commands, and NATO. A companion TCCC After Action Report (AAR) has also been developed. The TCCC AAR is designed to be a second opportunity to document TCCC and is to be completed by prehospital care providers within 72 hours following a mission. A JTTS Prehospital Care Cell (physician, physician assistant, and senior medic) has been established in Combined Joint Operations-Afghanistan (CJOA) to assist units in theater with prehospital efforts and initiatives, especially documentation, data capture and analysis, and performance improvement of prehospital care. A Prehospital Trauma Registry (PHTR) was developed and fielded to the JTTS in theater to assist with these efforts.

COL Kotwal also presented comprehensive data and analysis that support a positive outcome resulting from the 2009 secretary of defense-mandated maximum 60-minute evacuation time in Afghanistan. Overall casualty survival has improved from 86.5% to 90.5% since that directive was issued. The key to trauma care delivery is optimizing “time to a required capability,” as requirements are dictated by injuries and the medical capabilities must be available and successfully performed in a timely fashion to reduce morbidity and mortality.

COL Kotwal also presented data from the newly developed Military Orthopedic Trauma Registry (MOTR). This ancillary module of the DoD Trauma Registry (DoDTR) is successfully providing more details and granularity on wounded warriors with orthopedic injuries as well as facilitating performance improvement for the care they are receiving.

## JTTS Prehospital Care Director's Report

### LTC Jim Geracci

LTC Geracci from the Army Department of Combat Doctrine Development discussed his experiences as the

deployed JTTS prehospital care director. He oversaw the implementation of the updated TCCC Casualty Card and electronic TCCC AAR in theater; his efforts resulted in the submission of more than 300 AARs—a remarkable success in prehospital care documentation.

LTC Geracci also personally trained more than 1100 medics, corpsmen, and pararescuemen (PJs) in the use of junctional tourniquets and documented 8 uses of the JETT device on combat casualties. All were judged successful at controlling the junctional hemorrhage, although two of the casualties later died.

LTC Geracci noted that the SAM<sup>®</sup> Junctional Tourniquet was the clear favorite among the junctional devices (CRoC, JETT, SAM, and AAT) of the overwhelming majority of medical personnel that he trained in theater.

A final point of emphasis was that for casualty survival on the battlefield to be maximized, line commanders at all levels must take ownership of this aspect of combat operations and make caring for wounded unit members part of their unit's warrior culture.

## JTTS Prehospital Care Director's Report

### COL Samuel Sauer

COL Sauer from the U.S. Army School of Aviation Medicine presented his perspectives after a tour as the deployed JTTS prehospital director. He reviewed one aspect of care that illustrates the difficulty of overcoming organizational inertia. Despite a consensus opinion by the ophthalmology and the TCCC communities that known or suspected penetrating eye injuries should be treated with a rigid eye shield, no topical medications, systemic antibiotics, and immediate evacuation, there is still support for the misguided and harmful approach of placing topical antibiotics in the injured eye and pressure patching it.

COL Sauer cited a list of doctrinal documents that contain this erroneous guidance and noted that the DoD still fields an eye injury treatment kit that contains all of the equipment (accompanied by directions) required to provide this inappropriate care. As a result of this failure to effectively train and equip the force to manage this type of injury, a significant number (60%) of U.S. casualties have not received appropriate care for their penetrating eye trauma.

COL Sauer also pointed out that, after 13 years of remarkable success in treating life-threatening extremity hemorrhage with aggressive use of tourniquets to gain initial control of the hemorrhage, the Army Expert Field Medical Badge handbook still describes tourniquets as a treatment of "last resort."

## Proposed Changes to the TCCC Guidelines

Three proposed changes to the TCCC Guidelines were presented at the meeting. All of these changes are supported by position papers that have been prepared for presentation to the TCCC Working Group and will be forwarded to the group before the CoTCCC votes on them.

- 1) **Dr. Brad Bennett and CDR Lanny Littlejohn** proposed a change to add Celox<sup>™</sup> Gauze and ChitoGauze<sup>®</sup> to Combat Gauze<sup>™</sup> as CoTCCC-recommended hemostatic agents, although Combat Gauze would remain the hemostatic dressing of choice.
- 2) **LTC Bob Mabry** proposed that surgical airways be performed using the CricKey—a device that combines a customized bougie and a cuffed Melker airway. LTC Mabry's surgical airway study published in the *Annals of Emergency Medicine* in 2013 compared airways performed with the CricKey to airways performed using the standard open surgical airway technique. In a prospective, crossover study with the surgical airways that were all performed by combat medics, the CricKey technique resulted in significantly faster insertion times.
- 3) **Dr. Frank Butler** outlined a proposed change to fluid resuscitation in TCCC that incorporates dried plasma as an option for prehospital fluid resuscitation and provides a ranking of the prehospital resuscitation fluid options.

These three changes were discussed at length. The wording for the proposed changes will be modified based on feedback received at the meeting and the changes presented to the CoTCCC for a vote in the near future.

## Far-Forward Blood and Plasma

### Dr. Phil Spinella

Dr. Spinella and CDR Geir Strandenes co-direct the Trauma Hemorrhage and Oxygenation Research (THOR) working group. THOR has 150 members from 11 countries, and its mission is "To improve survival from hemorrhagic shock for patients with traumatic injuries by improving identification and treatment of shock and coagulopathy in the pre-hospital setting."

Dr. Spinella observed that blood products provide better resuscitation from shock than either crystalloids or colloids and that this difference will be more pronounced in future conflicts where evacuation times are longer than the very short evacuation times currently seen in Afghanistan. He outlined the present gaps in evidence that must be addressed to increase the availability of lifesaving blood products in the prehospital setting and



noted that there is now a multinational prehospital transfusion registry in development.

## Norwegian Far-Forward Blood/Plasma Program

### CDR Geir Strandenes

CDR Strandenes is the physician for the Norwegian Naval Special Operations Commando (NORNAVSOC). His unit has developed a training and research program for the use of whole blood and freeze-dried plasma (FDP) as primary resuscitation fluids for hemorrhagic shock. NORNAVSOC's protocol for prehospital use of fresh whole blood/cold stored whole blood in combat casualties has recently been accepted for publication.

CDR Strandenes related that his experience is that if an intraosseous site is to be used to transfuse blood via gravity only, the sternum is clearly the preferred site. His research has demonstrated that a donor's ability to perform combat skills is maintained immediately after the donation of a unit of whole blood. The advances in prehospital blood and plasma administration pioneered by NORNAVSOC are now being transitioned to the Helicopter Emergency Medical System in Norway.

## Hemostatics Resuscitation R&D

### Dr. Bijan Kheirabadi

Dr. Kheirabadi from the USAISR described his recent research on resuscitation fluids in an animal model of noncompressible hemorrhage. Resuscitation was accomplished with Hextend, Dextran 70, or albumin. Hextend and Dextran 70 were both observed to impair coagulation, whereas albumin did not. Survival was none of eight of the Hextend animals, two of eight of the Dextran 70 animals, and four of eight of the albumin group. Dr. Kheirabadi noted that the animals in this study received a much larger dose of Hextend based on body mass than would have been recommended by TCCC.

In subsequent studies using the same noncompressible hemorrhage model, animals (rabbits) were resuscitated with a limited volume of freeze-dried plasma (FFP), 5% albumin, and Hextend according to the battlefield resuscitation protocol (15mL/kg in two bolus injections) to a hypotensive target pressure. The survival rates were 40% (4 of 10) for FFP and Hextend but 90% (8 of 9) for albumin, with the least amount of blood loss and lower shock indices. In the next experiments, animals were resuscitated by the same method (two bolus injections targeted to a hypotensive pressure) using a new synthetic colloid (Voluven, 15mL/kg) or crystalloids (normal saline [NS], 30mL/kg or 5% hypertonic saline [HS], 7.5mL/kg) and compared with 5% albumin. The best results (lowest blood volume and highest survival

rate) were again achieved with 5% albumin resuscitation. No significant difference found among other fluids (survival rates 10–25%).

These study results suggest that albumin is a better choice than artificial colloids (Hextend, Voluven) and some crystalloids for prehospital resuscitation from hemorrhagic shock in this parenchymal bleeding model.

Drs. Champion and Butler noted, however, that albumin is not recommended for use in casualties with traumatic brain injury (TBI) because of the increase in mortality associated with albumin use in patients with both severe TBI and hemorrhagic shock. This would be problematic in considering albumin for battlefield use, where shock and TBI are often present in the same casualties.

## PHTLS TCCC Courses

### Mr. Mark Lueder

Mr. Lueder from the Prehospital Trauma Life Support (PHTLS) Executive Committee observed that PHTLS began to be taught in TCCC courses in 2010 and that NAEMT has contributed significant resources, both personnel and funds, to develop TCCC teaching sites. There are now two PHTLS TCCC courses—a 2-day course for medical personnel and a 1-day course for nonmedical personnel. PHTLS at this point has more than 350 certified TCCC instructors and has taught the course in 26 countries. Activity is very heavy on the TCCC portion of the NAEMT website, and the TCCC precourse was completely sold out at the EMS Expo last year in Las Vegas.

## CoTCCC under the JTS—The Way Ahead

### Dr. Frank Butler

Dr. Frank Butler discussed the functioning of the CoTCCC now that it is a component of the JTS instead of the Defense Health Board. One important aspect remains unchanged: the TCCC Guidelines produced by the CoTCCC are evidence-based, best-practice battlefield trauma care guidelines, but they are only recommendations. Turning best-practice guidelines into lives saved requires action on the part of both senior line commanders and medical leaders in the military.

A number of recent preventable deaths and preventable adverse outcomes in U.S. casualties have emphasized the need for better strategic TCCC messaging and improved interaction with the services and with combatant commands. TCCC will never have maximum effectiveness for U.S. Forces until line commanders make it part of their warrior culture, as was done in the 75th Ranger Regiment. Specific actions proposed to help enable this transition include:

- A JTS/CoTCCC brief at the COCOM Surgeons Conference
- Increased interaction with combatant command surgeons
- TCCC and JTS briefings for senior line leaders
- TCCC and JTS briefings for Service Surgeon's General
- TCCC instruction for all military physicians and physician assistants
- Shift to an annual update cycle for the TCCC curriculum
- E-mail an update package for each TCCC Guidelines changes that provides the following:
  - The change to the Guidelines and the evidence that supports it
  - A set of TCCC training slides specific to the change
  - An updated version of the TCCC Guidelines
- Regular distribution of updated "Direct from the Battlefield" TCCC performance improvement issues
- A focused article for peer-reviewed publication on improving the transition of new concepts in trauma care into military medical practice

## USASOC Medical R&D Initiatives

### SGM Kyle Sims

SGM Sims reviewed a number of medical research and development projects currently under way at USASOC. These projects are selected based on input that comes directly from combat medics and include:

- Junctional tourniquets—his unit is now fielding junctional tourniquets—they prefer the SAM<sup>®</sup> JT and the Abdominal Aortic & Junctional Tourniquet<sup>™</sup> (AAJT).
- XStat<sup>™</sup>—regenerated cellulose sponges treated with chitosan. This item is not yet FDA approved. When approved, it will be used for control of external hemorrhage.
- The Wound Stasis program—an expanding hemostatic foam product designed for intra-abdominal use. This product is not yet FDA approved.
- Prehospital monitors—the Tempus Pro can do all vital signs, live video, and ultrasound (pending FDA approval). Sir Richard Branson developed it for use on his aircraft; this monitor is likely to be vehicle based rather than carried in medic sets.
- The ATAK—an Android PDA that provides both digital medical information and an electronic care documentation capability.
- Intranasal ketamine injectors (50mg).
- A handheld ultrasound device—uses the same wand as the Tempus Pro.
- Field blood test kits that can test for HIV, hepatitis virus C and B, HTLV1/II, malaria, syphilis, West Nile virus, and Chagas disease.

- Fluid warmers—medics in his unit prefer the Belmont Buddy Litter, a smaller version of the Buddy Lite.
- Helmet-mounted blast monitors—to measure the overpressure exposure by Servicemembers during training and combat operations.

## TCCC Issues and the Defense Health Agency (DHA)

### Mr. Ed Whitt

Mr. Whitt, who is a former Special Operator now working at DHA, provided insights into the coordination process for CoTCCC recommendations. The organizational structure at the Office of the Assistant Secretary of Defense for Health Affairs (OASD/HA) is being reworked to incorporate the new DHA. Mr. Whitt and his supervisor, Ms. Elizabeth Fudge, both work in the Healthcare Operations section of the DHA, where they help to shape the capabilities for medical support of deployed U.S. military forces. The services have "train and equip" responsibility while the combatant commanders establish standards of care for their theaters. OASD/HA and the DHA interact with both.

There is a new Department of Defense Directive (DoDD) being written that will specify the location and function of the JTS. There is at present no DoD-wide standard for trauma care, either on the battlefield or within the deployed MTF. An ongoing dialogue with both the services and the COCOMs is key to ensuring that all services and all theaters have the benefit of the 13 years of experience in trauma care that our military has gained in Afghanistan and Iraq.

## CoTCCC Action Items

### Dr. Frank Butler

Meeting attendees reviewed a list of proposed changes to the TCCC Guidelines and other potential action items for the CoTCCC. This list is included as Enclosure (3).

## ENCLOSURE 1 COTCCC MEETING 4–5 February 2014

### Attendance

Corporal Bryan Anderson	USASOC
Col Jeff Bailey	JTS
CDR Sean Barbabella	Navy EM Specialty Leader
COL Dave Barber	JREG
Dr. Brad Bennett	WMS
COL Peter Benson	USASOC
LTC Wade Brockway	Canadian Forces
CDR Tyson Brunstetter	DHA MEDLOG
COL Brian Burlingame	JSOC
Dr. Frank Butler	JTS

Dr. Jeff Cain	EM, McKinney, TX	1015	Bailey	JTS Director Brief
Dr. Howard Champion	USUHS	1045	Shackelford	Deployed JTTS Director Brief
COL K.B. Chou	SOCCENT	1115	Brunstetter	DHA MEDLOG Brief
Dr. Warren Dorlac	U Cincinnati			
Dr. Jim Dunne	GWU	<b>PM</b>		
COL Brian Eastridge	UTHSC	1300	Kotwal	First Responder TCCC Documentation
COL Erin Edgar	USAMRIID			
Dr. Warner “Rocky” Farr	Lake Erie College Med	1330	Geracci	JTTS Prehospital Director Brief I
CPT Andy Fisher	75th Ranger Regiment	1400	Sauer	JTTS Prehospital Director Brief II
Dr. Doug Freer	NMCSD			
LTC James Geracci	MEDCOM DCDD	1430	Break	
LTC Elon Glassberg	IDF	1445	Spinella	THOR—Remote DCR
Dr. John Holcomb	U Texas	1515	Mabry	Proposed Change—CricKey
Dr. Don Jenkins	Mayo Clinic	1545	Butler	Proposed Change—Fluid Resuscitation
Dr. Jay Johannigman	U Cincinnati			
Mr. Win Kerr	JSOMTC	1615	Group	New Business
Dr. Jim Kirkpatrick	MEDCOM DCDD	1630		Finish
Mr. Josh Knapp	ATF	1645	Room Clear	
LTC Tom Kodera	JSDF			
COL Russ Kotwal	JTS			
CAPT Bill Liston	WRNMMC			
CDR Lanny Littlejohn	NMC Portsmouth			
Mr. Mark Lueder	PHTLS/NAEMT			
LTC Bob Mabry	BAMC			
LTC Dave Marcozzi	HHS			
Col Mark Mavity	CENTCOM	0900	Kheirabadi	Hemostatics/Resuscitation R&D Break
Dr. Norman McSwain	Tulane Univ	0945		
MSG Harold Montgomery	USSOCOM	1000	Bennett + Littlejohn	Prop Change – Hemostatic Dressings
LCDR Dana Onifer	MARSOC	1045	Lueder	PHTLS TCCC Courses
Dr. Mel Otten	U Cincinnati	1100	Butler	PHTLS 8 Textbook Brief
LTC James Pairmore	USASOC	1115	Kotwal	DoDTR—Military Orthopedic Module
Mr. Don Parsons	AMEDD DCMT			
CMSGT Tom Rich	58 RQS/CEM			
Mr. Jeff Rutherford	State Dept	<b>PM</b>		
COL Samuel Sauer	MEDCOM	1300	Group	Prop Change – Fluid Resuscitation – Discussion
CMSGT Ryan Schultz	347 RQG			
Col Stacy Shackelford	C-STARS, Maryland	1330	Butler	CoTCCC under the JTS – Way Ahead
SGM Kyle Sims	USASOC			
CMDCM Eric Sine	3rd Marine Division	1400	Sims	USASOC Medical R+D Update
Dr. Phil Spinella	Washington U	1430		Break
CAPT Zsolt Stockinger	JTS	1445	Whitt	TCCC Issues – Staffing Process at DHA
Dr. Geir Strandenes	Norwegian Naval Commando			
Mr. Rick Strayer	JSOMTC			
HMC Jeremy Torrisi	Great Lakes NTC	1515	Butler	TCCC Action Items
COL Hal Walker	USSOCOM	1545	Group	New Business
Mr. Ed Whitt	DHA	1630		Finish
Dr. Scott Zeitlow	Mayo Clinic			

**Wednesday, 5 February**

**AM**

0800	Fisher	Ranger PA Presentation
0830	Group	Prop Change – CricKey – Discussion
0900	Kheirabadi	Hemostatics/Resuscitation R&D Break
0945		
1000	Bennett + Littlejohn	Prop Change – Hemostatic Dressings
1045	Lueder	PHTLS TCCC Courses
1100	Butler	PHTLS 8 Textbook Brief
1115	Kotwal	DoDTR—Military Orthopedic Module

**PM**

1300	Group	Prop Change – Fluid Resuscitation – Discussion
1330	Butler	CoTCCC under the JTS – Way Ahead
1400	Sims	USASOC Medical R+D Update
1430		Break
1445	Whitt	TCCC Issues – Staffing Process at DHA
1515	Butler	TCCC Action Items
1545	Group	New Business
1630		Finish

**ENCLOSURE 2**

**Tuesday, 4 February**

**Agenda**

**AM**

0800	Butler	Admin Remarks and Introductions
0830	Jenkins	Opening Remarks
	Zeitlow	Tourniquets and Combat Gauze Use at the Mayo Clinic
0900	Anderson	Combat Medic Presentation
0930		Break
0945	Butler	TCCC Update

**ENCLOSURE 3**

**COTCCC ATTENTION ITEMS**

Tourniquet guidelines – add emphasis on the need for reevaluation and removal of tourniquets if possible in long evacuations.

Tourniquet guidelines – As multiple deployed personnel noted training and placement of tourniquets exclusively in a “high and tight” position versus simply proximal to extremity wound location; consider providing additional TCCC tourniquet placement clarification in TCCC instructional materials.



Consider adding ondansetron as an option for management of nausea and vomiting in the prehospital setting.

Review surgical airway indications. Surgical airways are being performed on casualties with GSWs to the head when there is no evidence of airway obstruction. Basic airway management techniques may be more appropriate in this situation.

Simplify and clarify the TCCC airway algorithm.

Review the use of pelvic binders in TCCC.

Reword the TCCC Guidelines to specify an “injured side up” position for NDC.

Consider adding mention of Foley balloon catheter treatment of head and neck bleeding (Weppner, 2013)

Reevaluate the Abdominal Aortic Junctional Tourniquet now that the directions for use have been changed.

Consider adding supraglottic airways as an airway option in tactical field care as well as TACEVAC care.

Consider the addition of spinal immobilization, bag-valve-mask use, and CPR to the list of skill sets.

Review the use of C-collars and spinal immobilization in TCCC.

Consider recommending the I-Gel as a preferred SGA because the cuff does not expand during flight.

Consider adding scalp skin clips (ITClamps) as an option for hemorrhage control.

Consider recommending one-slit routing for the C-A-T tourniquet as a preferred method for use.

Revisit the use of the impedance threshold device (ITD) in TCCC.

Evaluate the potential use of the HemaClear® Auto-Transfusion Tourniquet in TCCC.

Evaluate the potential use of the modified Veres needle for needle decompression of suspected tension pneumothoraces in TCCC.

## WHAT'S NEW

A directive from U.S. Forces Afghanistan dated 21 March 2014 mandates that all U.S. military physicians, physician assistants, nurse practitioners, nurses, medics, corpsmen, and PJs deployed in or deploying to Afghanistan be trained in the current version of the TCCC Guidelines (dated 28 October 2013) as posted on the Military Health System website.

The TCCC curriculum reflecting the 28 October 2013 TCCC Guidelines is currently available on the MHS website at: [https://mhs.health.mil/References/REF\\_TCCC.cshtml%20](https://mhs.health.mil/References/REF_TCCC.cshtml%20). Note that you will need a CAC card to access this section of the MHS website.

For individuals and groups not able to view the limited access MHS website, this material is available on the TCCC page of the JSOM website at <https://www.jsomonline.org/TCCC.html> and on the TCCC/PHTLS section of the NAEMT website at [http://www.naemt.org/education/TCCC/guidelines\\_curriculum.aspx](http://www.naemt.org/education/TCCC/guidelines_curriculum.aspx).

The TCCC Update for the most recent change to the TCCC Guidelines: the Triple-Option Analgesia Plan has been added to <https://www.jsomonline.org/TCCC.html>. This change originated in the USCENCOM/Joint Trauma System assessment of prehospital care in Afghanistan in November 2012. In discussions with combat medics, corpsmen, and PJs in theater, two important observations regarding pain medications were noted: (1) the TCCC battlefield analgesia recommendations needed to be simplified—there were too many

options and not enough clear guidance on which option to use for a given casualty; and (2) ketamine was being used by some medics, corpsmen, and PJs in theater as a battlefield analgesic with excellent results.

Additionally, multiple casualties in the JTTS weekly trauma teleconferences who were in shock and/or respiratory distress were reported to have been given opioid analgesics (morphine or fentanyl)—neither is a good option for this type of casualty.

The change presented in this paper does not change any of the analgesic medications or doses recommended previously by the CoTCCC. It does simplify the analgesic use recommendations and provide more definitive guidance about when to use each of the three options recommended. This paper was published in the Spring, Vol 14(1) edition of the *Journal of Special Operations Medicine* (JSOM).

Recently added to the JSOM's TCCC page at <https://www.jsomonline.org/TCCC.html> are:

1. A set of training slides that can be used to train unit personnel on this new change to the TCCC Guidelines
2. The current version of the TCCC Guidelines dated 28 October 2013
3. Journal Watch
4. TCCC article abstracts 1402
5. Memorandum on Tactical Combat Casualty Care Training for Deploying Personnel 2011-02