

COMMITTEE ON SURGICAL COMBAT CASUALTY CARE
THE OPERATIONAL TMD, THE DEPLOYED TMD AND THE CCMD TMD

NOVEMBER 7TH -8TH 2024

Estancia Del Norte San Antonio Airport
 San Antonio, TX

Meeting Minutes Prepared by: Mr. Dominick Sestito

Day #1 CoSCCC November 7th

Day #1		
Time	Presentation	Proposed Speakers
0700	JTS Weekly Conference	Sestito
0830	CoSCCC Intro & DCoT Update	Tadlock/Van Gent (20 min)
0900	Intro to CoSCCC Priorities Survey	Wallace
0850	Panel Session #1: CCMD TMD Updates: Challenges & Opportunities -EUCOM, AFRICOM, INDOPACOM, NORTHCOM, CENTCOM, SOUTHCOM, SOCOM (70 min) -Q&A (20 min)	Sams-NORTHCOM Bitterman/Brill-INDOPACOM Steuver-EUCOM/LRMC (Virtual) Armstrong – CENTCOM Hardin- SOCOM Vincente-SOUTHCOM Pokorny - AFRICOM
1040	BREAK	
1110	Update/Overview of JTS Trauma Program Assist Visits	Flaherty (30 min)
1140	GHE & Health Security Cooperation in INDOPACOM-Update	Bitterman (30 min) Discussion (15 min)
1225	LUNCH	
1325	Overview of Combat Craniofacial Trauma Skills Course	Feldt (10 min) Discussion (5 min)
1340	Panel Session #2: Handling Difficult Situations at Trauma Center. o The Difficult Provider o The Difficult TMD o Difficult Hospital Leadership	Nunez (45 min) Panelists Sams, Gross, Flaherty
1425	CCRP Research Update	Polk (20 min) Discussion (10 min)
1455	Deployed Critical Care Capabilities Literature Review & Update	Powell (10 min) Discussion (20 min)
1525	BREAK	
1615	The Revolving Whole Blood Bank	Weir (20 min Virtual)
1625	Pro-Con Debate: AI on the Battlefield	Pro: Eckert (10 min) Con: Holcomb (10 min) Moderated Discussion (10 min)

1. The Meeting opened with CAPT Tadlock and Mr. Sestito welcoming the attendees. Introductions were conducted and business related to DTS travel, receipts, and meeting format were briefed to the group. Meeting dates for the Spring Meeting were tentatively proposed for May 1-2nd with majority agreement.

CAPT Tadlock reviewed past meeting deliverables and current due outs. He highlighted CPG updates and revisions processed during 2024, and current business requiring formal vote.

New/Updated CPGs

- 2022→2 CPGs
- 2023→5CPGs
- 2024→10 CPGs
 1. Altitude Emergencies in the Prehospital Environment (5 Mar 2024)
 2. Genitourinary (GU) Injury Trauma Management (updated 29 Mar 2024)
 3. Prevention of Venous Thromboembolism (updated 29 Mar 2024)
 4. Suspected Radio Frequency Electromagnetic Field Overexposure (NEW CPG 12 Jul 2024)
 5. (High Bilateral) Amputations and Dismounted Complex Blast Injury (updated 5 Aug 2024)
 6. Frozen and Deglycerolized Red Blood Cells (updated 5 Aug 2024)
 7. En Route Care (ERC) Patient Packaging (updated 19 Aug 2024)
 8. CBRN Part 3 (20 Aug 2024)
 9. JTS CPG Author Guidance (28 Aug 2024)
 10. CPG Development Process (4 Oct 2024)

CoSCCC Work Product Updates

- CoSCCC Priorities Survey
- Role 2 Critical Care Capability Gaps Review Article
- Role 1 Procedures Survey Results
- Utilization of ARSC teams for LSCO
- Combatant Command Updates
- Global Health Engagement
- Burns**
- Ukraine War Lessons Learned
- Revolving Blood Bank

CAPT Tadlock reiterated what was discussed at the TMD/TPM Meeting on 6 Nov, with CAPT Deaton's Top 4 takeaways being emphasized:

What The TMD Needs to Know from an Operational Leader Perspective-I MEF, Force Surgeon, CAPT Deaton:

1. If a trauma system is not in place before hostilities begin, there will not be time to build one in stride.

CoSCCC Nov 2024 Meeting Minutes

2. You can't advise or manage a trauma system if you don't have a full understanding of the HSS capabilities and limitations that reside within all of the Joint Force.
3. Need to justify a requirement to receive a TS clearance if you want to ensure the planning process supports your trauma system (OPLAN and TFFDD access).
4. For those responsible for a regional trauma system, determine your high-risk casualty stream projections over time, this will be the key planning factor for any system you develop

CAPT Tadlock concluded with the introduction of the Vice- Chair position for the CoSCCC. Nominees were requested and a brief overview of expectations and requirements were outlined. The DCOT Charter is being updated to mirror the new hierarchy.

Letter Of Intent & CV December 16th, 2024 to Mr. Sestito

- *Any specialty 04-06*
- *Does not necessarily lead to CoSCCC chair appointment*
- ✓ *Meeting Planning*
- ✓ *Coordination & Communication with CoSCCC membership & SMEs*
- ✓ *Help the CoSCCC understand the grassroots efforts to improve Surgical Combat Casualty Care & Promulgate Best Practices.*

AWARD PRESENTATION ICO CDR Shane JENSEN: Attention to Orders was called and all stood for presentation of the Outstanding Meritorious Service Medal from the SECDEF. CDR Jensen was instrumental as Trauma Surgeon and Navy Liaison from July 2020-June 2023. He developed and implemented a Role 2 Capability Assessment and acted as Chair of the Committee on Surgical Combat Casualty Care while also facilitating numerous training courses.

2. **CoSCCC Survey Priorities - CDR Wallace** – CDR Wallace presented on the current state of the Research Top 10 Priority survey that will be revised and disseminated in early 2025 for a 5 year update publication to follow. The goals of the survey are to:
 - Focus on clinically and operationally relevant topics that directly relate to patient care
 - Organized primarily by phase of care from arrival/triage through prep for transport
 - also including "special populations" & optimal staffing
 - Excluded external areas such as prehospital or en-route care as those are already explored by other JTS committees
 - Excluded general readiness and pre-deployment training, as these are active focus of other working groups
3. **Panel Session #1: COCOM TMD Updates: Challenges & Opportunities -EUCOM, AFRICOM, INDOPACOM, NORTHCOM, CENTCOM, SOUTHCOM, SOCOM** – TMD representatives from each of the COCOMS initiated discussion on current challenges in each AOR as well as Lessons Learned, addressing concerns from the community.
 - "I'm tired of fighting for the entire system every month"
 - "20% of my job is advocating to my command leadership as to why we have to have a trauma system and take civilian trauma"
 - "How do you define the TMD role to the Combatant Command?"

Col Sams-NORTHCOM – Col Sams provided an update on behalf of Col Stacy Shackelford, from the perspective of NORTHCOM TMD. Col Sams reviewed on how patients would be brought back into CONUS during LSCO utilizing the ICMOP NDMS Pilot.



- NDMS is partner org coordinating civilian efforts
- COT is advocating for NTEPS to address the MZ recs
- Global Trauma System pilot concept
- ICMOP Clinical working group has been discussed
- NASEM Meeting take homes
- Immediate need Regional Ops → National Trauma System (RMOCs)
 - OH proposal led by UC Health

Brill-INDOPACOM – CDR Brill presented for INDOPACOM – CDR Brill provided an update on recent injury patterns occurring in the AOR, as well as Performance Improvement and current exercises and initiatives taking place.

- NDMS is partner org coordinating civilian efforts
- COT is advocating for NTEPS to address the MZ recs
- Global Trauma System pilot concept
- ICMOP Clinical working group has been discussed
- NASEM Meeting take homes
- Immediate need Regional Ops → National Trauma System (RMOCs)
 - OH proposal led by UC Health

COL Gurney – *What do you think are the keys to network success for all the sites in your AOR?*

CDR Brill – *The fixed facilities are a little easier to monitor, but maintaining a contact list is so imperative...passing the baton during “PCS season.” We keep a pulse on when people are leaving and we are proactive in keeping the ball rolling and make communications top priority.*

Steuver-EUCOM/LRMC (Virtual) – Lt Col Steuver presented an overview from Lessons Learned. She introduced the Trauma Team from CENTCOM. Their overall goal in CENTCOM is to maintain LRMC in a “Ready State.”

- **LRMC Capabilities**
 - **Robust Surgical Services**
 - **Non-invasive Vascular Lab**
 - **Interventional Radiology**
 - **Armed Services Blood Donor Center/Transfusion Services**

Lt Col Steuver reviewed current patient admission levels and current ISS regardless of patient volume. She reviewed their reverification status and non-compliances they currently face, corrective actions, and future state.

Lessons Learned:

- DHA credentialing offices use a blanket packet for provider privileging that does not satisfy ACS COT standard 4.7
- Credentialed emergency medicine physicians do not require board certification at MTFs without trauma centers
- Currently there is no process for a DHA board certification requirement system-wide
- Our recommendation is to work with the local credentialing office and ensure physicians add the additional requirement on their credentialing packet
- The PRQ requires templates from the following specialty services: Emergency Department, Orthopaedic Surgery, Neurosurgery, and Trauma Service surgeons
- To ensure these physicians meet ACS COT requirements the TMD will interview new physicians from these services to include verifying ATLS course completion, when applicable
- The average hospital staff turnover is 33% annually and liaisons from these services will update the PRQ template once a year

Tips for future Virtual Site Surveys:

- Access QPort for PRQ as soon as it becomes available (LRMC experienced delays due to VRC updating the PRQ with new standards and DHA blocked the ACS website. Did not have access until September 2023)
- Allow other trauma program staff to have access to PRQ e.g., PI Coordinator and Injury Prevention could focus on their standards
- Per LRMC informatics the acceptable platform is Cisco. MS Teams does allow for discussion of patients, but PHI/PII cannot be shared on the screen or uploaded to Teams files
- Rehearse Hospital Tour using all equipment to check connectivity
- 2-3 months prior to site survey request A-Team on shift for Hospital Tour
- Request additional staff from IMD for connectivity and establish who the site coordinator and chart navigators will be
- Request overtime/comp time and telework approval for all staff assisting with the virtual survey
- Create a running Master Chart in Excel for year in review to select patients throughout the year who meet criteria
- There is now more lead time scheduling trauma system assessment and mock surveys by Dr. Flaherty. Mock surveys are beneficial!
- Requested guidance from VRC how to complete the electronic chart particularly the face sheets

CAPT Tadlock – *What are the two biggest concerns and opportunities you face there?*

CoSCCC Nov 2024 Meeting Minutes

Lt Col Steuver – *Justification of the Neuro and Vascular Surgeon. If the balloon goes up and we need that capability it needs to be available. We are constantly having to justify this to the “decision makers.”*

COL Benavides – *Are Ortho getting the volume of cases there to maintain currency and competency?*

LT Col Steuver – *The current Ortho is just out of fellowship, and this is not just for Ortho, but the sets and reps are limited, but we are currently trying to build Mil/Civ partnership back in the states as well, but bureaucratic issues arise and is MTF-wide.*

Buzzelli-SOUTHCOM – COL Buzzelli outlined the biggest challenge as the TMD, which was that this is an auxiliary duty, how much it detracts from the primary role, and how the DHAP-I has to be submitted as a request for forces to formally identify them as a TMD. What is the succession plan and who is in line for these positions etc. Ultimately, we ended up with a Memorandum of Agreement, but this clearly does not carry the same weight of enduring as a DHAP-i...which we have had in place for a few years now.

COL Buzzelli gave an overview of current UN outreach that he is intimately involved in as TMD for SOUTHCOM.

Haiti MSS Mission Planning:

- Dire Humanitarian Situation:
 - 3,661 people have been killed so far in 2024 as a direct result of gang violence
 - 700,000 people are internally displaced
 - 5.4 million people are experiencing food insecurity
- UN Planned and Managed with SOUTHCOM Support
- SOUTHCOM Medical Planning Support:
 - Blood Product Recommendations
 - Surgical Team Capabilities Review

COL Buzzelli – *We have not been able to replicate what CDR Brill is doing in INDOPACOM, we have a hard time keeping kinetically active and the overall threat is relatively low, so it becomes a back burner issue to maintain a PI process, maintaining and building an enduring Trauma System. We are working to share the role of TMD and offer more frequent presence and gain traction. We tend to help CLINOPS the most, even though I think the COCOM Surgeon is the person we need to influence the most.*

COL Gurney – *Brian Gavitt is in the room, how are you as AFSOUTH Command Surgeon talking or improving communications with the TMD position?*

Col Gavitt- *It's only been about 3 months, but there are a lot of opportunities for the TMD in theater to work with GHE or operational missions in the AOR. Obviously improved communications will enhance the relationship and the capabilities.*

Armstrong – CENTCOM – Maj Armstrong is currently embedded in Tampa. HE outlined that there is currently a push to “get out of there,” however, there are many missteps and changes happening that keep an enduring effort there. With Israel being added to our AOR, we have a new interest that continues to “Stir the bees nest.”

The current effort is to revise the OIR Trauma System. But we have lost our PI process, and the skeleton that was in place.

UNCLASSIFIED

Maj Bracken Armstrong, CENTCOM Trauma Medical Director



Current Issues (U)

(U) Operational/Strategic Challenges:

- (U) Vacancies in TMD/TPM across CENTCOM
- (U) MASCAL events that overwhelm Roles of Care
- (U) Medical & Strategic Evacuation across AOR
- (U) Risk to medical facilities & personnel, combat casualty care in contested environment
- (U) MEDLOG challenges: Class VIII Supplies, Blood, meds
- (U) CTS integration into various OPLANS (Specialties required)
- (U) Diverse Crises: Natural disaster, infectious disease, Humanitarian
- (U) Host-nation medical care collaboration & support
- (U) Lessons from the Russia-Ukraine & Israel-Hamas war

4

UNCLASSIFIED

Current Initiatives:

Blood

- Type A Specific Whole Blood Pilot
 - Impacts 40% population. Alleviates Type O WB shortages.
 - Effectively doubles the availability of blood support in the AOR from 45% to 85%
 - SOPs complete & ready to execute. CPG pending further review and completion
- Freeze Dried Plasma (octoplasLG)
 - Emergency Use Authorization
 - FY 25
- Host-Nation Pre Donor Screening initiative
- Wizard Box
- Tele-Radiology
- Pilot to bring Level 1 Trauma radiologist expertise deeper into the battlespace
- Tele-radiology between BDSC Role 3 and BAMC
- Leverages 40 TR radiologists / 24-7 support
- May expand across the AOR
- OB ATG (Al Tanf)
- 97 CS performed from DEC 2021 to 31OCT2024
- Maternal mortality- 1.03% (1 out of 97)
- Neonatal Survivability of 97.8%, 100% when delivered at term

CoSCCC Nov 2024 Meeting Minutes

Summary:

- Recent organizational changes and current/future threats highlight need for updated strategies.
 - *Expand, Decentralize, Fortify*: “Hub and Spoke” model
 - Perform a JTS CTS Assessment
 - Introduce innovative technologies
 - Pioneer: Global Trauma System / Host-Nation support
- Develop a resilient, decentralized, and technologically advanced CTS for effective trauma care in diverse and contested operational environments.

Dr. Holcomb – *I have done this...I have given the wrong blood to the wrong patient, so you must have a plan what happens. It should be a “never event,” but it will happen.*

COL Gurney- *We may need a CPG for this. You have to be able to properly deal with this mishap during a transfusion.*

Pokorny – AFRICOM – CDR Pokorny was recently deployed as the AFRICOM TMD. He outlined the tyranny of distance in Arica and how hard it is to mobilize patients.

► Trauma System

- Command Staff and Command Surgeon in Germany
- TMD, TPM and Registry Staff located at Camp Lemmonier, Djibouti (CLDJ)
 - Camp Lemmonier Expeditionary Medical Facility (EMF) is functionally a role 2 facility
 - Some advanced capability such as fluoro, CT scan, blood bank, clean OR spaces, etc
- Three Western Role 2 sites shut down in spring of 2024 with Niger evacuation
- Currently three Role 2 sites and one Role 1, all in CJTF-HOA AOR.
 - Closest facility to CLDJ is nearly 1,000 miles away (4hr evac)
 - Damage Control Orthopedics at one site with Ortho PA at another but no ability to do percutaneous pins or implants
 - Trauma/Critical Care at 3 of the 4 sites
 - Trauma System
 - One to two additional Role 2 trauma teams afloat in theater at any given time
 - Multiple Role 1 and Role 2 NATO partner facilities on continent
 - No military Role 3
 - Civilian university hospital in CJTF-HOA for advanced services
 - Role 4 at Landstuhl, Germany

Challenges/Areas for Improvement

- Size and Distance
- Aircraft range limits CASEVAC options
- Prolonged holds at downrange sites waiting for transport
- Flight paths often restricted
- Evac to Role 4 takes 24-30 hours in air.
- Delays in resupply due to restricted airspace
- Challenges/Areas for Improvement
- Lack of a military Role 3 facility
- University hospital has unique limitations producing inconsistent care
- Significant decrease in staffing overnight, including in ICU

CoSCCC Nov 2024 Meeting Minutes

- Entrance VISA required for all transports prior to leaving Role 2
- Mandatory payment (or at least agreement to pay) for transport/EMS/hospital fees prior to VISA being granted
- Airport closed overnight so daytime only services
- Minimal to no vetted options for care outside the above mentioned facility
- ▶ Challenges/Areas for Improvement
- Theater Entrance Screening Oversight
 - Significant percentage of personnel lacking vaccines, blood type/titer, malaria ppx, etc
 - Services plan to fund blood type and titer for teams in future
 - Navy EMF at CLDJ has limited vaccines and blood type/titer collection capability
 - Blood Products
 - Walking blood bank difficult to reliably run
 - Majority of downrange personnel are combatants and are restricted from donation by ground force commanders
 - Frozen blood products are time consuming and personnel not necessarily adept at process/supplies not always available

CDR Jensen – *Based on such a high turnover, could setting up a blood collection center and making “going home” a requirement to donate blood?*

CDR Pokorny – *We did this before they went downrange or before they went home, but the time distances were often an issue because if it wasn’t collected and stored properly, it was just wasted.*

COL Hardin SOCOM – COL Hardin stated that SOCOM is not a Combatant Command unlike other COCOMS. The challenges from a TMD standpoint is that they are a Joint Command. We work in a “global network.” We have a conflict area and often on the same encampment that involve multiple command and control conflicts that do not know they are right next to each other operating together.

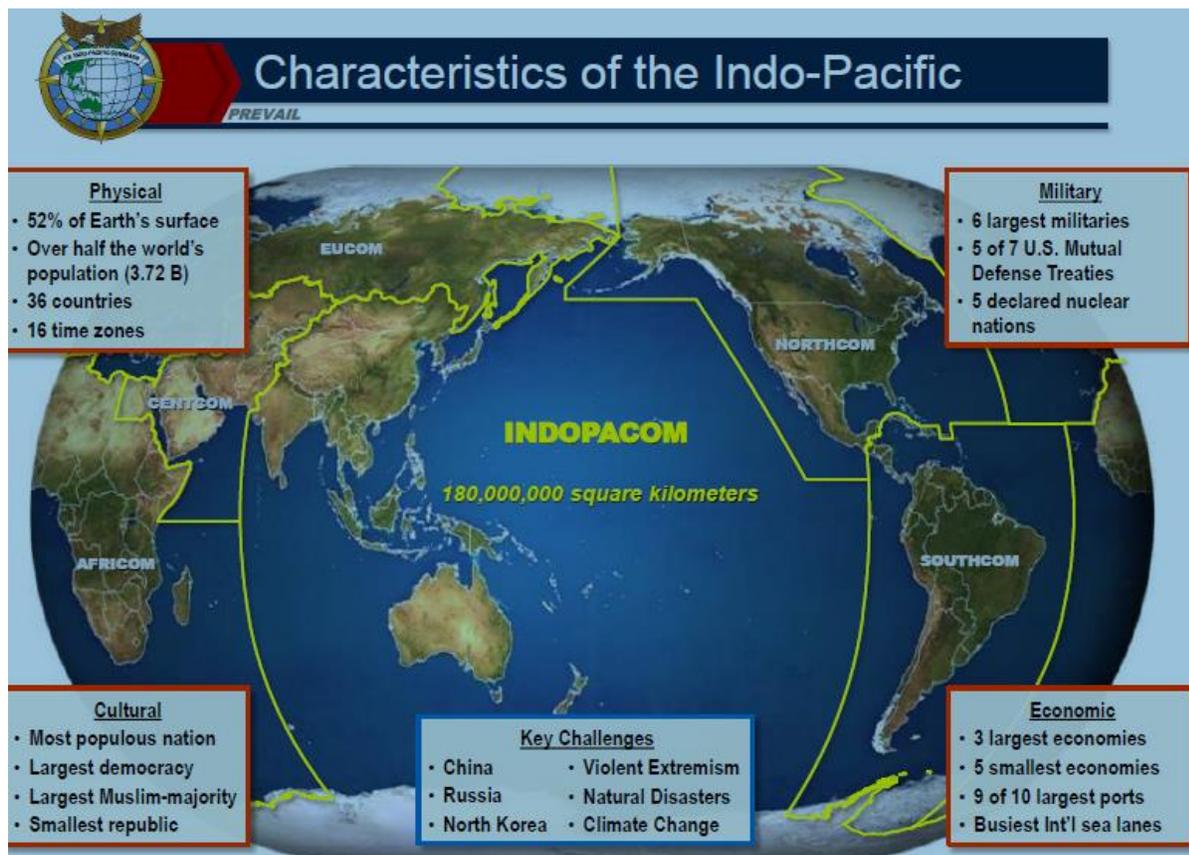
Our goal is to utilize lessons learned and enable them upfront and track casualties through the evacuation chain. Faster and flatter, by leveraging allied partners; interoperability in SOF networks in hybrid warfare such as Ukraine. Those assets are not always available, so we need to have PACE plans to accommodate permissive air phase zero with Class VIII material etc. What is SOF peculiar and what is not, where are the gaps and how do we man train and equip these assets.

4. Update/Overview of JTS Trauma Program Assist Visits – Dr Flaherty – Dr. Flaherty gave an overview of how and why the JTS is doing Site Survey Visits.

Dr. Flaherty went over the timeline the JTS likes to try and provide an optimal site survey experience and what the standards are to be successful. How the report is developed and shared. Several sites are coming up on survey and we are working closely with those facilities to be confident and successful.

We have also branched out to boarder system related questions. We went to EUCOM and looked at the briefing of their OPLAN and their facilities and how we could better use our operations. JTS offered guidance on how to enhance current operations and how the JTS can adapt to better support them through the PI Process with a more cohesive GHE Trauma System.

5. **GHE & Health Security Cooperation in INDOPACOM-Update – CAPT Bitterman -**
CAPT Bitterman briefed on Global Health Engagement and LSCO from the INDOPACOM perspective.



The objectives of the Indo-pacific Health Security Alliance (IPHSa) are to foster collaboration on the development of global health security-related capabilities and capacity in the Indo-Pacific region, as follows:

- Explore avenues for supporting and coordinating the military and security sector collaboration on health security within countries, as well as with established regional and global health security structures
- Utilize the IPHSa to provide a sustainable framework of engagement to foster cooperation on regional health security objectives
- Build regional capacity to respond to health and security threats and climate induced impacts through cooperative or collaborative activities
- Cultivate partnerships and collaborative activities between Participants
- Exchange information to develop and share best-practice for preparing for and responding to health security threats
- Engage multi-sectoral partners in whole-of-society capacity building efforts, specifically addressing the distinct challenges and opportunities in the Indo-Pacific region
- Encourage the development of interpersonal connections, mutual understanding, and medical interoperability among Participants
- Advocate for increased membership in the IPHSa to enhance extensive regional collaboration on health security.

CoSCCC Nov 2024 Meeting Minutes

Desired End-state

- Integrated GHE planning with Interagency Partners, Country Teams, CCMDs, Components, and State Partnership Program to improve Allies and Partners Health Systems capacity & capability
- Improved & modernized Joint Health Service Support capabilities to enable Joint Force readiness
- Health Services Capabilities and Systems Interoperable/ Interchangeable with Allies & Partners
- Critical Health Service Support capabilities expanded and postured to

Outcomes

- Blood Sharing Agreements
- Standardized Clinical Practice Guidelines
- Standardized Trauma Systems
- AE Inter-fly Agreements
- Interoperable Patient Movement
- Interchangeable Equipment and Platforms
- Credentialing & Privileging Reciprocity

COL Benavides – *National Guard interactions are so important and something we need to continue to look at in other Theaters, so I appreciate you mentioning that you are looking at that.*

DR. Holcomb – *Who is going to take care of all the local national casualties in LSCO?*

CAPT Bitterman – *We know even CONUS is not going to be able to handle definitive care so Triage management is going to have to adapt and change. As we reach capacity throughout the continuum we induce the GHE ICMOP capacity and realize that every trauma patient will not be able to go to or receive proper trauma care. There will be an adaptation to moral injury and ethical concerns but doing the greatest good for the greatest number requiring hard decisions.*

Dr. Licina – *Challenge the status quo with MIL/CIV partnerships across all sectors. It was done in Bangladesh and can be done other placed. There is a publication outlining the success and needs to be looked at further.*

In closing CAPT Bitterman emphasized the importance of the JTS and the partnership between the Geographic Combatant Commands.

COL Gurney briefed the group. She was unable to be there for the morning session, so she provided an introductory overview from her perspective as the JTS Chief. She focused on how clinical data changes practices.

JTS Operational Cycle: Saving Lives with Data

Trauma Care Delivery

The JTS – as a performance improvement and medical performance optimization (MPO) organization – uses clinical data (from care of combat casualties) to enable a **battlefield learning health care system**.

Medical Performance Optimization (MPO) is a comprehensive term that encompasses evidence-based performance improvement that is foundational for the JTS CPGs and also informs doctrine, organization, training, education, policy, research, and materiel solutions. in addition to clinical care and clinical practice guidelines.

The JTS mission of **‘saving lives with data’** through MPO includes objectively documented analysis, comparison of alternatives and recommendations to support the Combatant Commands Trauma Systems (CTS) IAW DoDI 6040.47, whether in competition, crisis, or conflict.

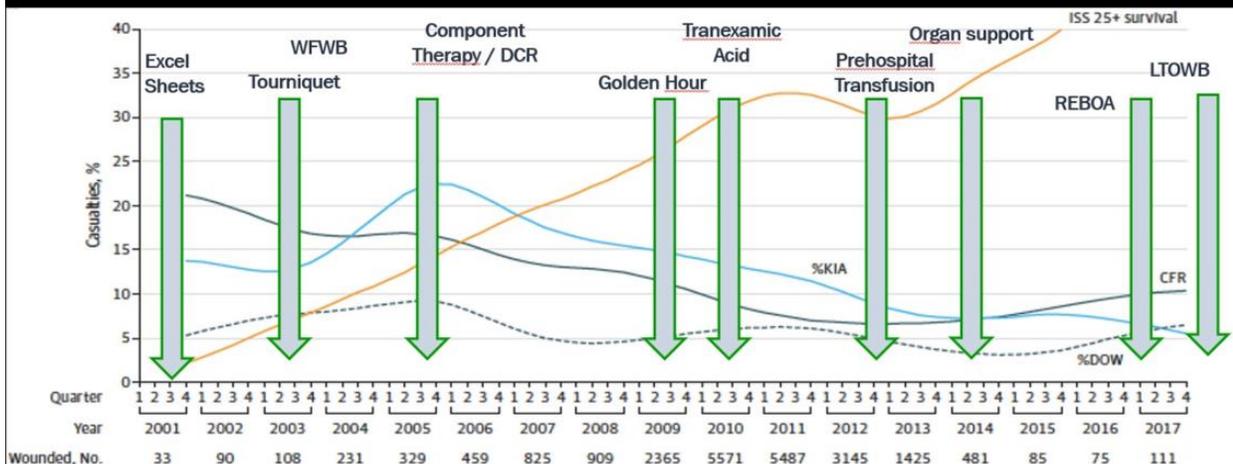
Performance Improvement

DATA ANALYSIS

DoD Trauma Registry

Many of you may ask what is MPO...how did we coin that term. We all do MPO on a daily, weekly, and yearly basis as providers within the MHS. Here are some notable examples over the years of MPO accomplishments from the JTS and their partners:

Demonstrated Medical Performance Optimization (MPO)



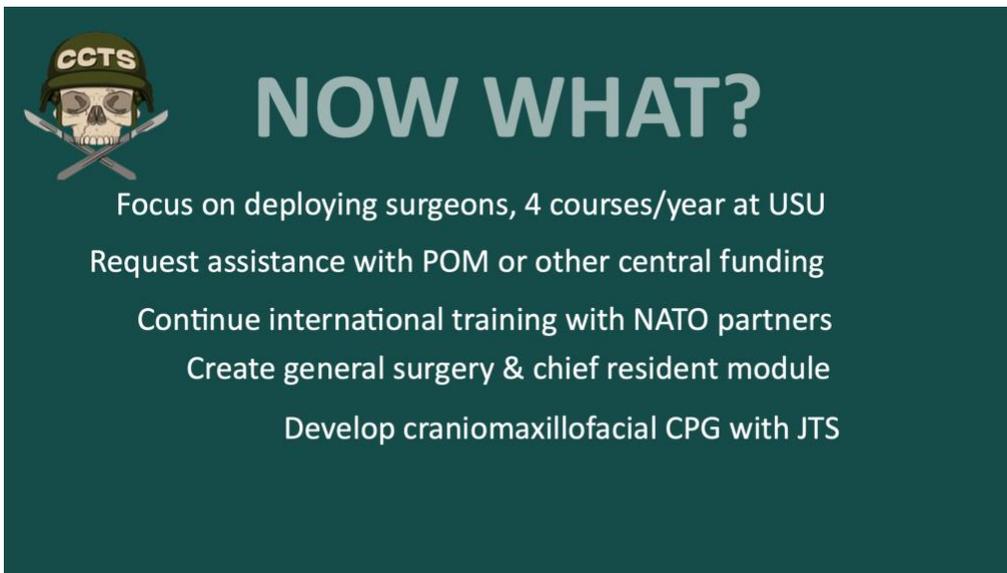
COL Gurney concluded with her perspective on Command surgeon partners and how GHE is shaping the future of modern medicine in LSCO projections. Also, the modernization of the data and the registry.

The data has to be automated to expedite analysis through AI etc. The new system is going to be called SIMON: System for Injury Monitoring and Outcomes Nexus. Why: Because even though we had the lowest case fatality rate in history, we will not have that opportunity against a near-peer adversary. Bureaucratic Processes in decision making resulting in lack of prioritization of readiness/preparedness initiatives to set the standards for best practices in CCC. *“The Walker Dip is real, and we are in it right now. IT is our current risk and we have to continue to combat it daily to persevere and be ready for the next conflict.”*

- 6. **Overview of Combat Craniofacial Trauma Skills Course (CCTS) – Col Feldt** – How do we help maintain or promote skills that are not “ready” due to gaps in training or non-availability of cases to perform patient care you may encounter down range. The course was developed to help bridge this gap. There are 6 critical areas:



The course has been created...now what?



Our goal is to continue to modify the course to be the most beneficial for the greatest good. What do Trauma Surgeons need, what do Ortho need, what CPG's need to be incorporated.

COL Gurney – *Maybe we look at USH to help “host” all these courses to get continuity in Service engagement, funding etc. To get more formal requirements in writing where the Services enforce and implement these necessary trainings like ASSET, ARSC, COTS etc.*

COL Marsh – *COTS is a big upgrade from the old extremity war surgery course. The MTF's do not provide us any sort of volume to be prepared for battlefield orthopedic medicine. The ex-fix and fasciotomies on cadavers is the best we have shy of getting to a Level 1 Ortho Trauma Surgeon who is actually getting exposure to those type cases.*

COL Graybill – *The biggest bang for the buck is to have Congress appropriate or fund these courses and someone like us identifies and trains these courses and then the Services wouldn't have an issue.*

7. **Panel Session #2: Handling Difficult Situations at your Trauma Center:** The Difficult Provider, the difficult TMD, difficult hospital leadership.

Dr. Nunez – led the session and presented three scenarios that you most likely will encounter as a TMD and how they have dealt with them at their trauma centers.

The Difficult Provider- *The scenario is that you are in the Command Suite and the TMD belittles the very experienced Program Manager...doesn't share information, doesn't communicate with them, putting you in a box and not utilizing your experience...how would you approach that from a CO/XO perspective?*

Col Sams – This is a challenging situation. When you are a Junior TPM/TMD and you're trying to do the right thing is that the Program Managers are the experts. I would approach the Senior Trauma Surgeon and how they think the relationship is going and lead them to some continuity and working together with the TPM.

CoSCCC Nov 2024 Meeting Minutes

Dr. Flaherty – *My approach is same whether I am the TMD or the Commander. This is just general leadership. I am above them in the hierarchy, so the fact I have to deal with this is going to irritate me since I have to take time out of my day, but since we are here...I have to make them feel like they are being heard and give them my time. While I am listening, I am trying to find the burr in their saddle that is causing conflict...conflict doesn't come out of thin air, something initiated it. IT is my job to sort out the truths and discuss with both parties and give my "official guidance" and to unify them on a cause in some way unless there is a specific point of contention.*

Dr. Nunez – *Try and deescalate at the lowest easiest level before anything formal.*

Dr. Nunez – ***Second Scenario -As TMD you have touch points all across the facility. The difficult Surgeon, who is the TMD is not making relationships, is constantly being complained about, and is not a very approachable person...how do you handle this as Facility Leadership?***

Dr. Gross- *I would first seek to understand and then try to be understood. What are the circumstances? I would start by ensuring the TMD knows how important the Trauma System is to the hospital and it's success. Also, does this person even want to be the TMD? Was he/she forced to be in this position? Are they uncomfortable being in this role? Can I help remediate them? Can I mentor them? Sometimes if they really want to be relieved, that may be best for the facility and the member, even though it will reflect poorly on their FITREP.*

Dr. Nunez – *The TMD is the Trauma expert in the facility. As the TMD you have a whole lot of people who can and will help you, so let them help you. There is no requirement for the TMD to be authoritative...delegate, engage your staff, make your job easier by using others strengths. Your surgeons have to believe in you and you have to show that you are one of them, not just "over them." If there are actual incidents or patient safety situations that is different, but majority of the time there is a root cause and it can be dealt with and developed with good leadership.*

Dr. Nunez – Third Scenario – Your PI process is starting to pick up and one of your surgeons is having more case review issues and decision making with poly-trauma, competency issues and how would you manage it?

Col Sams – *As the owner of the Trauma System you have to make it about standards and guidelines. WE often do things but not in a meaningful way just to "pencil whip" things. After deployment I came back a little disgruntled and was in a similar issue. We had to implement a process and make sure everyone was taking good care of patients. We tracked and trended and intervened early and if you needed to we put them on FPPE, even though it was hard for senior surgeons. It was about implementing the process. You shouldn't be "branded" because you make a mistake, have a systematic approach to safety and competency.*

Dr. Flaherty – *You will encounter this situation as TMD, you will encounter legal threats, and retribution. It is your sacred job to be 100% committed to patient safety, and you also have to have a PI plan with solid paper trail. IT should never come down to just the TMD opinion, it is an action based on committee decision and hospital policies. You must report to hospital peer review and they should support you in your process.*

Dr. Nunez- *When you do these counseling do you do them one on one? Do you do them in a group setting?*

CoSCCC Nov 2024 Meeting Minutes

Dr. Flaherty – *You have to have emotional intelligence, know your people and their personalities...rumors have some truth. Don't ever submit to societal changes by letting yourself become susceptible to race, gender etc. Always read the room and err on the side of caution!*

Dr. Gross – *Surgeons are product type people and some are process type people. You need to ensure people understand the formation understands the process...not just the product.*

Dr. Nunez – Fourth Scenario – You have a great TMD who is phenomenal with patients, but every Monday morning you have to put out 3 fires a week because he/she didn't play nice with the staff over the weekend.

Dr. Gross – *This wastes time and can be frustrating. Gain understanding is this a one time or a pattern? Why these incidents happened...personal life issue outside of work? Emphasize they are causing harm to the overall success of the facility. In the operational AOR you can vote people off the island easier, but in garrison things run differently.*

Dr. Flaherty – *Things have changed, from when I started, they could not and would not be tolerated in today's climate. Get involved early because if it is taken into the hands of others, you have a bigger problem. A very stern conversation with transparency on reporting and legalities of this gets out or continues...you're leading them but you're also warning them as a friend, this is not the road you want to go down in your career.*

Dr. Nunez – Stories change, residents version, surgeon view, emotional intelligence vs actual situation..how do you deal with that?

Col Sams – *IT is a different time and we have to realize that residents expect to be treated differently than I did 20 years ago. They need exposure to different surgeons to make sure they can deal with behavioral changes but there have to be lateral limits with the TMD and TPM to know when to intervene vs defending good surgeons that have questionable OR etiquette.*

Dr. Flaherty – *The answer to this is group conversation, aside from a sentinel event of physical contact or something, but talking to the residents and letting them know how things are and how things are being perceived and make sure the group understands their view is not the only perspective, right or wrong.*

Having the JTS is the key to many of these situations and questions. The JTS is your resource and is just a phone call away. You have a bench of many experienced people who have experience in both CONUS and Deployed environments.

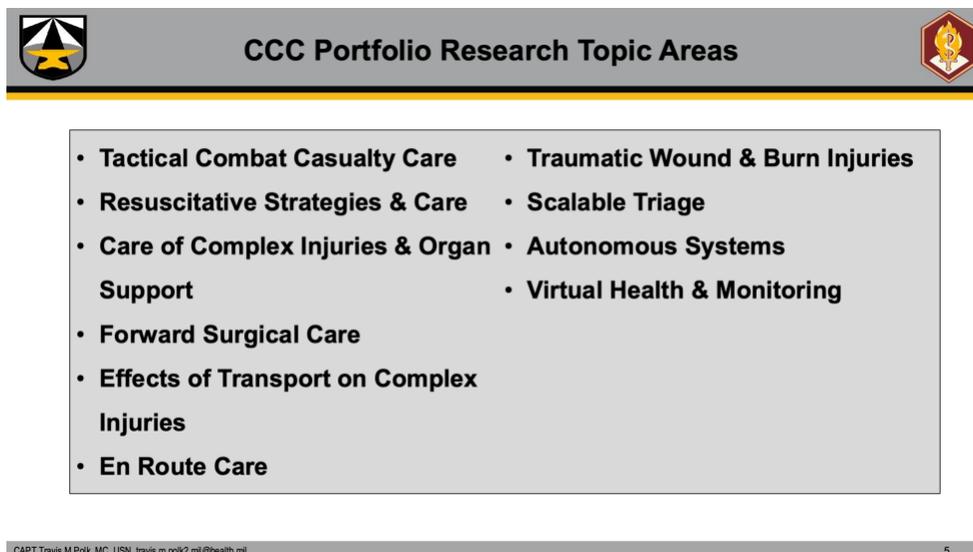
Dr. Jenkins – *Sometimes you have to play the mental game with the command too...it's ok to go into a meeting and say "hey I am the TMD, trauma expert in the facility, and I have tried to change this many times in the last few months, and I have to tell you it's not working and therefore we are not going to make verification." Trust me, this will get the Leadership's attention to assist, support and intervene. Tell the Commander "Sorry, I failed you, we are not going to be a trauma center next year, and I am letting you know I have to place a call to JTS and COL Gurney to properly notify DHA" I promise that Commander will change their tune.*

Dr. Holcomb – *I have been on both sides of this, both cause of and solution for many problems. We have sent guys home from theater because it is easier deployed, but it takes two years in my experience. The first two years are terrible...track M&M's. To make a guy/girl getting their feet under them, it is not fair*

to give them TMD responsibilities, but that's what the Military does...it isn't fair and be aware of that. Even though it is the last place a surgeon wants to be, you have to be in the board room too.

- 8. **CCRP Research Update** – CAPT Polk briefed on the current capability gaps and solutions for the LSCO future, both knowledge and materiel.

CAPT Polk highlighted the largest area of focus in today's portfolio:



CCC Portfolio Research Topic Areas

- Tactical Combat Casualty Care
- Resuscitative Strategies & Care
- Care of Complex Injuries & Organ Support
- Forward Surgical Care
- Effects of Transport on Complex Injuries
- En Route Care
- Traumatic Wound & Burn Injuries
- Scalable Triage
- Autonomous Systems
- Virtual Health & Monitoring

CAPT Travis M Polk, MC, USN, travis.m.polk2.mil@health.mil 5

CAPT Polk spend a lot of time discussion the partnership and lessons learned from the Russo-Ukraine War and how the DoD has prioritized this effort:

The Secretary of Defense shall seek to enter into a partnership with the appropriate counterpart from the Government of Ukraine for the establishment of a joint program on military trauma care and research, consisting of:

Objective: Assess the UKR trauma system, share actionable recommendations for Ukraine and develop lessons learned for the US military and NATO partners

Description: Qualitative assessment of Ukraine medical system via:

- 1) key informant interviews;
- 2) targeted symposia;
- 3) surgical skill courses for Ukraine surgical teams

Scope: Assessment of both civilian and military health system. Strong support from Ukraine Ministries of Health and Defense.

- Sharing lessons learned from the Russo-Ukraine War
- Joint conferences and exchanges with military medical professionals from Ukraine and the US

CoSCCC Nov 2024 Meeting Minutes

- Collaboration with the armed forces of Ukraine on matters relating to health policy, health administration, and medical supplies and equipment, including through knowledge exchanges
- Conduct of joint research and development on the health effects of new and emerging weapons
- Entrance into agreements with military medical schools of Ukraine and the Uniformed Services University of the Health Sciences for reciprocal education programs under which students receive specialized military medical instruction
- Provision of support to Ukraine for facilitating the establishment of a program substantially similar to the Wounded Warrior Program in Ukraine
- Provision of training to the armed forces of Ukraine in the following areas:
 - Health matters relating to chemical, biological, radiological, nuclear and explosive weapons
 - Preventive medicine and infectious disease
 - Post traumatic stress disorder and Suicide prevention
 - Traumatic brain injury, Rehabilitation, Extremity injury
- The maintenance of a list of medical supplies and equipment needed
- Such other elements as the Secretary of Defense may determine appropriate

CAPT Polk closed his brief by suggesting the future state of CCRP and priorities CoSCCC should focus future briefs and updates on:

- New severe and penetrating brain trauma guidelines
- LITES Update
- Ukraine study updates
- Technology demonstrations

Ms. West – *I look forward to taking over the portfolio upon CAPT Polk retirement, and I am committed to the mission and the awesome work we have been doing, so please take my contact info and reach out as necessary.*

9. **Deployed Critical Care Capabilities Literature Review & Update - Maj Powell** – *“I want to start by stating I am an intensivist and not a surgeon.” Maj Powell reiterated the need for prolonged care in LSCO. She focused on the critical care results from a recent study conducted through Johns Hopkins. These are post op complications we have not had to deal with in current conflicts.*

Heterogenous, military and civilian populations

Acute respiratory failure and respiratory support

- a. Acute respiratory failure including ARDS 1.1 to 35%
- b. Risk factors: older, female, higher ISS, burns, crystalloid, FFP
- c. Mortality: 16% to 48%
- d. Rate of intubation (military): 3.5 to 48.7%

Acute kidney injury (AKI) and renal replacement therapy (CRRT)

- e. AKI 0.5% to 45%

CoSCCC Nov 2024 Meeting Minutes

- f. Risk factors for AKI: older, higher ISS, lower GCS, elevated lactate, rhabdo, hemorrhagic shock, burns, blast, crush
- g. Mortality: 3%-30%
- h. Rate of CRRT: 0.2% to 19%

Liver injury and support

- i. Liver injury: 5% to 83.3%
- j. 35.3% post-operative complications
- k. Mortality: 8%-19%
- l. Little evidence on liver support

We need to think about ways to combat this in the future and standards of care in CONUS facilities in LSCO. The manuscript has been written and I am planning to publish these results.

CAPT Tadlock- There is not a lot of data out there, but hopefully it will bring things to light.

Dr. Holcomb – My first deployment, our nephrologist was our intensivist...and there were hard paradigms to break...standard here in the hospital does not correlate to down range scenarios and patient care needs.

Conclusions:

- + Expect to see organ failure in LSCO
- + Importance of access to critical care interventions to improve patient survival
- + Delays in diagnosis and treatment could increase mortality
- + Personnel and innovations are required

CDR Jensen – Did we do a DODTR pull? I know it is challenging, but it is necessary.

CAPT Tadlock -We did, it is challenging, but it was included. We did do a civilian pull, but it is a half-way answer to the question.

LTC Sirkin – In LSCO we are going to have large numbers of injured personnel with an inability to get them home quick, and these injuries are imminent and there needs to be awareness on how to deal with them.

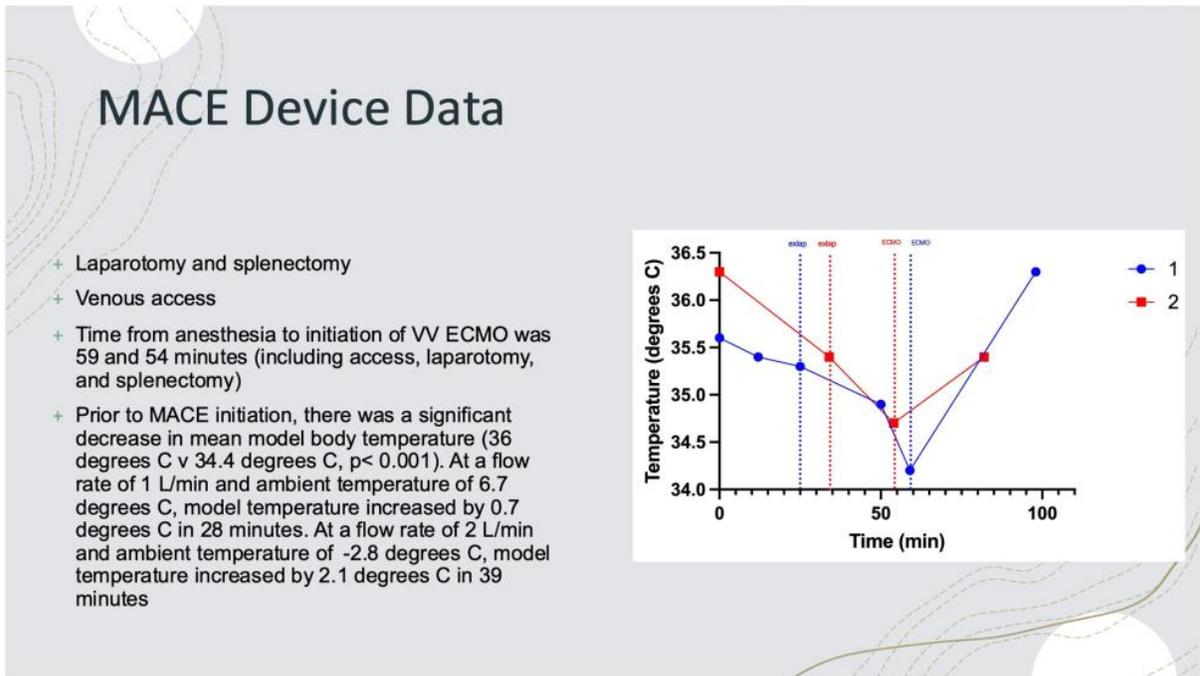
Maj Powell went over statistics and data in her studies. She admits there is some patient bias and not reflective of LSCO COONUS injury patterns. As predicted, the study showed the longer you are held, the more the need for renal failure treatment.

Next Project:

- + Mechanical ventilation in trauma- incidence, survival, predictors
 - + Short versus longer term, trach, etc.
- + Dedicated Rhabdo paper
 - + Outcomes, electrolytes, end organ damage, surgeries, TQ use
- + Please let me know if interested

Maj Powell also reviewed MACE project and results:

- + In vivo swine model
- + Controlled femoral arterial hemorrhage
- + 6,885 ft
- + Femoral venous cannula
- + 21% improvement in lactate within 5 minutes of administering filtered, heated, oxygenated cell salvage blood



- + With proper innovation, ruck sack portable devices that can perform multiple advanced resuscitation needs can be implemented by surgical teams
 - + Cell salvage, conditioning, autologous transfusion
 - + Extension of the golden hour
 - + Advanced organ support capabilities in prolonged field care
 - + Rapid warming- donor blood and/or patient
- + Further testing and development are ongoing

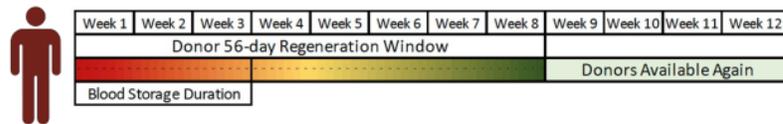
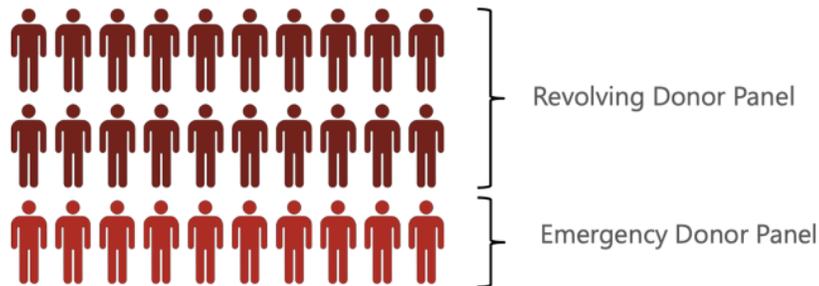
10. **The Revolving Whole Blood Bank** – CDR Russ Wier briefed on the concept of operational units and surface vessels operating remotely, blood is a scarce resource. Walking Blood Banks take time and have limitations in the context of an emergency, and therefore may not be a viable option in every scenario.

- Proactively maintain a cold-stored whole blood capability from on-site personnel so it is available immediately even during times of limited re-supply
- Relies on “draw and replace” recycling strategy
 - Subset of donors give blood preemptively at determined intervals
 - Unused blood is discarded

CDR Wier reviewed planning factors, equipment, and provided an example of the RWBB in practice:

- Storage adequate for 6 units of blood
 - 4 LTOWB units stored at all times
- 10 emergency-use donors kept in reserve
- 7-month deployment
- CPD bags limit storage duration to 21 days (3 weeks)

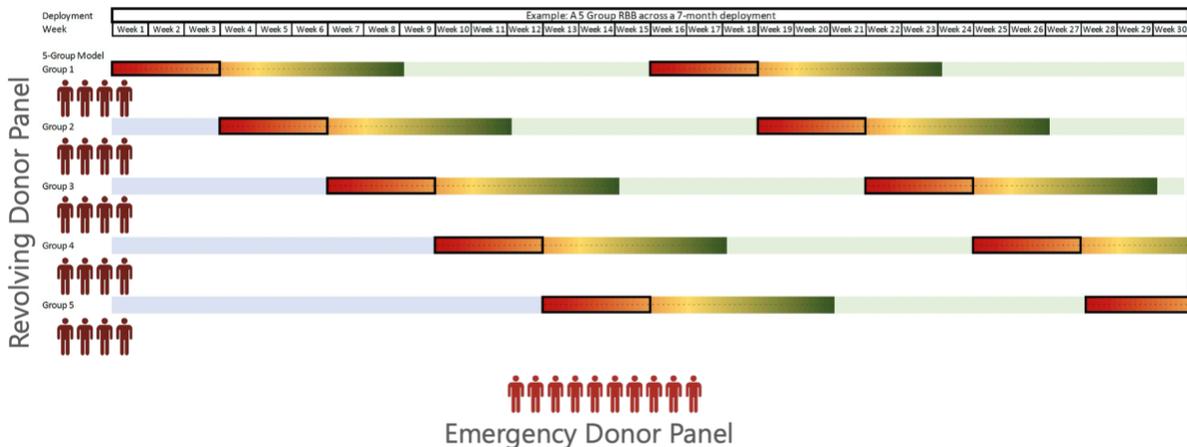
Model



Challenges faced in this scenario:

- Policy & protocol development
 - Administrative instructions to optimize safety
- Equipment
 - Refrigeration, donor bags
- Training
 - Standardized for effectively managing unit-level donor panels
- Research
 - Pilot study
 - Technological means to track donors for this purpose

5-Group RBB on-7-month deployment



COL Cunningham – *Are we drawing a new TTD testing set of tubes every time we draw or just presuming clean during deployment.*

CDR Wier - *You are just assuming that risk. IT is not very different from prescreening, but that is not really build into this model.*

CAPT Tadlock – *are there any after actions from the carrier standpoint because they are having such a hard time getting donors or are they are just ordering it elsewhere?*

CDR Wier – *There are limitations on incentives and population pool interested, but that could be an area of creativity to incentivize this.*

Dr. Jenkins- *I agree with your numbers, did you model it for the CPAD-1 bag, but did you model it on a 2 unit emergency release because any single casualty will get you enough time to get ultra fresh whole blood drawn with same typing...further preserving...over 50% is not going to be “O” so you could quickly move to A/B in your donor pool.*

CDR Wier – *it increases the risk and time, so when I imagined this for a small ship, you maybe don’t want to go there...5 week bag would change the logistics quite a bit. The CPAD-1 would help a lot in this model.*

Dr. Holcomb – *I agree with Don, 2 vs 4 unit it will change your model dramatically, while you give those units to casualties you could implement your WBB. Great idea! But if you are on a ship with casualties will have Marines and they are great donors, 80% with fractures and they are all possible great donors, and I think you also need to type all Sailors.*

11. **Pro-Con Debate: AI on the Battlefield** - Dr. Holcomb vs. LTC Eckert – Dr. Holcomb stated his disclosures due to personal investments. He opened the discussion by defining AI and those opposed to using AI, known as a **Luddite** - a person opposed to new technology or ways of working.

- Artificial intelligence (AI) is a set of technologies that allow computers to perform tasks that mimic human intelligence:
- Seeing and understanding: AI can process visual and written information, including optical character recognition (OCR)
- Analyzing data: AI can process large amounts of data to find patterns and solve problems
- Making recommendations: AI can provide recommendations based on data analysis
- Learning and adapting: AI can learn from its mistakes to improve its accuracy



There are three laws that were identified in science fiction that are the basis for ethical decision making pertaining to AI:

- **First Law**
 - A robot must not harm a human or allow a human to come to harm through inaction
- **Second Law**
 - A robot must obey human orders, unless doing so would conflict with the First Law

CoSCCC Nov 2024 Meeting Minutes

- **Third Law**

- A robot must protect its own existence, unless doing so would conflict with the First or Second Law

Dr. Holcomb – *AI is everywhere on the battlefield, but will quickly enter the medical realm in future conflicts. There is a way to properly prepare for AI usage in the MTF both CONUS and deployed.*

- Start easy
 - ICU / ED probabilities for complications that evolve over time
 - Train the algorithms
 - Train the medical team to trust
- Work up to difficult situations
- Start in the Mil Civ partnerships
- Before going to the battlefield

Dr. Holcomb - *I know I was supposed to represent the CON for AI, but I think it is inevitable AI will be integrated into the MTF's and we need to be prepared to ensure it happens ethically and in keeping with our oath to provide and protect patients and not permit decision makers to implement AI that could potentially cause harm to the continuum of patient care.*

LTC Eckert presented the “PRO” AI portion of the debate. LTC Eckert humorously introduced “the art of a PRO/CON debate” and how to mercilessly beat you opponent into submission. *“I expected Dr. Holcomb to come out harder with traditional TCCC practices and training, but he has clearly evolved and I am going to have to change my premise to a more of a Pro-Pro debate based on his slides.”*

What I am NOT arguing for:

1. Replacement of clinicians and clinical judgement
2. Promotion of General Artificial Intelligence

LTC Eckert – *We have to figure out a way to readily adapt and maintain resilience in the chaotic environment known as “war or conflict.” Expertise is aging out and this is a resource limitation, we are very rapidly losing those with high volume combat casualty care experience. Complex and Chaotic decision making is something that may not be able to be emulated by AI, what to do, how to use our resources etc...there is going to have to be a happy medium with Man/Machine teaming.*

If we don't adapt to technological advances, you become “extinct” or in our case irrelevant. There is no real CON to AI, it becomes important how it is implemented.

COL Gurney – *We are really behind in military medicine, we are trying to implement AI in our registry...why are we always so behind?*

LTC Eckert – *There is an inherent risk of ethical practices and regulatory bodies...it is much easier for the logistics world to evolve faster. The acquisition process is very archaic...but when it comes to something like data management, there is no excuse. We all know it is a prioritization of funding, but that is one area that shouldn't have such slow adoption.*

CoSCCC Nov 2024 Meeting Minutes

Dr. Holcomb – *The difference is with Amazon, there are no regulatory bodies and if some person get the wrong package its not a big deal, but if we administer the wrong care to a patient, it is a huge deal, both ethically, legally and potentially monetarily. IT is also tolerated that our HER systems go down all the time and its no big deal...banks go down for 3 seconds, they lose millions of dollars...why is it ok for our system to go down to “reboot” every week or so, our systems are not optimal for quality of care.*

CAPT Tadlock closed with a brief overview of the agenda for Day 2.

Meeting Adjourned 1700

Day #2 CoSCCC November 8th, 2024

Day #2		
Time	Presentation	Speaker
0730	Drone Injury Patterns In Ukrainian Combat Casualties	LtCol Roman Kuziv (Virtual-30 min) Discussion (10 min)
0810	Panel Session #4 Deployed Burn Resuscitation and Burn Care Capabilities Now and For the Future Fight	Williams Lidwell Corkins Gurney Cancio (60 min)
0910	The Deployed Surgeon	Ritchie (50 min) Discussion (10 min)
1010	BREAK	
1040	Panel Session #5 DoD Trauma System Health Engagement: From the CCMD to the JTF	Licina (60min) Neese Gavitt Cunningham DeRuyter Cherenfant
1140	Role 1 Procedures Survey – Presentation of Data & Discussion	Hout (10 min) Discussion (20 min)
1200	Combat Casualty Care during Large Scale Combat Operations: The Ukrainian Experience	Bongartz (40 min) Discussion (20 min)
1300	ARSC Capabilities Statement - Update	Brandau (20 min) Discussion (20 min)
1340	Discussion: Putting it All Together CoSCCC Priorities, Lines of Effort, Planning for Next Meeting, Next CoSCCC Position Statement?	
1400	JTS Chief Comments and Concluding Remarks	Gurney

CoSCCC Nov 2024 Meeting Minutes

- 1. Drone Injury Patterns In Ukrainian Combat Casualties – LtCOL Kuziv and Kasia Hampton**– The CDR of Medical Forces Sustainment Group East Ukraine briefed on the current conflict in Ukraine and how drones are being used and the result of their devastating impact on casualties.

LtCOL Kuziv - It has been 918 days since the fight with Russia began. The walker dip occurs in every country during peace time. Our medical groups are divided into 4 groups, ours in the East being one of the hottest combat zones. We cover more than 164K KM of ground, with an average of 155 fire fights per day. As we know Russia does not abide by laws of war and targets medical assets with red cross for monetary compensation.

“If it flies it dies” is how we have to think. Open source data shows in the first two months 200k drones entered Ukraine per day...now we are up to 500k drones. It truly has become a war of drones.

LtCOL Kuziv showed a video of life footage of drone deployment and how many drones can be seen in the air during a typical day of combat in Ukraine. The more drones, the more drone injuries and increased devastation with injury patterns. 26.3% of current deaths in Ukraine come from drone attacks. Head and neck zones are 28.1% and shows that current tactical protective equipment must be worn but may not be very effective against drone attacks and ballistics. 3.6% do not even make it to definitive care and die on the battlefield. GSW are less than 2% of deaths on the battlefield.

Drones are also being used to spread irritants and chemical warfare. It causes issues both medically but causes panic in the soldiers and causes increase in mistakes in tactics and often leads to GSW or other battlefield injuries. Hunting rifles have proven to be very effective for shooting down drones at distance.

Drone warfare needs to be implemented into all aspects of training for military and medical assets.

Ms. Hampton assisted in translation and presentation of Q&A to LtCOL Kuziv. She gave a brief overview of the access and usage of data in Ukraine.

Ms. Hampton - the help of JTS and US assets we have taken on efforts to make a registry to mirror the one of JTS. Col Shackelford is coming to visit next year and assist us in improving these efforts and using our data for lessons learned and training for future conflicts.

LtCOL Kuziv – I felt like I didn’t have enough information to make good decisions where to deploy roles of care for delivery. I also had a large number of wounded that needed to be accounted for. This led me to make a digital registry not for scientific analysis, it was for operational reasons. My first goal was to organize patient movement, better planning of medical support and survival.

Ms. Hampton – Role 1 fall under CCMD’s so how did you succeed in getting everyone digitally connected.

LtCOL Kuziv – I worked my way backwards...started at Role 4 and stood up the process and moved my way to Role 1 by explaining the process. There was a lot of willingness to cooperate, so it made me look good. The registry hasn’t changed much from inception. We have regional coordinators and abstractors, and automatic detection for errors and a group of analysts that review it for accuracy weekly.

Ms. Hampton – Unit commanders can see where units are and Role 1 injuries until the moment they return to the front lines. This makes decision making easier.

CoSCCC Nov 2024 Meeting Minutes

COL Gurney – thanked the presenters and opened with a question about patient tracking. Are you using RFID or what are you using to track patients.

LtCOL Kuziv – not tracking like GPS, but from time they enter the Role 1, they enter patient, injuries and where he will go so we control the data through our coordinators with high quality information.

Dr. Holcomb – How are injuries different from artillery from a medical point of view?

LtCOL Kuziv – It is very much same as IED blasts.

CAPT Polk – What is the penetrance? How many sites across your country are you able to use the registry and how many patients are you capturing out of overall injured?

LtCOL Kuziv – I see all wounded in my region. It is impossible someone pass the Role 1 without injured report. I can change what I want to see for different data in each region. For example: we can see in Day 1 zone of combat I see I will have 90% injury and 10% disease for example, next day 80% wounded 20% disease and day 4 60% wounded 40% disease...why is this happening with the unit? These are questions I can answer.

COL Gurney – is the data paper or electronic and how are you moving that information with the patient?

LTCOL Kuziv - Paper doesn't work...always electronic. It is like online cloud. I can see who is entering the data online.

Dr. Bailey – We decided early in Iraq that data from personal protective equipment would not be included. Are you using that data and entering or tracking PPE usage and how it impacts injury patterns?

LtCOL Kuziv – Yes we write that all down, if helmet was worn, vest, and all prehospital defect is entered for control of the unit. This is the only way to improve quality and conformity.

CAPT Tadlock closed with a huge thanks for presenting and taking the time to attend the meeting virtually.

- 2. Panel Session #4 Deployed Burn Resuscitation and Burn Care Capabilities Now and For the Future Fight** -LTC Williams and Dr. Cancio presented an open discussion on burns and burn management in LSCO. LTC Williams stated the goal is to break down some silos of parallel efforts in the “burn world” throughout the DoD. The panel also consisted of Dr. Corkins and Dr. Lidwell, both burn surgeons at the burn center.

Dr. Cancio – My goal is to generate a robust discussion about battlefield burns in LSCO. “Hope is not a plan.”

Assumptions in the future War

- Prolonged casualty care will not eliminate the need to care for burn patients
- Burn patients (life-threatening and function-limiting) merit care in burn centers

- Burn patients have both immediate, and long-term, multidisciplinary care needs (burns are a chronic disease)

Burns represent about 5-10% of all battlefield casualties in past wars on average. Dr. Cancio gave several war experiences both ashore and at sea with burn injury patterns and numbers. The overall takeaway is holding, transport and length of care needed for these patients once received at definitive care.

Accidental burns were highest in recent conflicts due to the use of accelerants to burn human waste.

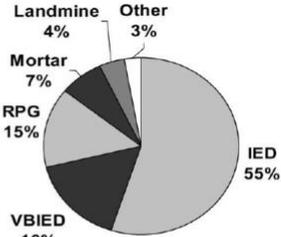
Improvised Explosive Devices

Burns sustained in combat explosions in Operations Iraqi and Enduring Freedom (OIF/OEF explosion burns)[☆]

David S. Kauvar*, Steven E. Wolf, Charles E. Wade, Leopoldo C. Cancio, Evan M. Renz, John B. Holcomb
United States Army Institute of Surgical Research, Fort Sam Houston, TX, United States



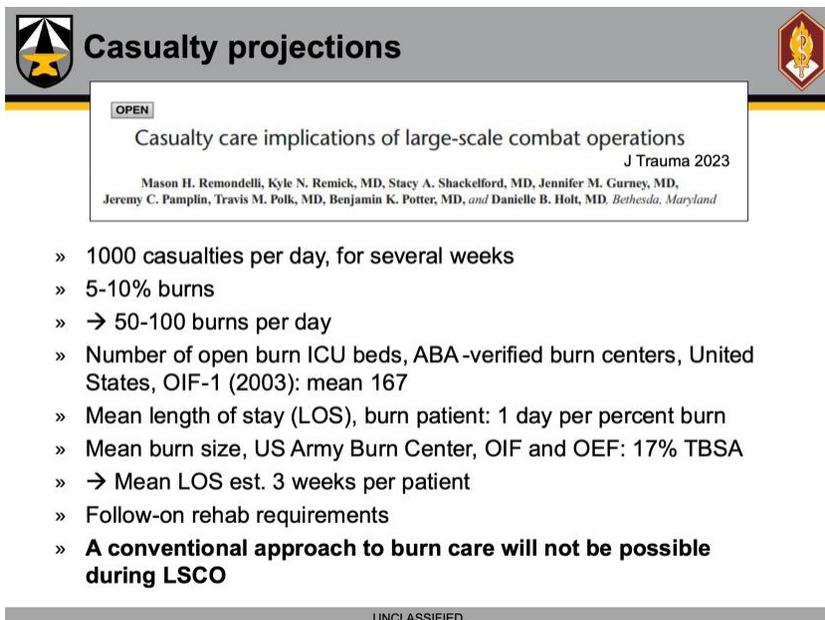
dailyherald.com



Explosion Type	Percentage
IED	55%
VBIED	16%
RPG	15%
Mortar	7%
Landmine	4%
Other	3%

Future Conflicts:

- » Regional conflict (OIF reprise)
- » LSCO at sea (INDOPACOM)
- » LSCO on land (EUCOM)
- » Tactical nuclear detonation



Casualty projections

OPEN

Casualty care implications of large-scale combat operations
J Trauma 2023

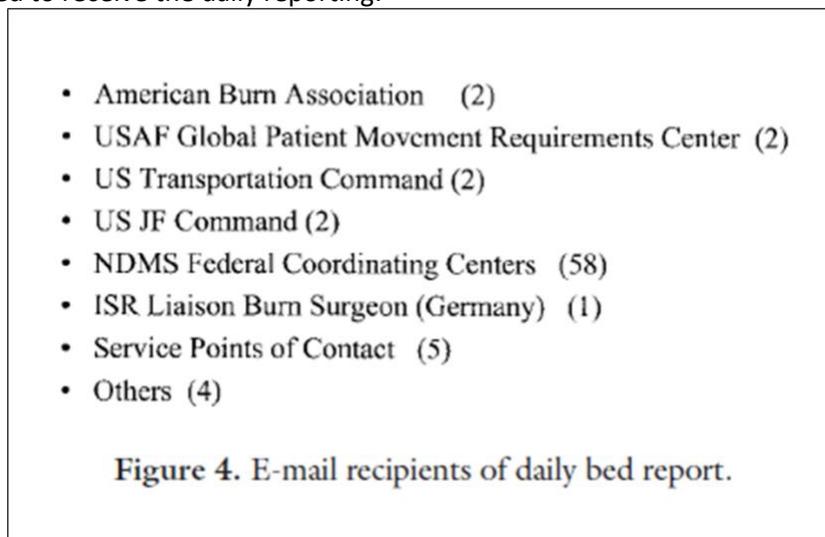
Mason H. Remondelli, Kyle N. Remick, MD, Stacy A. Shackelford, MD, Jennifer M. Gurney, MD,
Jeremy C. Pamplin, Travis M. Polk, MD, Benjamin K. Potter, MD, and Danielle B. Holt, MD, Bethesda, Maryland

- » 1000 casualties per day, for several weeks
- » 5-10% burns
- » → 50-100 burns per day
- » Number of open burn ICU beds, ABA-verified burn centers, United States, OIF-1 (2003): mean 167
- » Mean length of stay (LOS), burn patient: 1 day per percent burn
- » Mean burn size, US Army Burn Center, OIF and OEF: 17% TBSA
- » → Mean LOS est. 3 weeks per patient
- » Follow-on rehab requirements
- » **A conventional approach to burn care will not be possible during LSCO**

UNCLASSIFIED

Dr. Cancio discussed the proposal for OIR/OEF in the early 2000’s and how they created embarkation points and burn bed reporting system across the US. This gave a daily mean average of open beds for Burn and ICU. There was immediately concern that we were unable to handle the projected number of casualties.

Agencies identified to receive the daily reporting:



- American Burn Association (2)
- USAF Global Patient Movement Requirements Center (2)
- US Transportation Command (2)
- US JF Command (2)
- NDMS Federal Coordinating Centers (58)
- ISR Liaison Burn Surgeon (Germany) (1)
- Service Points of Contact (5)
- Others (4)

Figure 4. E-mail recipients of daily bed report.

The current “watch board” is managed by the Nevada hospital association. IT started in the Western region and many other regions have begun to migrate to the system. The Northeast region has not been participating because they have an existing process dating back to 9/11.

The ABA has currently verified about 90 of the 140 burn centers across the US. Surge capacity represented by a Red, Yellow, Green chart.

 **Surge capacity by acuity (7 Nov 24)** 

Open Beds Adult: 298	Total Peds: 198
Surge Beds Adult:	Surge Beds Peds:
» Red 200	» Red 115
» Yellow: 223	» Yellow 128
» Green: 313	» Green 196

- **Red/Yellow/Green numbers reflect surge capacity, > open bed numbers**
- **Green Pts.:** <10% TBSA 2nd/3rd degree. No inhalation injury. No ETT. Normotensive. GCS >14
- **Yellow Pts.:** 10-20% TBSA 2nd/3rd degree. Suspected inhalation injury or possible ETT required. Normotensive. GCS >14
- **Red Pts.:** >20% TBSA 2nd/3rd degree. Burns w/ trauma and/or airway compromise.

UNCLASSIFIED

Questions to discuss:

How does the MHS as a system handle severely burned warfighters...

- » **10** casualties
- » **100** casualties
- » **1000** casualties

What are the gaps, & how do we fill them...

- » Prolonged casualty care
- » Evacuation (air, sea)
- » Definitive care in burn centers & beyond

What is the role of:

- » US civilian burn centers
- » US civilian trauma centers
- » OCONUS burn centers (e.g. EUCOM)

COL Gurney – *Looking at some of the places in EUCOM, there are burn capabilities in Europe, not at LRMC however, do we need to be looking at where we can put our burn patients if we can't transport them?*

Dr. Cancio – *Yes, we are looking at supplies, equipment, increased liaison with European burn centers. We don't want it to be a surprise that we need their collaborations.*

LTC Stuever – *We do have a transfer agreement with Southwest Germany center. The problem with relying on the HN center is that in LSCO, they may be overwhelmed with their own casualties.*

COL Gurney- *What is your current Class VIII storage?*

LTC Stuever- *The current projection is 72 hours we would go through all supplies on hand.*

CAPT Tadlock – *This is why we need surgical and burn augmentation teams that can be placed on ships.*

CoSCCC Nov 2024 Meeting Minutes

LTC Williams – *Yes we are working on this in the INDOPACOM AOR. CCAT, Burn Team and how to move people further forward with burn experts able to train up those in the local area.*

Dr. Namias – *How many people do you have a burn training centers and should we be ramping up the number of trainees in these programs?*

LTC Williams – *its about finding these locations that will collaborate with MIL/CIV trainees that can still conduct military operations and train in burns at local centers. There are currently only 19 in the entire DoD.*

Dr. Polk – *To me it is unfathomable that we have created general surgeons that come out of residency that can not take care of a 10% burn. This is the crux of the problem. Every Surgeon should be trained in burns, and only those complex, extremely complicated burns go to the burn centers. And the MIL/CIV partnership, the burn community is very resistant to letting trauma surgeons work in burns...it is a very niche community.*

Dr. Holcomb – *I agree with Travis. IF you are a resident and you have not taken care of a burn patient with 70% burn for weeks on end, think about this because you will.*

Dr. Cancio – *We have really benefitted from subspecialty training, but the price is those skills are not out into the broader community. During OIF/OEF we had to care for Role 3 facilities for HN with very low success rate. TRIAGE is necessary and will be required to manage Class VIII.*

COL Gurney -*If we can't care for a 30% burn patient we have failed as a MHS. Unfortunately, the decision makers are not in this room. IT is our job to strategically message this...who is not getting this message?*

Col Sams – *Burn is a team sport. IT is very true that it is hard to crack the code to get to the burn unit. It is a huge lift from a nursing perspective, it's the team not just the surgeon.*

Dr. Namias – *The decision to excise it the hardest part...is there technology in place or development to help make this decision to promote decision making for those not trained up?*

Dr. Cancio – *there is a camera in development to help diagnose depth of burn.*

Mr. Scarborough – *What about the first responder, what to do and what not to do for the burn patient before they get to definitive care? What are the requirements for success to promote or ensure survival before Role 2 intervention?*

CAPT Polk – *So where do we as the CoSCCC go from here?*

Dr. Cancio – *This committee could support an interdisciplinary tri-service WG to keep these issues on the front burner. The burn question has been somewhat stagnant in the LSCO discussion. We need to continue developing wound care simulators and battlefield expedient items for the front line medic that can actually affect outcomes. Federal funding is the need.*

COL Hardin – *Should we be training these critical care support teams to a non-permissive environment? Prior to LSCO there will be an Irregular warfare component.*

Dr Cancio – *absolutely, you need a different skill set if you are in a resource restricted environment. The best way to learn that is through experience. Training programs in developing third world arenas that can provide exposure to those experiences.*

- 3. The Deployed Surgeon** – LTC Richie presented on his recent experiences as a deployed surgeon in CENTCOM. I was with FRSD and also visited forward surgical teams and talk with those surgeons. Most of them were on their first deployment. This made me reflect on my time as a first deployed surgeon and my journey to this deployment. I have deployed 8 times in my career. I was in a doctrinal 10 person split FRSD in Syria. This was the first deployment for most of my peers. It was an established fixed facility.

In my opinion, as a global experience they are practically indistinguishable, the load out of personnel, equipment, fixed facility, patient presentations and overall surgical mission hasn't changed. So I had to look a little deeper what has changed in combat casualty care?

1. Whole Blood usage and damage control surgery
2. Small surgical team mindset
3. Rapidity of MEDEVAC

We were using component therapy on my first deployment 1:1:1. We wasted so many units and damaged proteins and ruptured bags trying to thaw FFP and component therapy.

In Syria, I had cooler after cooler of Low Titer O Whole Blood. No questions how we were going to resuscitate the patient. We were sending it out on patrol so it was being started before even receiving the patient. Which makes me think about how we move forward from here.

Is cold stored whole blood chosen over fresh whole blood because it is better or because it is easier? IS it equivalent or better? How do we make cold stored whole blood better?

We have become very good at blood-based resuscitation to include supply at Role 2, but this has become a luxury we will not have in LSCO...so is this a realistic strategy for Role 1 and front line medics? We have migrated to a "blood or nothing" mindset, but if this isn't realistic in future conflicts do we need to rethink our strategy?

The push for small surgical team capability has been a whole series of events from the "Golden Hour" mindset...with unlimited names in each service...have become perfectly acceptable to handle 1-2 patients, but in LSCO this isn't realistic because it has never been standardized and never become a requirement, not to abandon the idea, but be prepared to be mobile, dispersibility and adaptability.

Majority of CONUS surgery cases do not go into the chest and are minimally invasive with markedly different equipment that you will have in the field. The gap continues to widen from what you see daily in CONUS MTF vs. what you will see in battlefield medicine.

Early in my career we held patient all the time and were dependent on "wheels down" timeframes. Patients were pre-packages under rotor wash and passed off as expeditiously as possible. This

CoSCCC Nov 2024 Meeting Minutes

deployment has minimal patient hold, long term transfers with equipment changes in the facility before even going to the flight line. It was great, but once again, most likely unrealistic in LSCO.

COL Gurney – *The ARSC curriculum addresses many of these issues, so thank you for all your candid acknowledgment of gaps and areas of success as well as deficiencies.*

Dr. Holcomb – *I do not think there will be enough Whole Blood for Role 1, I think the way forward is Plasma and Low Titer at Role 2-3's/ IT was the same proposal for previous conflicts.*

LTC Richie – *I do not agree with the thought that plasma is ready or available. What do I tell the Role 1 surgeons in 2024 when they ask for blood because that's what they have been trained on, but I don't have the blood...do they take nothing? You may all disagree, but I am of the belief that something is better than nothing, and if blood is not an option, crystalloids can be used to regain a carotid pulse.*

Dr. Holcomb – *That statement makes me cringe that you said that. It is a lack of national will and funding allocation, not capability.*

LTC Sirkin – *The battlefield is changing and in the mindset of thinking what Ukraine has had to experience, how do I train my team when doctrine is ineffective and may put my team in harms way...what can you tell me as a current deployed experienced surgeon?*

LTC Ritchie - *Develop shoot and move capability of medicine. Reexamine how you will accept patients, but then move with them while still rendering care. Second, how realistically how are we going to hold and for how long are we going to hold patients in future conflicts.*

COL Benavides – *We don't deploy our surgical team to doctrine but we need to train to doctrine.*

Col Sams – *We know skills sustainment is getting pushed to the back with the DHA push to return of patients to the MTF, so when we talk about keeping teams trained, how do we do that as a priority when there are only 24hrs in a day...when we don't even meet current scope. I use data to show trends, and convince them it isn't time to loosen the training standards...any help or lessons learned?*

LTC Ritchie – *There are two problems to focus on. One, can a surgeon complete a skill, but I will push that problem to the side as there is a more important issue. The small surgical team needs surgical focused training to be leadership focused, provide combat leadership, and how to conduct realistic on the job training. For example, if you have been to shock trauma and that is your expectation of how your deployed team will operate on your first deployment, that is unrealistic.*

Mr. Ian Jones – *I will play devil's advocate and highlight a couple trials that showed crystalloid was not adverse and may have supportive therapy in a degraded situation, not in place, never in place of blood when available, but I concur with the something is better than nothing in life and death situations.*

BG Murray – *I'd like to present some big picture concepts ideas that encompass what you all are talking about. The newly fielded force what Role 2 and 3 will look like proposals, I think it would be beneficial to have that briefed here in the Spring meeting. Combat developers are doing a lot of work in this area and falls under me, so I would like to talk more about this. We also link with the Force Com Surgeon, and increase the FRSD presence and link them with the Charlie Meds. Be very deliberate in these spaces. I'd be happy to brief on these things.*

4. **Panel Session #5 DoD Trauma System Health Engagement: From the CCMD to the JTF – Licina** (60min) Neese, Gavitt, Cunningham, DeRuyter, Cherenfant. Dr Licina opened the panel discussion with an overview on closing gaps to mitigate risk as it relates to LSCO, by leveraging allies and partners. Each geographic command is going to discuss and present on different aspects of GHE.

Col Neese - gave a macro perspective from the SOUTHCOM Surgeon perspective. Col Neese stated how SOUTHCOM permits an opportunity for readiness and work with partner nations. This allows us to stabilize the efforts on these locations and create “integrated deterrence.”



5

- Looking at GHE from a case use/power lever by the CDR to accomplish objectives may give a different lens to view it
- Many medical folks see GHE from a humanitarian good centric view. It should be a National Security first approach.
- Strategic Empathy is important because it depends on applying a deep historical, geographic, and cultural understanding.
- We are able to do this in the AOR better than most places around the world.

SOUTHCOM Campaign Plan Lines of Effort (CCDR Priorities)

- LOE 1 – Strengthen Partnerships – *Build Trust*
- LOE 2 – Counter Threats – *Be Aggressive*
- LOE 3 – Build Our Team – *Don’t Settle*

Col Gavitt – gave a brief overview as the AFSOUTH Command Surgeon. What we learned during COVID is capacity is going to be an issue. Deliberate knowledge exchange with partner nations and try to measure and understand what we are collectively trying to achieve.

Two major evolutions:

Lesser Antilles Medical Assistance Team (LAMAT) - Mission Objectives: Increase US forces' medical readiness in a setting relevant to pacing conflicts, strengthen relationships by alleviating pressure on partner nation healthcare systems, outcompete malign state actors.

AMISTAD - Increase US forces' medical readiness in a setting relevant to pacing conflicts, strengthen relationships by alleviating pressure on partner nation healthcare systems, outcompete malign state actors.

General focus is on training, getting Sets and Reps, but a deliberate knowledge exchange on current issues and topics in the region such a tropical medicine, sight restoration, equipment repair etc.

COL Cunningham gave a brief overview of his efforts while deployed to Honduras on a humanitarian mission.

- Mission JTF Bravo:
 - Provide 24/7 US emergent and urgent care (some HN care)
- Capabilities
 - EMT
 - EM, 2 PAs, NP
 - 8-10 Medics, 8-10 RNs
 - Surg Sec
 - GS, CRNA, 2 ea OR RN/Tech
 - Lab/Pharm/Rad/MEDLOG/PH

JTF-Bravo/Soto Cano Air Base(SCAB)

- Supports COCOM priorities of 1)strengthen partnerships 2)counter threats 3)build the team
- Continuously US occupied(since 1983)
- Honduran owned Soto Cano Air Base
 - 1-228 AVN, ARFOR BN(FH, PM, MP, & CA)
 - 612th AB Sqdn
 - Other units AOB, SFAB, & OGA
- GHE is mostly MEDRETE
- FSS performs local surgeries
- TDY personnel
 - SAMMC EM Hospital Escuela
 - 160th and others(Navy EMU) at San Pedro Sula



“Medically Ready Force...Ready Medical Force”

CoSCCC Nov 2024 Meeting Minutes

Opportunities and Challenges:

- Honduras HN trauma burden is considered high and Honduras most aligned with US interests
- US personnel trauma cases infrequent and focused more on DNBI/MEDRETE but kinetic possible(NARCO terrorism)
- Blood program is relatively immature
- SOUTHCOM does not have a CCATT postured like INDOPACOM/EUCOM/CENTCOM
- 12th AF Davis Monthan but flights generally out of Shaw but JBSA seems more logical evacuation hub

Conclusions:

- JTF-B serves as hub for USSOUTHCOM operations
- Organic trauma system capabilities are limited but an essential part of theater campaign plan support
- KSA/GME rotations provide important aspects of GHE as well as individual skills currency
- Combating NARCO Terrorism and Belt and Road influences in CENTAM are critical JTF-B(GHE) missions

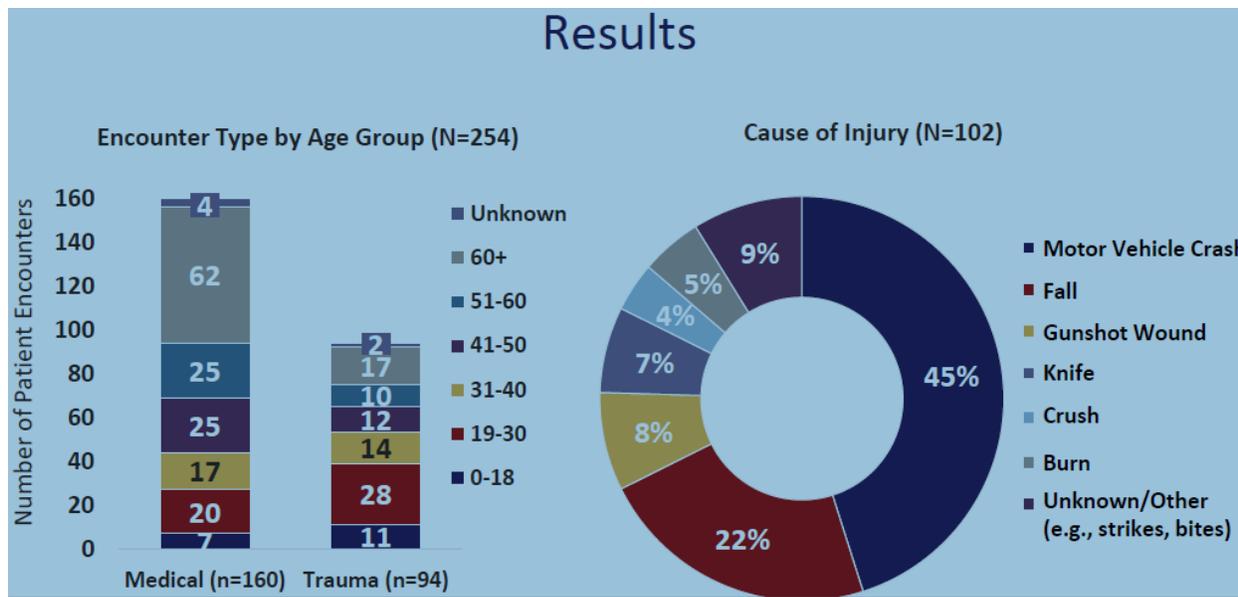
Maj DeRuyter briefed on her role as the Director, Clinical Operations Center for Global Health Engagement on MUCH/MESH.

Military Unique Curriculum in Honduras (MUCH)

- Focus on military unique curriculum
- Ready upon graduation for
- operational environment
- Highly complex medical decision
- making in an austere, resource
- limited, high acuity environment

Military Emergency Skills in Honduras (MESH)

- KSA skill sustainment for EM attending physicians
- Highly complex medical decision making in an austere, resource
- limited, high acuity environment



Tactical Demonstration—Background

- The Assessment, Monitoring, and Evaluation Team from the Uniformed Services University’s Center for Global Health Engagement developed and piloted the Encounter Assessment and KSA (E-KSA) Checklist in collaboration with MUCH/MESH
- The overarching objectives of this project were to:
 - Streamline data collection efforts in alignment with military medical readiness standards
 - Capture contextual information relevant to medical operations in austere environments
 - Create a universal, user-friendly checklist that could be completed efficiently and accurately in a fast-paced medical environment.
- Nine rotations were completed between April 2023 and May 2024. A total of 254 patient encounters and 362 were recorded

Lessons Learned: Pros

- Game changing MUC rotation for military GME
- Exceptional and efficient opportunity for KSA skill sustainment
- Combines complex MDM in deployment-like environment
- Strong synergy with COCOM LOEs

Lessons Learned: Cons

- MESH only rotations to maximize attending readiness
- Not all KSAs are achievable due to extreme resource limitations
- Limitations in practicing medicine in a foreign country
- Complicated administrative and logistical considerations

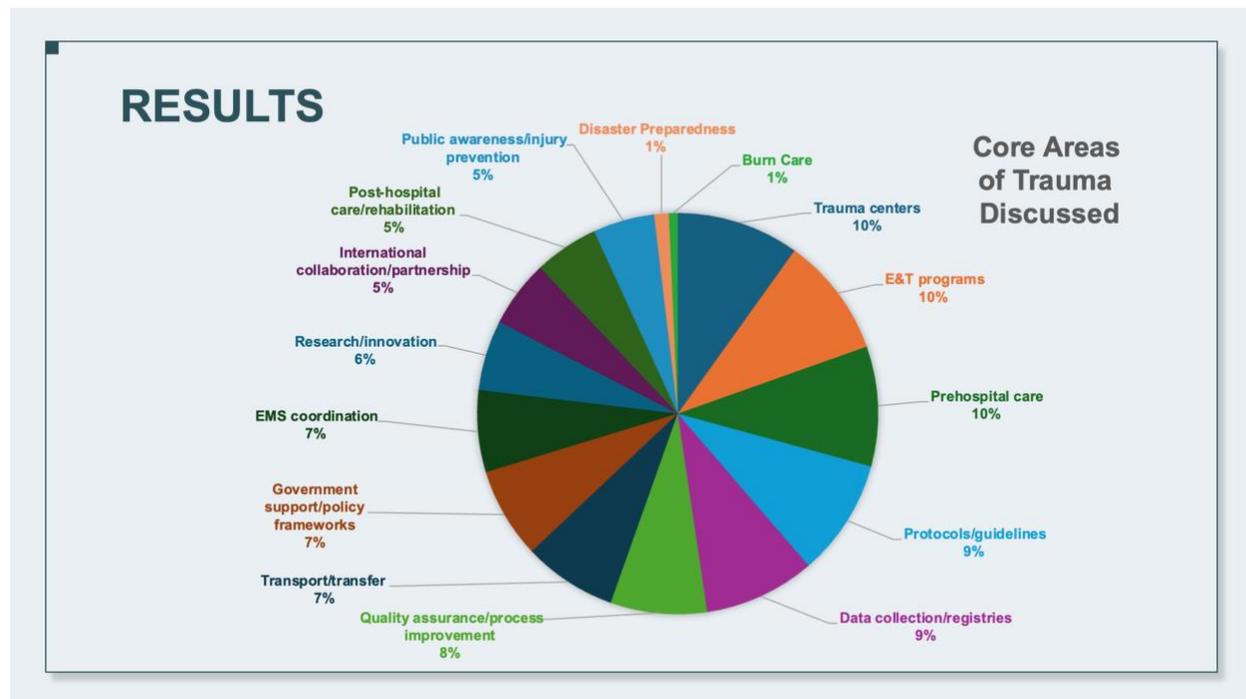
Future Directions

- Elevate MESH to Service-level readiness programs
- Expand participation into additional medical specialties, training programs, and skill types

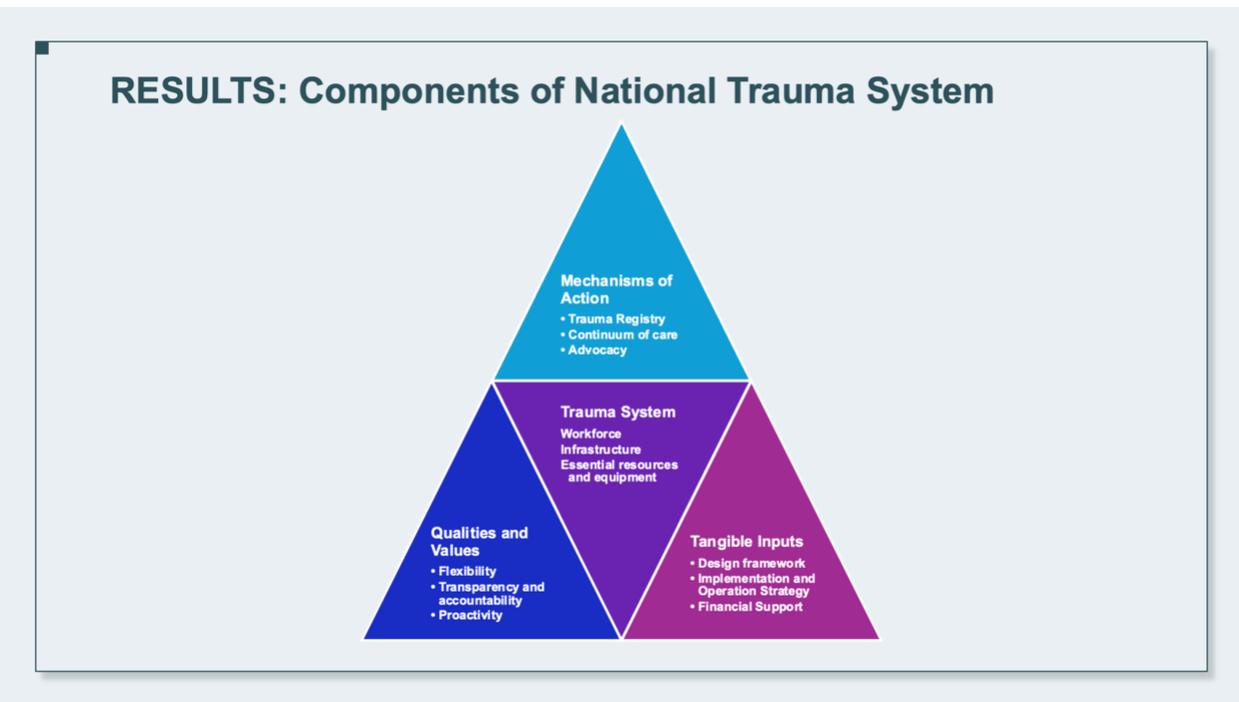
- Evaluate additional sites and collaborate with other COCOMs to establish more MESH-like training program

Ms. Cherfant – A student at George Washington, Ms. Cherfant presented on how Trauma is a global problem, and several different models, guidelines, and frameworks for national trauma systems have emerged to address it; what components appear consistent; and what characteristics promote success and sustainability?

Top categories were trauma centers, E&T programs, prehospital care. Bottom categories were disaster preparedness, public awareness/injury prevention, and post-hospital care/rehabilitation



Each of the external triangles has room for variability. For instance, both New Zealand and Sri Lanka include equity and prioritization of vulnerable populations as important values during their trauma system design and implementation process. Qatar system includes provision of clinical psychology to patients for trauma-related mental health conditions as a significant mechanism of action. Many Pacific Island countries are using the 2020 National Surgical Obstetric Anesthesia Planning process developed by the Global Surgery Foundation, UNITAR (United Nations Institute for Training and Research), and Harvard Medical School Program in Global Surgery and Social Change).



Regardless of a mature, developing, or non-existent trauma system, all three faced the same issues and hurdles:

- Financing
- Lack of institutional support/political will
- ready medical forces
- decentralization vs centralization
- evolving epidemiological injury trends

CAPT Tadlock -as a firm believer in GHE, what I am concerned about is deploying for a GHE mission to prepare to deploy. Leadership has a very different perspective on these GHE efforts than those on the ground actually participating in these deployments as far as actual exposure...hands on experiences. They may not be as valuable as assumed.

COL Cunningham – From Honduras, it is a very closed medical system, no reciprocity from any other training system. Attending has to allow you to perform services, and they often do not allow this as it is restricted from their health department, what they really want is our Class VIII to support their practices, not the opportunity for us to practice independently.

COL Buzzelli – Class VIII was our currency to access their hospitals. Entire ER’s are turned into pre-op surgical holding areas, our teams could go down there and do tremendous things, but it’s not “trauma readiness” but we need to focus on some of their subacute and chronic care. The use of their blood products is exclusively for maternal hemorrhage, not for trauma care.

LTC Sirkin – What is needed is an austere surgical fellowship. Establish relationships so we don’t have these relationship issues, you go for a year, you get outreach and have a knowledge and foothold in that country for the long term.

CoSCCC Nov 2024 Meeting Minutes

COL Gurney – We did this in 2017...it gained a lot of traction, but never came to fruition. We should be training people for these missions, to perform in these environments. We need our community to have a growth mindset to change hearts and minds about what it should look like, similar to the ARSC curriculum.

Col Meese – We do these missions and these efforts need to be shaped..look under the hood and see what’s actually working and what’s not. We’ve been there so long we get used to bad practices, they get used to us adapting to their ways.

Dr. Licina – COL Gurney at JTS is actively working this, If we can get some funding and legislative language in NDAA in regards to education, training etc, we can push this large rock further up the hill.

5. **Role 1 Procedures Survey** – LCDR Hout – Results from the recent survey on Role Procedures in line with the effort to produce a publication were presented to the attendees. LCDR Hout gave a background on how and why the survey came to fruition, and the way forward.

In re-evaluating the purpose of this line of effort, we asked ourselves “ Why are surgical procedural skills important in the Role 1 Environment?” In recent conflict, air superiority and freedom of movement allowed for the rapid evacuation of critically injured casualties from the point of injury (POI) to Military Treatment Facilities (MTFs) capable of providing life-saving resuscitative care, including surgical intervention, reducing battlefield morbidity and mortality.

Injury patterns in LSCO are expected to consist of significant polytrauma with concurrent extremity, truncal, burn, and neurologic injuries. In multidomain LSCO, where patient movement is expected to be constrained, Role 1 facilities may be required to manage higher-acuity care for longer periods.

Purpose

Leverage historical experience, training curricula, and CPGs to identify recommended surgical procedures for conventional Role 1 caregivers (e.g., physicians, NPs, PAs, IDMTs/IDCs) to address anticipated LSCO combat casualty care needs

Aims

- Empower Role 1 providers to work at their highest capability
- DCoT consensus statement
- Guide education, training, curriculum development and skills sustainment
 - Inform the Non-Surgeon Emergency War Surgery Course
 - Support Austere Resuscitative Surgical Care curriculum development

The Working group subcommittee assessed historical reviews of combat injuries, current published JTS clinical practice guidelines, and anticipated Role 1 care needs in future conflicts. Based on feedback from CoSCCC members, the list of surgical procedures was then refined and defined, supplemented by a further review of the literature, review of existing contributions from other committees, and additional inputs by subject matter experts who were not CoSCCC members.

The Role 1 Procedures Working Group employed a cross-sectional survey design to assess attitudes on whether the knowledge, skills, and capabilities of Role 1 providers across the military services should be standardized to include the specified surgical procedures of interest.

CoSCCC Nov 2024 Meeting Minutes

The survey was administered to members of the three component committees of the Defense Committees on Trauma (DCoT) at the scheduled biannual committee meetings in January and March 2024.

Because this input was part of a process improvement initiative and limited to the scope of the working group's mission, Institutional Review Board and DoD survey approval was not required.

Results of the Survey:

NOTE: Blue = TCCC, Red= Procedures with medians equaled to 3 and less

Recommendation: Role 1 Providers Skills & Surgical Procedures List

- | | |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 1. Tactical Trauma Assessment | 18. Lower Leg Fasciotomy |
| 2. Whole Blood Transfusion | 19. Basic Wound / Burns Cleaning and Debridement |
| 3. Exposed Extremity Vessel Ligation / Clamping | 20. Basic Wound / Burns Dressing |
| 4. Figure of Eight Suture for Hemorrhage Control | 21. Escharotomy |
| 5. Procedural or Analgesic Sedation | 22. Point of Care Ultrasound (POCUS) to evaluate injured Service Members |
| 6. Endotracheal Intubation | 23. Extended Focused Assessment with Sonography in Trauma (E-FAST) Exam |
| 7. Emergent Cricothyroidotomy | 24. Ultrasound Based Shock Assessment |
| 8. Manage Automated Ventilators | 25. Ultrasound Guided Central Venous Access (Femoral Vein, Internal Jugular) |
| 9. Digital End-Tidal CO2 Monitoring | 26. Ultrasound Guided Peripheral IV Access |
| 10. Finger Thoracostomy | 27. Ultrasound Guided Extremity Regional Anesthesia |
| 11. Tube Thoracostomy | 28. Ultrasound Guided Pericardiocentesis |
| 12. Saphenous Vein Cutdown For Vascular Access | 29. Ultrasound Guided Suprapubic Catheter Placement |
| 13. Landmark Guided Central Venous Access (Femoral Vein, Subclavian Vein) | 30. Suprapubic Catheter Placement without Ultrasound Capability |
| 14. Lateral Canthotomy | 31. Fracture Reduction with POCUS |
| 15. Incision and Drainage (Subcutaneous Abscess, Perirectal Abscess) | |
| 16. Long Bone Reduction and Splinting | |
| 17. Completion Amputation of Mangled Limb | |

1. Finalized list of skills and surgical procedures based on DCoT consensus of median scores > 3
2. TCCC must remain the standard pre-deployment training curriculum for all deploying medical providers of all levels. Deploying providers must be competent at independently performing the life-saving procedures already described and taught in the TCCC curriculum.
3. Role 1 capabilities are resource limited and lack redundancy. Role 1 providers do not have appropriate ICU or surgical training to manage high acuity, critically injured casualties. The capacity (resources) and capability (provider skill set) are limiting factors (LIMFAC) for casualty management. Because of the LIMFACS inherent to Role 1 care -- critically ill or injured casualties require rapid evacuation to a higher echelon of care as soon as is feasible to decrease morbidity and mortality. However, the introduction of specific surgical procedures to Role 1 provider skill sets may compensate for delayed and prolonged evacuation.

The knowledge, skills, and abilities for Role 1 providers across the military services should be expanded to include the following procedures.

Recognizing that these procedures are not currently taught in any pre-deployment training platform, additional training will need to be provided to deploying medical providers in order to ensure that these procedures can be performed independently in a Role 1 setting. Consider: Establish competencies and train on the above procedures to ensure safety and efficacy if employed at Role 1 MTFs.

When available, discussion with Role 2 providers via tele- or video-conference may help support the procedural capability of Role 1 providers ; however, Role 1 providers should be trained to a standard such that procedures can be completed independent of Role 2 support.

Performing minor surgical procedures at Role 1 requires assessing the situational environment, including personnel, resources, casualty load, and evacuation or resupply timelines

“First, do no harm.” There is no indication for performing minor surgical procedures at Role 1 that delay transport to a higher level of care, do not address a significant potential morbidity, or require significant investments of manpower or medical equipment.

6. **Combat Casualty Care during Large Scale Combat Operations: The Ukrainian Experience**

Mr. Tim Bongartz briefed on his “Pathfinder” mission to Ukraine.

Goals:

- Describe the medical Realities of LSCO in Ukraine
- Compare key lessons learned with current training, SOPs and practices of the 101st Airborne Division
- Develop a Proposal for targeted interventions within the doctrinal framework to improve the 101st preparedness for medical care during large scale Air Assault Operations

Medical Realities of LSCO in Ukraine: Injuries

Most common mechanism of Injury (2024)

Blast/shrapnel from artillery and drones (GSW<5%)

Prevalence of injury type among all casualties (Role I)

Extremity:	70 - 80%
Cavitary:	20 - 30%
<i>(lateral penetrating chest injuries, lateral and inferior abdominal)</i>	
TBI:	80 - 100%
Burn:	5 - 20%
<i>Very dependent on type of unit (vehicle crews) and type of weapon used in this area (white phosphorus, thermobaric)</i>	



TBI:

- The most common type of injury - 80-100% of casualties affected
- Mild TBI often undiagnosed, affecting combat effectiveness and mental health
- Difficulties triaging patients (bleed? Prediction of delayed neuropsychiatric effects)
- High rate of penetrating TBI

CoSCCC Nov 2024 Meeting Minutes

- Few Neurosurgeons, often several 100 miles from frontline

Thermobaric Trauma and Burn:

- Very high mortality
- Survivors have a combination of:
 - Extensive internal injuries
 - Extensive burns
 - Pulmonary injury with rapid development of ARDS
- Live saving interventions

Internal hemorrhage control/burn management/**early intubation with PP ventilation**

Wound Infections:

- Very high prevalence at Role III/IV: 90-100%
- High prevalence of multidrug resistant organisms
- Contributing factors
 - Wounds with large tissue defects/long evac times
 - Lack of debridement
 - Antibiotic stewardship (wide variety of different ABX used in any given patient)
 - Antibiotics in Ukraine do not require prescription

Mental Health:

- Very high prevalence of anxiety, depression and PTSD
- **Prominent cause of combat ineffectiveness (50-60% in regular UAF units??)**
- UAF have explicitly requested to include at least 2 days of mental resiliency training for troops being trained in NATO countries (developed by WRAIR)

Medics do require force multipliers (1-2/squad) with a skill set somewhere between Tier II and Tier III (Advanced Ranger First Responder/Eagle First Responder)

- Triage
- Junctional tourniquet
- Tourniquet Reassessment and Conversion
- IV-placement/IO-placement
- Blood Transfusion
- Analgesia
- Splinting
- Casualty Drags and Carries
- Device based vitals monitoring
- Analgesia beyond oral

Tourniquet use

75% not indicated (Yatsun et al. 2024)

50% amputations because of limb necrosis due to unnecessary tourniquet use (Vinnytsia Regional Hospital)

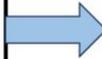
Ukraine very aggressively trying to improve this through:

Better training and teaching reassessment and takedown/replacement for all tiers

Medical Realities of LSCO in Ukraine: Command and Control

Realities

- No or minimal medical mission planning
- Effectiveness of tactical leadership response to casualty events is highly variable
- Chaotic response when casualties occur
- Security for medical personnel often not considered
- Competition of neighboring units for medical resources



Conclusions

- Medical mission planning = integrated part of tactical planning following principles of METT TC and TLP
- Casualty care should be a command-directed **unit response**, not an isolated medical response
- Tactical leadership needs to be fully trained in unit casualty response planning and execution
- Medical support units are a high value assets that need to be secured as such
- Interunit and interbranch cooperation is vital and needs to be part of the unit casualty response



At Role I

Casualties requiring immediate **DCS**: 20%

Casualties can be stabilized with expert **DCR** and wait: 80%

Most common procedures: thoracotomy and laparotomy

Most important factors to be successful

- Quality and flow of up - and downstream care
- Blood, blood andblood
- A well functioning team/team skillset

Forward Surgical Care in Ukraine: Structure and Organization

Lessons learned	Realities Observed
Threat environment requires small teams (4-10 personnel)	Part of doctrine, but not trained
High Level of mobility	No airborne insertion, no dynamic movement with assault force
Value of Modularity: separate DCR and DCS	Part of doctrine, but not trained
No orthopedic surgeon (?)	Orthopedic surgeon/Orthopedic PA Problem: high value, under-staffed risk of medical mission creep



Forward Surgical Care in Ukraine: Training

Lessons learned

FSRDs requires high level of C2, security and supply integration with unit they are supporting

Without threat mitigation and active/passive defense, Forward surgical teams have a low chance of survival

FST personnel require in-depth tactical training to be able to function and survive in a LSCO environment

Realities Observed

Training Compartmentalization instead of performing unit collective medical training

Not a training subject

Not a training subject

Next Steps:

1. Finalize systematic review
2. Integrate systematic review and information from stakeholder interviews
3. Compare main lessons learned to current practices of casualty care in the 101st airborne
4. Generate follow up proposal focused on low cost, unit level strategies withing the current doctrinal framework that target possible areas of improvement

7. **ARSC Single Surgeon Capabilities Statement – Update** - CDR Brandau briefed on varying interpretations of this statement with regards to large scale combat operations and implications in INDOPACOM.

How Ukraine manages medical support along a dynamic, extended geographical front?

- POI → CCP → Stabilization point → FSTs → Role 3 and 4 facilities
- Balancing high casualties, high injury complexity near the front with the risks to the medical force and a dynamic battlespace
- FSTs may have 8-10 surgeons, and several FSTs may be required to support a given offensive
 - Ex: 9 months, 80 K casualties, 3 FSTs = Approx 100 casualties per FST per day
 - Teams are underground or in abandoned buildings because tents are too risky

Lessons Learned:

- SSTs could offer rapid expansion of capabilities as casualties are expected or if a new battle front develops
- Could also offer dispersion in the face of drone or missile threats
- SSTs could be rotated to the front (Role 1+ or 2) and then return to the rear (Role 3 and 4) in a prolonged conflict to avoid burnout

CoSCCC Nov 2024 Meeting Minutes

- Shared responsibility of PCC if unable to evacuate

Challenges:

- Funding
- Maintenance of training
- Planning maritime versus land-based (underground or hardened structures) positioning
- Logistical resupply
- Joint coordination of SSTs
- Management of complicated injuries- better subspecialty representation near front?
- Dyssynchronous treatment and transport requirements
- PCC- critical care and nursing augmentation to Role 2

Conclusion:

- Does this modular team design for Role 2 care, and the use of SSTs as the building blocks, make sense across the spectrum of future military operations?
- Do we need a statement to supplement or follow on the SST statement, highlighting the various challenges that LSCO presents to standard large field hospitals? Or does the current SST statement provide enough guidance on the topic already?

CAP Tadlock closed the meeting with a review of action items, due outs and closing comments.

Leadership PEARLS from our Civilian SME's:

- From Holcomb, Eastridge, Jenkins, Nunez, Gross, Flaherty, Sams
- How our Leaders Say "No"
 - Its Not In Doctrine
 - Its Not a Requirement
- Don Jenkins
 - **Ask your leaders: "What Came First, Good Ideas or Doctrine?"**
- **Tim Nunez (& Steve Flaherty): "Defend The Castle!!!"**

GHE:

- **Health Security Cooperation**
- **Asymmetric Warfare**
- Desired end state of Health Security Cooperation: Not just interoperable but Interchangeable with civilian and military international partners

ARSC Mindset:

- ARSC/Single Surgeon Team Mindset likely needed for R2/R3 capabilities
- JETT implementation → will help save lives, and save teams
- SOF Mindset for Conventional ARSC Teams
 - "Building of Opportunity"
 - "Shoot and Move"
 - Adaptable

Final Editing Process

Goal: Complete by the end of 2024??

What The TMD Needs to Know From an Operational Leader Perspective- I MEF, Force Surgeon, CAPT Deaton

1. **If a trauma system is not in place before hostilities begin, there will not be time to build one in stride.**
2. **You can't advise or manage a trauma system if you don't have a full understanding of the HSS capabilities and limitations that reside within all of the Joint Force.**
3. **Need to justify a requirement to receive a TS clearance if you want to ensure the planning process supports your trauma system (OPLAN and TFFDD access).**
4. **For those responsible for a regional trauma system, determine your high risk casualty stream projections over time, this will be the key planning factor for any system you develop**

Due Outs:

- Annual TMD/TPM Meeting?
- Position Statements?
 - Burn Care Position Statement
 - Preparing & Utilization of ARSC teams for LSCO
- Recognition & Management of ABO Incompatibility Transfusion Rxn CPG
- Critical Care Literature Review Manuscript
- Role 1 Procedures Survey Manuscript
- Research Priorities Survey – distro next week
- Documentation survey – will be a total of 3 questions

Solicitation for Vice Chair for CoSCCC:

- CV/ Letter of Interest due by COB 10 January

Meeting Adjourned at 12:42



Matthew Tadlock, MD, FACS
CAPT, MC, USN
Chair, Committee on Surgical Combat Casualty Care



Michael Van Gent, DO, FACS
CDR, MC, USN
Chief, Defense Committees on Trauma

Enclosure (1) – Meeting Attendance

JTS Staff

COL Jennifer Gurney (DCoT Chair)
Mr. Dallas Burelison (JTS Chief Administrator)
COL Brian Sonka (PI Chief)
Cord Cunningham (ERCCC Chair)
CAPT Travis Deaton (CoTCCC Chair)
CAPT Matt Tadlock (CoSCCC Chair)
CDR Jan-Michael Van Gent (DCoT Chief)
Lt Col Lindsay July (PI)
CDR Brenda Williams (Senior Nurse) HMCM
Justin Wilson (Senior Enlisted Advisor)
Harold Montgomery (TCCC PM)
Dominick Sestito (SCCC PM)
Danielle Davis (CoTCCC Admin)
Dr. Russ Kotwal (Spec Projects)
Dr. Sean Keenan (JTET Spec Proj)
Trevor Gipper (A/V Spec)
Teresa (Teri) Duquette-Frame (Ops)
CDR Darshan Thota (Data)
Dr. Jonathan Stallings (Data)
Dr. Dan “Trey” Mosely (JTET)
Dr. Jeff Bailey
Mr. Rich Jarrett (JTET)
Dr. Steve Flaherty (Trauma Verification)
Mr. Derek Licina (GHE)
Dr. Caryn Stern
Mr. Keith Fischer
Dr. Russ Kotwal

VIP Guest Speakers

BG Clinton K. Murray

CoSCCC Attendance

Dr. Paul Allen
COL Linda Benavides
COL Jerome Benavides
CDR Jack Brandau
MAJ Michael Clemens
Col Erik DeSoucy
Mr. Luis Diolazo
LtCol Ryan Earnest
CDR David Hampton
COL Dave Hardin
LTC Emily Hathaway
LCDR Brittany Hout
MAJ Brandon Koser

Col Chris Mahoney
Dr. Don Marion
COL Nathan Marsh
MAJ Jason McCartt
CAPT Travis Polk
Maj Liz Powell
SFC Andrew Proctor
MAJ Joshua Randles
LCDR Rebecca Rausa
Col Jay Sampson
Col Valerie Sams
Mr. Tyler Scarborough
MAJ Max Sirkin
CAPT James Wallace
LtCol Alicia Williams
Col Leslie Wood
LTC Kevin Worth
Col Brian Gavitt
Dr. John Holcomb
CDR Shane Jensen
Col Brent Feldt
COL Dave Hardin
LtCol Chris Mahoney
MAJ Nathan Smith
LCDR Doug Pokorny
Ms. Caitlyn Felkoski
Ms. Kristin Maia
LCDR Lara Spence
LT Meredith Lackie
Capt Kristina Krumpos
Ms. Therese West
LCDR Mario Martinez
LtCol Bracken Armstrong
COL Chris Graybill
CAPT Jacob Glaser
Capt Andrew Francis
MAJ Noelle Deruyter
COL Nathan Carlson
Maj Carl Beyer
Dr. Kirby Gross
CDR Ryan Schuter
Capt Brenda Mysore
LTC Vince Nelson
MAJ Ian Jones
CPT Alexander Villahermosa
CDR Paul Lewis

CoSCCC Nov 2024 Meeting Minutes

CoSCCC Virtual Attendance

MAJ Alex Merkle
CDR Jason Brill
Mr. Pete Kalamaris
Mr. Richard Demarais
CAPT Jeffrey Bitterman
Lt Col Mary Stuever
Mr. James Cardwell
COL Scott Armen
Lt Col Dana Mayer
CAPT Virginia Blackmon
Ms. Amanda Staudt
LTC Jason McCartt
COL Matt Eckert
Ms. Erika Keith
COL Michale Tarpey
MAJ Dennis Kim
Mr. Jordan Juice
Col Dan Cox
LCDR O'Laughlin
Mr. Luis Diolazo
COL Mark Buzzelli
Col Stacy Shackelford
Mr. Matthew Orcutt
MAJ Matthew Esposito
LCDR Sarah Hart HM2 KJ
Ms. Jessica Jackson
Mr. Kenton Bass
LT Ryan Pavleka
MAJ Crystal Doyle
Mr. Nathan Schoen
Mr. Christopher Sanchezlang
CDR Russ Weir
COL Jason Corley