COMMITTEE ON SURGICAL COMBAT CASUALTY CARE

BUILDING THE MILITARY TRAUMA SYSTEM FOR THE FUTURE

24-25th August 2023

Marriott San Antonio Airport

San Antonio, TX

Meeting Minutes Prepared by: Mr. Dominick Sestito

Day #1 CoSCCC August 24th, 2023

Day #1		
Time	**Presentation**	**Proposed Speakers**
0700	**JTS Combat Casualty Care Conference**	Dr Scott
0830	Welcome, Introductions, CPG & other updates, Extramural Lines of Effort updates, Meeting Themes	20 MIN Tadlock/Sestito
0850	JTS Update and DHA Strategic Plan	Gurney (20 Min)
0910	MTFs, MCP's, MTA's & ODE Oh My! Case Volume and readiness to deploy Read Ahead: Case Volume & Readiness to Deploy, JACS 2023	Brown (20min) (Virtual)
0930	Pro-Con Debate: The Role (if any) of Orthopedic Surgeons on Role 2 Surgical Teams During LSCO Yes! They are critical to Role 2 Surgical Teams! Keith Jackson No! There is no role for Orthopedic Surgeons on Role 2 teams! Chris Renninger Control Ortho & the Golden Hour; MilMed 2022	Pro (15 min) Con (15 min) Moderated Discussion: Nate Marsh (15 min)
1015	Tourniquet Update: Ukraine, Conversion, and Replacement	John Holcomb (15 min)
1030	**BREAK**	
1045	Deployed Surgeon Talk – GHE INDOPACOM	Jason Hiles (45 min)
1130	Keynote- From Silos to Systems: Coordinating Casualty & Disaster Care in the Indo Pacific Region	Phillip Sun (45 min)
1215	Moderated Discussion	Ken Mattox (30 min)
1245	**LUNCH**	
1330	INDOPACOM TRAUMA MEDICAL DIRECTOR OVERVIEW	CAPT Jeff Bitterman & CDR Jason Brill (20 min)
1350	INDOPACOM Health Security Efforts	LTC Rich Caballero (virtual)(20 min)
1410	INDOPACOM Blood Update	MAJ Nekkeya McGee (virtual)(20 min)
1430	INDOPACOM AE	LTC Tommy Jones (virtual) (20 min)
1450	Developing a Trauma System on Guam: Opportunities & Challenges – Commanding Officer NMRTC – Guam	CAPT David Barrows (20 min)
1510	TALISMAN SABER 23: INDOPACOM Trauma System Lessons Learned	COL Jay Baker (15 min)
1535	Panel Discussion; moderator: CAPT Bitterman (INDOPACOM SURGEON) CDR Brill	(30 min)
1605	**BREAK**	
1620	**Work Groups / Line of Effort -**	
	Conventional Role 1 Surgical Procedures Work Group: **Leads: Rausa/Hout/Scarborough Position Statement Adjudication**	
	ARSC Curriculum Work Group Overview of Process, ELOs/TLOs; Primary Goal is to Discuss course structure	
1730	**ADJOURN**	

0700 – The Committee on Surgical Combat Casualty Care opened with the weekly JTS Combat Casualty Care Conference patient presentation from a down range environment.

0800 – Introduction: The CoSCCC conference opened with an introduction by CAPT Tadlock, the Chair of the Committee on Surgical Combat Casualty Care (CoSCCC). The focus on this meeting will be focused on INDOPACOM and continue discussion of combat casualty care during future Large Scale Combat Operations (LSCO) and the tyranny of distance moving patients across the pacific during potential MASCAL situations. We tried to focus on the role of Global Health Engagement (GHE) NOW, developing a Functioning INDOPACOM Trauma System for the future fight. We discussed creating a functioning Trauma System in Guam: Opportunities and Challenges, Skills Sustainment for those assigned to our forward deployed hospitals in Yokosuka, Guam, Okinawa, and South Korea and in partner operational units.

CAPT Tadlock reviewed baseline efforts for the JTS and Defense Committee on Trauma as a whole:

1. Develop and maintain CPGs for forward surgical care to include resuscitation and critical care. (2016→27 / 2022→47)
2. Focus on sustainment, training, systems doctrine, and research for forward surgical care.
3. Make recommendations to the DHA, ASD-HA, Service SGs to influence policies and doctrine related to surgical readiness.

1). CAPT Tadlock stated the focus of this year's meeting is INDOPACOM and the tyranny of distance in Large Scale Combat Operations (LSCO) against a near-peer enemy. CAPT Tadlock highlighted a book *The Tyranny of Distance: How Distance Shaped Australia's History* and how Distance & Isolation are central to Australia's History and will shape its future.

**Upcoming symposiums were showcased:

**ESS Surgical Symposium, October 22 Boston

Mr. Sestito covered administrative tasking's for DTS travelers, Hail and Farewell, new membership requirements, updating personal information on the sign in roster and items related to membership.

2). COL Gurney: Thanked everyone for coming and their volunteer efforts in supporting the JTS/DCoT.

COL Gurney reviewed What's New in JTS, as well as highlighting what's "not" new. Sustained efforts in the JTS: Documentation and data collection, CPG's, Research, Position Statements. The Single Surgeon Statement led to the Air Force to change their TTP's. We do make an impact!

How do we get better? We held a TMD/TPM meeting, focusing on inter-war period and how we get better here in the states and then apply it to the next conflict. We developed the Consultation and Support Branch (Dr. Flaherty). This branch will meet and conduct Trauma Verifications and how to standardize the Trauma System through Mentorship, Support etc.

Our Focus is to be data driven. Inform DOTMLPF – what the line relies on – (Dr Stallings) will be working on Research Support. Registry projects, easier access, and automation.

COL gurney introduced new members at the JTS and the plan to expansion of many lines of effort.

The unanswered quintessential question of "Who owns Combat Casualty Care." We strive to make the DHA/MHS identify this person. Building the bench for the future.

3). Pro-Con Debate: The Role (if any) of Orthopedic Surgeons on Role 2 Surgical Teams During LSCO
LTC Marsh moderated the debate -Significant staffing issues – spurred the debate should Ortho Surgeons only be at Role 3 Co-panelists - CDR Renninger (against putting Ortho @ Role 2), LTC Jackson (advocate for Ortho @ Role 2)

-For the debate purposes Role 2 will be a DCR capability
-Near-peer casualty number projections
-Highlighted contrasts between CENTCOM and INDOPACOM
    -multi-domain

-larger units
-lethal environment
-higher casualty rates

CDR Renninger - is against putting Orth surgeons further forward due to resource allocations. They are a limited resource, as are many surgical capabilities. We need to concentrate the resource where they can have the most impact. Moving Ortho forward dilutes the surgical need at the Role 3. It's not that they don't have a role forward, but in LSCO, we need to concentrate the capability where it can have the maximum impact with resources at a higher level of care. Ortho is very resource dense, we need resource supply, equipment, x-ray…the further forward the less you have access to resupply, hardware, radiography…equates to the bare minimum intervention and less than optimal care. CDR Renninger concept is Role 3 offers stable resources, power, fixed facility delivering optimal care.

Dr. Mattox – is there a potential compromise for tele-surgery here?

LTC Jackson – counter to telemedicine is that it's not appropriate to rely on that for higher level interventions. Where is the line for appropriate "advisor line" reliance? They are a great resource, but they may not be reliable or available in LSCO.

CDR Renninger – What capability do you need and where do you want it…based on injury pattern.

LTC Jackson – Presents the "pro's" of Ortho being at a Role 2. Three major points:

- High Incident rate combat related musculoskeletal injuries
- Sustain the deployed force – Musculo-skeletal injuries don't take a day off
- Provide a be a capable partner in a world with a limited deployable general surgeon pool

LTC Jackson presented some numbers on the importance of having Ortho far forward. Top 5 NBI causes of evacuation:

- Fracture (19%)
- Inflammation/overuse (14%)
- Dislocation (12%)
- Sprain/strain (11%)
- Internal joint derangement (12%)

- 77% of combat casualties have at least 1 orthopedic injury
    - 3.06/1,000 personnel deployed per year
- 47% of combat injuries involve the extremities
- Decisions made at Role II can have major, lifelong implications.
    - 53% of combat amputees have reoperation at 23 months

Who takes Ortho place if we keep them at a Role 3? OBGYN? Gen Surg?...MTF's are limping along and we can't support case numbers to demand more residents. Someone must do surgery far forward.

LTC Marsh – ACGME Requirements for Gen Surg – no requirements for Ortho. I question whether a cadaver course can appropriately create a complex Orth capability downrange. If tasked with DCR and extremity care…one will suffer due to prioritization of life saving interventions and resources.

COL Gurney – Ortho surgeons can be trained to enter the belly and are great partners in the OR. Gen Surg is "broke"…ortho are force multipliers.

MAJ Merkle – Where does everyone think the optimal position for Ortho is? For injured people that need to be off the battlefield for a month but can return to the fight with optimal care?

Lt Col Hall – CENTCOM doesn't have Ortho at all Role 2. We aren't really in an inter-war period from CENTCOM view. I think it will be a flex situation where location will dictate if Ortho is at Role 2 or Role 3.

CDR Renninger – Ortho is a capability and if Role 2 is "modular asset" you want the Ortho surgeon to also be "modular" when you need to plus up based on casualty numbers etc.

LTC Jackson – No risk assessment tool to say whether surgical assets are needed.

Dr. Mattox – Gen Surg are not ready for practice...and those are facts, not opinion. Specialty rotations are often non-existent, residents want to work a 4 day work week or less and don't want night call or never see a trauma case. Relying on Gen Surg to be the "gap filler" is a misconception. They are not ready to go into practice, let alone for war.

Dr. Holcomb – The world has changed. Gen Surg who aren't properly trained to care for ortho (80% have major injuries to extremities) If there is no Ortho forward (Role 2), amputations go through the roof and it makes no sense to me, I vote No!

COL Hardin (Virtual) – must front load Role 2, additional training on hardware. If they have the resources and capability the Ortho surgeon is integral part of DCR.

CDR Thorta – As an EM doctor, where can I go to learn more in this realm and help out?

CDR Renninger – adaptability starts in Military relationships, COTS, ASSET+, there is room for all staff to hybridize and adapt, it can't be algorithmic, it must be hybridized to include Emerg Med.

CAPT Blackmon – Case Volume..how much is the addition of adding one Orth surgeon or is the actual focus on the support staff assisting in the OR, sterilization etc. Perhaps we need to pair this with the JMPT since it is being used to plan for medical assets far forward. If there is a better way to provide data-based guidance, then we need to state that.

COL Jones – In the context of future battle space is to add in the CBRN impact and ways to work with Joint and Allied Partners to solve the solution, not just US Forces. CDID makes requirements.

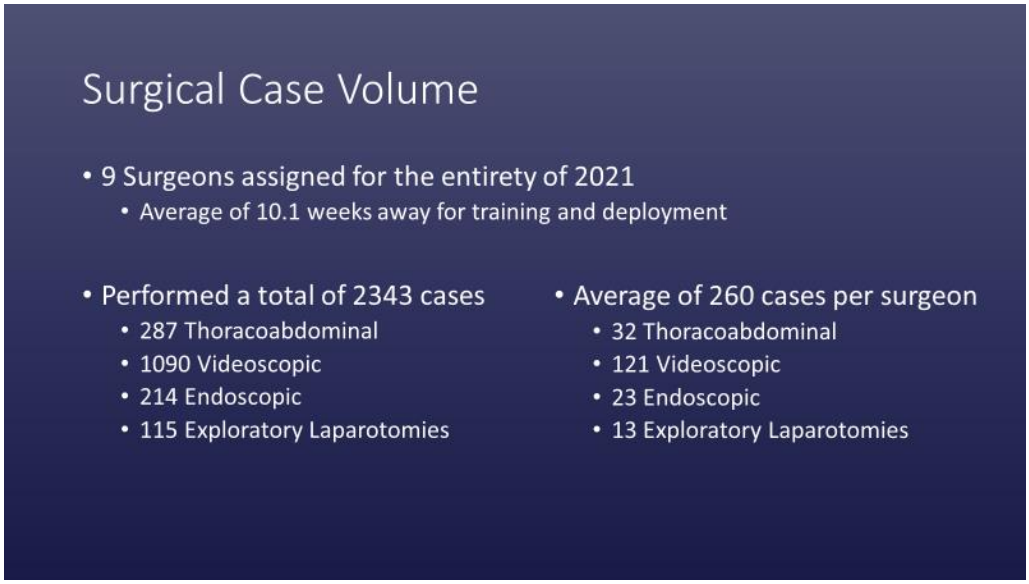
****DUE OUT - CAPT Tadlock asks committee for the need to produce a Position Statement for Leader to affect change? – Ortho at a Role 2 for future fight – room votes "yes" ****

4). Case Volume and Readiness to Deploy: Clinical Opportunities for Active-Duty Surgeons Outside f Military Hospitals - LTC Brown (Virtual) - LTC Brown presents on Case Volume and how we need to seek opportunities outside the MTF.

Proposed Initiative started at WAMC - Diversification of surgical case volume (Local MTA)

- VA-MTF integration
- Military training agreements (MTA)
- Off Duty Employment initiative (observing MTF policy)
- Department leadership-fostered environment of collaboration and entrepreneurship regarding expanding case volume/complexity

Goal was to seek out opportunities, bring it back to us and we will try and modify the MTA. Self-reported case logs presented the following data:



Takeaways:

- Inclusion of MTA and ODE case volume increases average caseload per surgeon by 52.9% (260 v 170 cases)
- KSA generation increases 56% (17,765 v 11,391)
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- KSA generation increases 56% (17,765 v 11,391)
- Three of nine (33%) surgeons met readiness threshold based upon MTF caseload alone
- Seven of nine (78%) surgeons met readiness threshold when taking into account MTA and ODE caseload
- The only two surgeons who did not meet readiness threshold were deployed for 4.5 months out of that year

Lt Col Earnest – Passive data collection vs self-reporting and the challenges.

LTC Brown – All was self-reported. My frustrations came from how the Army KSA are "wildly underestimating my case volume" Underreporting by an average of 40%.

CAPT Tadlock – MHS Genesis has made the data more inaccurate.

Lt Col Earnest – There are multiple issues. CPT codes at civilian hospital are billed based on Op-note…those are not discreet data elements in MHS Genesis. It's not accurately entered due to break down in system. Surgeons are not coders and Residents are not taught to document properly, so self-reporting is a problem when it comes to accuracy.

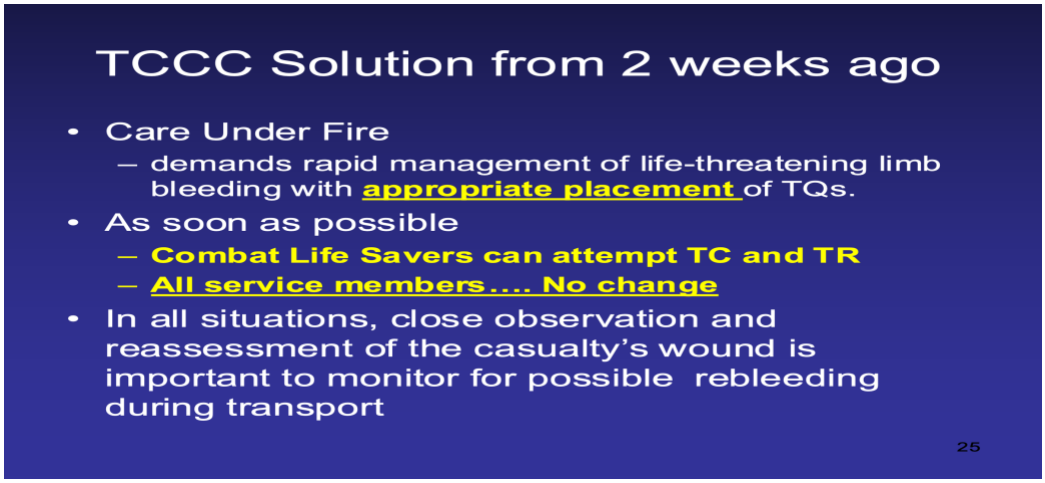
CDR Thorta – Roles, privileges, there are 8 degrees of freedom that can get jacked up in order to get good data. We are working through the issues.

COL Wanek – Mil/Civ to build up their cases. One of the benefits for Reservists in this role expands our skillset and there are opportunities that are not Level 1 and can expand and help on these KSA's to get OR time..and this data is collected passively through EPIC.

5). Tourniquet Update: Ukraine, Conversion, and Replacement (Dr. Holcomb): Discussed how proper to the CoTCCC vote last month TQ take down could only be down by a Medical Provider. TQ Take Down vs. TQ Conversion. Conversion and Replacement does not have to be done by a medic any longer.

Dr. Holcomb talked about the history of TQ and Extremity Injury. Dr Butlers publication on field extremity, multiple TQ application, survival outcomes, stop the bleed etc. leading to the need to change the guidance on TQ conversion and Take Down. TCCC is a "petrified fact" around the world and is being implemented literally with no adaptation in some countries.

- TQ are applied to wounds that are relatively minor: up to 49% of military and 53% of civilian extremity tourniquets may (in hindsight) not have been necessary.
- Increased education on:
  - 1) indications for TQ use
  - 2) appropriate placement
  - 3) assessment for tourniquet conversion or tourniquet replacement is essential to save lives while minimizing complications.



Conclusion:

- All three components of appropriate tourniquet use described in this paper are equally critical.
- Training on who needs a tourniquet, where to replace a tourniquet and how to convert a tourniquet are all equally important.
- If not implemented with appropriate training, could result in casualties bleeding to death rather than suffering the morbidity of limb ischemia/amputation.

CAPT Drew – Chair of CoTCCC stated how the US forces use TCCC as guidelines but Partner Forces use them as protocols. The guidelines were the issue. No where did we exclude conversion, but because it wasn't used in the curriculum, it wasn't being taught…and this was where the gap was identified in practical application.

COL Gurney – Care under fire can be 14-18hrs in a place like Ukraine, its very different for US Forces, but the training for WHO needs it and make the appropriate changes, someone is going to take us back in time and outlaw TQ's.

6). Deployed Surgeon Talk – GHE INDOPACOM (COL Hiles) – COL Hiles portrayed his experiences during his recent deployment and the differences in the term "austere" in OCONUS/CONUS LSCO. Where have I been in the last 20 months and what do I think you can learn from this experience.

- March to May of 2022 – Niger
    - The case mix here was second-to-none. I am sure there are equals, but this was pretty top-notch.
    - 145 cases across 2 months. 2 staff surgeons supported 10 residents. 80 inpatients. 40 outpatient visits daily. The work was immense.

- July into August of 2022 – Ukraine

Total Cases = 19	Below Knee Amputation - 1
Chest Tubes - 2	Chest wall closure
Exploratory laparotomy - 4	DPL
Femoral Artery Reconstruction	Head laceration
External Fixation - 6	Wound washout - 3

- November of 2022 – Burma
- March and April 2023 – Burma

Total Cases = 15
Wound washout x 9
Lipoma excision
C-Section
Amputation
Hernia x 2

- July 2023 - Slovenia, Germany, Ireland.

What does it take to be successful in the environments?

- Organizational backing
- Mission support center outside the area of threat
- Security and infrastructure provided by an effective resistance.
- Team willing and capable, serve in the needed capacity, and accept and manage risk.
- Alternative tactics to providing care with special consideration to threat mitigation.

7). ** Keynote- From Silos to Systems: Coordinating Casualty & Disaster Care in the Indo Pacific Region – Mr. Sun presented on experiences and managing integrated teams. Mr. Sun highlighted Taiwan's Military Healthcare system:

There are:

- one military medical school (National Defense Medical Center),
- one Health Service Training Centre, and
- 14 military hospitals.

There are also:

- 15 veterans' hospitals which are managed separately by the Veterans' Affairs council.

Through the Military-Veteran Cooperation Platform, the two parties can collaborate on medical specialist training and research, and clinical techniques mutual support.

The total number of hospital beds in Taiwan in 2021 was:

- 151,171 beds, including
- 6,966 beds in military hospitals and
- 11,313 beds in veterans' hospitals.

The military health service support system in Taiwan is run on a "2 categories, 3 roles" basis.

Category 1, field health service support, is conducted by the respective military services.

Category 2, clinical treatment, is provided by military hospitals. In an emergency, civilian hospitals may be assigned to command of the military system ('mobilized hospitals'). According to the nature of the missions and the characteristics of each military service (Army, Navy, and Air Force), flexible modes of health support are applied to deliver appropriate care for wounded personnel.

The Foundation of Any Process IS Decision Making

-The Order of the Decisions

-The Scale of the Decisions

-The Commitment to the Decisions

-The Implementation of the Decisions

-The Ordering and Sequencing of the Next Decisions

Dr. Mattox – My goal is to get 6you to start doing some of the things we just heard about. Why do we keep having to learn lessons after each conflict, why do we have to re-learn for every conflict? I want three things that you are recommending for me to take to SECDEF:

Example – when Kuwait began 6 different data bases by each independent service that didn't talk to each other. That seems to be close to changing finally.

1. Dr. Rohrer – AFMES needs a military trauma mortality review that is programmatic, resourced, manned, funded etc.
2. Dr. Oh – Prepare residents coming out – emphasis on education in combat casualty care and trauma management (unified)
3. Dr. Thorta – Operational Data infrastructure unified and run by
4. CAPT Tadlock - Admit there is a readiness problem -No clinical experience to deal with LSCO
5. Fill the hospitals or get rid of them, close or consolidate hospitals with no patients
6. Joint Trauma PEO full spectrum from concept to fielding
7. State Lisc and money for GME must have CCC integrated w/ Mil Health System
8. Planning
9. Increase personnel due to attrition, not just education
10. Operational billets must work in Hospital and not Deployed

Due Out **COL Gurney tasked to reduce to Top 3 through Survey**

8). INDOPACOM TRAUMA MEDICAL DIRECTOR OVERVIEW - (CAPT Bitterman/CDR Brill) – CAPT Bitterman and CDR Brill gave their perspective on the current INDOPACOM problem sets in contested environment with a near-peer adversary.

CAPT Bitterman explained the tyranny of distance and the area of operation INDOPACOM showing that all the continents can fit in the maritime pacific area. Demonstrating logistic hurdles, and where things need to be prepositioned for successful medical treatment.

5 Key Challenges:

-Natural disasters

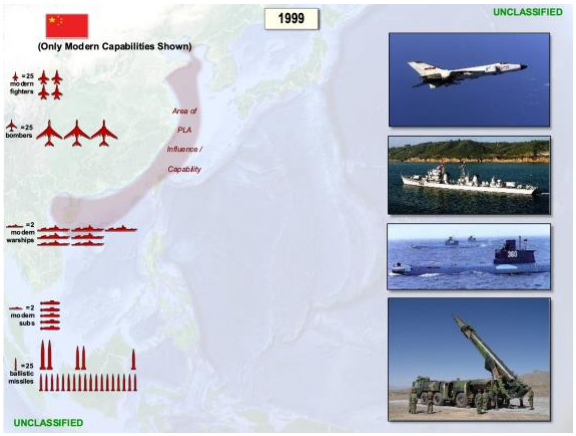
-Terrorism/Extremism

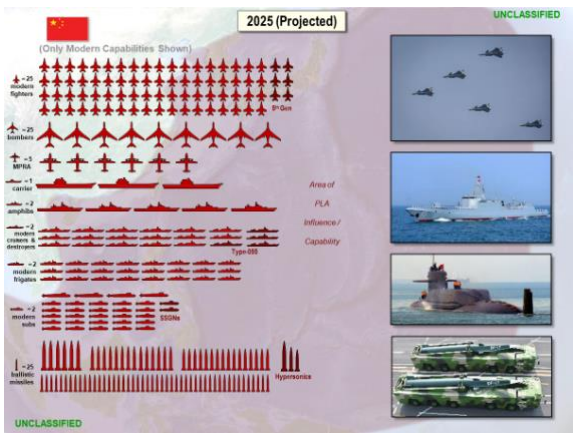
-Cyber Threat

-Economic Growth/Polital

-Territorial Dispute

CAPT Bitterman exemplified the 1999 state of China Military assets vs projected assets in 2025.

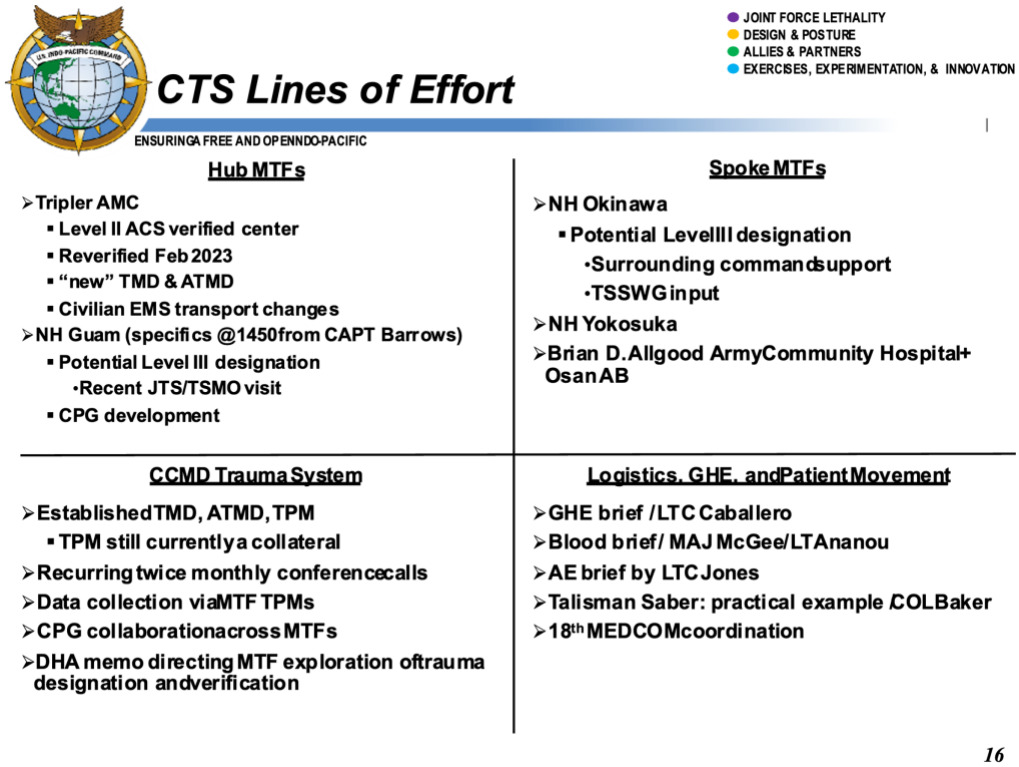




Medical Risks and Challenges:

- Patient Movement in peer contested maritime domain
- Pre-positioned logistics and resupply
- Blood supply and distribution
- EXMEDs Readiness & Skills sustainment
- Theater Role 3 Capability

CDR Brill - opened by highlighting current Lines of Effort for the INDOPACOM Trauma System:



Strengths:

- Established CTS framework
- Trauma center development underway
    - Process vs goal of verification
- Generally good outcomes from evacuated patients thus far
- Very clear pacing threat

Weaknesses:

- Competition of time/effort, especially TPM position
- Uncertain transition of CTS leadership in the event of LSCO
- Actual blood availability, current state, and future state
- Silos still exist
- No centralized research mechanism

Opportunities:

- GHE/partnerships could fill many current gaps
    - Skills/resuscitation approaches
    - Soft power projection
    - Pre-positioning of teams and equipment
- Aggressive/forward-thinking transfusion experts
- Rehearsals of regulated patient evacuation

Threats:

- The pacing threat
- Tyranny of distance will never change
- Funding
- Skills degradation
- Rehearsals/exercises containing notional solutions/shortcuts

LTC Caballero – discussed Global Health Engagement. Focused on J-5 security operations plan. INDOPACOM focuses on GHE by strengthening allied partners. Even as a Joint Force we will need assistance from allied partner nations in LSCO.

Attention to the first island chain – if it is related to the first island chain it needs to be focused on TCCC, Trauma and then secondarily logistics to support those medical assets. Milestones have been set for locations, patient movements and practice with engagements and exercise.

Multi-national efforts and strategic in nature. INDOPACOM Health Security Alliance with Australia and has grown to other nations. Getting like minded nations together to collaborate. Every other year we host a Mil/Civ summit.

INDOPACOM Health Exchange – 4-500 people from 30 nations and senior leaders. Evolving into training and sharing best practices, exercises with Malaysians etc.

MAJ McGee – Provided a Blood Update for INDOPACOM.

INDOPACOM Blood Capabilities (Japan)

- USPACOM ASBBC Okinawa
  - Blood Donor Center
  - 1 of 2 DoD FDA Testing Labs
  - 1 of 4 Blood Product Depots
  - Main supplier of blood to MTFs and operational units in AOR
  - Main supplier of blood ISO exercises, fleet support, HA/DR missions
- USNH Okinawa
  - Transfusion Services
  - Stores frozen blood
- 35th MDSS, Misawa AB
  - Transfusion Services
  - Stores frozen blood
- USNH Yokosuka
  - Transfusion Services
  - Stores frozen blood
- 374th MDSS, Yokota AB
  - Transfusion Services
  - Store frozen blood

- **USNH Guam**
  - Blood Donor Center
  - Transfusion Services
  - Stores frozen blood
- **JBER AK**
  - Transfusion Services
  - Stores frozen blood
- **TAMC HI**
  - Blood Donor Center
  - Transfusion Services
  - Stores frozen blood
- **ASWBPL-W**
  - Main distro hub for INDOPACOM from CONUS

Blood prepositioning and posture:

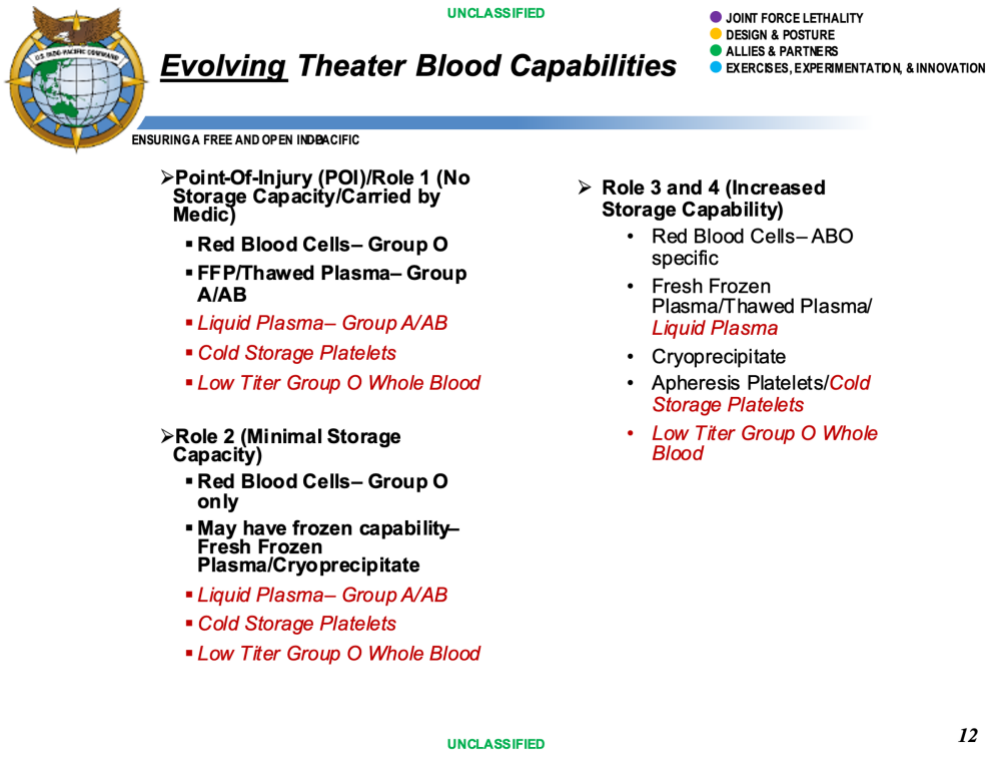
- Current prepositioning is inadequate for LSCO in a contested environment – Expand in the southern hubs and increase capacity for existing locations such as Guam
- The number of BSD's currently available is insufficient – Explore possibility of additional BSD's
- Blood mobile team is still a concept – needs to be equipped, staffed, and exercised
- EBTC's are not sourced to pacing TPFDD – revise and revamp, and exercise the EBTC model in identified locations

Inter/Intra theater blood distribution to include requirements for push based procedures

- Current blood transport assets (Hemocool) not validated in the AOR – test those capabilities and supply movements during exercises
- Blood distribution will be challenging in a contested environment – explore drones and unmanned surface vehicles. Alternate transportation mechanism (vehicle of opportunity, rail systems). Explore alternate and redundant logistical lanes

Mutual support agreement

- No existing agreements - leverage GHE activities to establish agreements



MAJ Jones – Presented on INDOPACOM Aeromedical Evacuation Inter/Intra Theater. DoDI 6000.11 Patient Movement and JP 4-02 drive guidance that intra-theater patient movement is responsibility of CCDR and inter-theater patient movement is responsibility of USTRANSCOM.

Estimation of 50% of current Blood assets are expected to be cut off on Day 1 of LSCO.

Current Challenges:

- Tyranny of Distance
    - Strategic airlift (C-17, KC-135) requirement
    - Augmented crews
    - Reconstitution of crews/equipment kits
- Lack of AE Crews
    - 14 crews authorized/3 Operating Locations
    - 5 CCATT crews in Hickam

        - Goal to increase to 7 crews by 2024
        - 2 crews always deployed to Kadena
- Lack of airlift assets
    - Competing airlift priorities
    - Limited access to available airlift
        - Guard/Reserve assets
        - OPCON of C-17s

AE Way Forward:

- Steady-state ways forward
    - Guard/Reserve cut-to-fit and LT-MPA to support AE Channel
    - Getting Routine patient movement (AE channel) on INDOPACOM prioritization list
    - Near or 100% manning for 18th AES
    - AE Flyers added back to Hickam
    - Increased Operational/Training C-130 AE
    - Increasing CCATT presence
- Future-fight ways forward
    - Additional AE Squadrons/Operating Locations (AE-wide)
    - Adjusting crew complement
    - Adding Paramedics Skillset to AE missions
    - Unregulated/CASEVAC Patient Movement
    - PACE Plan

COL Gurney – Relying on Red Blood cells is not going to be enough. Donor centers at theater entry points, so the blood is fresh…freeze dried plasma, these are interventions/solutions that must continue to be explored. What can this committee do to help and advocate on your behalf? We know that our success is linked directly to your supply chain capabilities.

CAPT Riggs – We currently operate at a peacetime level…for ASBP to switch to a war time mindset would take months. Dried plasma is going to be a critical stop gap on the battlefield.

The current process is cumbersome, Plasma crosses the Atlantic 3 times using European production plants. Our manufacturing capabilities for of the shelf products are being enhanced and by 2024 we should have a production capability by next summer. Funding is a big part and will probably be through the MILDEP's.

COL Gurney – Funding is a problem! Pre-screening DoDI says you must get pre-screened to conduct Walking Blood Banks, and now no one is funding it. Requirements generate resources and funding, but that's not the case…so what's the plan to get funding?

Lt Col Hall – What is the cost differential between Freeze dried vs liquid Plasma vs Fresh Plasma…is there any cost savings?

CAPT Riggs – No, there wouldn't be any cost savings…it's actually much more costly.

MAJ McGee – Logistics is more important than initial cost. Shelf life, shipping and storage cause exponential cost increases and logistic issues. Eliminating cold-chain management is huge!

CAPT Riggs – we are looking at blood capabilities of partner nations. Assessing for FDA comparability can be requested to be added tot a priority roster for funding…Taiwan and Australia were elevated recently.

CAPT Polk – Cost is a very difficult question to answer because we don't know how much we actually need. There is a current requirement vs War time requirement TTX scheduled because quantity will drive the end price point.

Dr. Mattox – Maybe we should have a breakout session peace time, not war time arrangements…what if we don't go to war…and what do we lose? What do we save and how to we maintain our "brand" as taxpayers and the national debt etc.

CDR Brill – We need a unified integrated approach to WBB training in INDOPACOM to go from Carriers to the entire fleet. TYCOM will make the decision…the best we can hope for is that we have laid out the risk and benefits as this is a line decision.

Developing a Trauma System on Guam: Opportunities & Challenges (CAPT Barrows) – CAPT Barrows spoke on Opportunities and Challenges. Guam is essentially the "second island chain" and still a long distance from Hawaii.

- Current facility
    - 39 beds (6 ICU, 22 MSU, 9 LDRP/Postpartum, 2 psychiatric hold)
    - 6 ORs
- Current State
    - Total Population – 170,516 (2021)
    - Eligible Beneficiaries – 23,818
    - Eligible + VA – 27,776
    - Active Duty component approximately 10,000
- Future Growth
    - Expected total population of Active Duty in 2033 – approximately 20,000
    - Estimated eligible beneficiaries in 2033: 40,000+

Trauma Opportunities Guam:

- USMC
    - High-intensity training will occur on Guam and Tinian
- Current political climate and feasibility of establishing a trauma system
    - Governor highly supports development of a trauma system
    - Governor and unicameral legislature – present challenge
- Opportunity for training
    - MOU established for 30+ years between CNIC and Guam Fire Department
    - USNH Guam already receives trauma and medical emergencies from southern half of island
    - Highest mortality rate and volume in MHS
    - Training of current staff

- Expeditionary medicine capability: 2 x ERSS; 5 x ERCS
- Highly utilized ER and ICU

Trauma Challenges

- No trauma system
- Communication
- Lack of robust communication system
- USNH Guam has only helipad
- Aeromedical Evacuation (lack of CCATT)
- Lack of long-term rehab facility
- USNH Guam is hovering around 85% MSW capacity daily
- Blood bank infrastructure
- CT scanner and current diversion of 100's of hours a year
- Staffing gaps: TPM, TNC, registrar
- No NICU

Way Forward:

- Presentation to Guam Working Group at DHA
- Secure DHA approval for development
- Develop Trauma System for Guam (RAC/White Book)
- USNH Guam
    - Finish activation criteria
    - Continue to work gap analysis/POA&M
    - Hire TPM and TNC
    - Data collection
    - Participation in INDOPACOM Trauma Conference
    - Educational outreach
    - PI development
    - Laydown timeline for ACS verification

Col Sampson – What can the AF expect from the recent JTS site visit?

COL Gurney – We are writing the report to the DOTMLPF format. We will be happy to share it once finalized, after we brief DHA leadership with an operational spin vs the MTF level report for DHA.

LT Col Hall – JTS might be able to get the Role 1's to become more of an aide to Role 2 to increase the pool of people and get that even though they aren't a surgical team, they can help the surgical team. The bureaucracy doesn't seem to acknowledge Role 1 assets, if there is some way to get the Services to say, "yes you have a CCC role and you need to be training for Role 2 Casualty management…and the Role 2 shouldn't have to go find them."

CDR Maddox – How are you engaging with local medical facilities in Guam.

CDR Brill – Many Junior people so hard to get people trained up. There is keen interest within the Government due to the threat to the Northwest. Military brings resources so they are embracing it strategically.

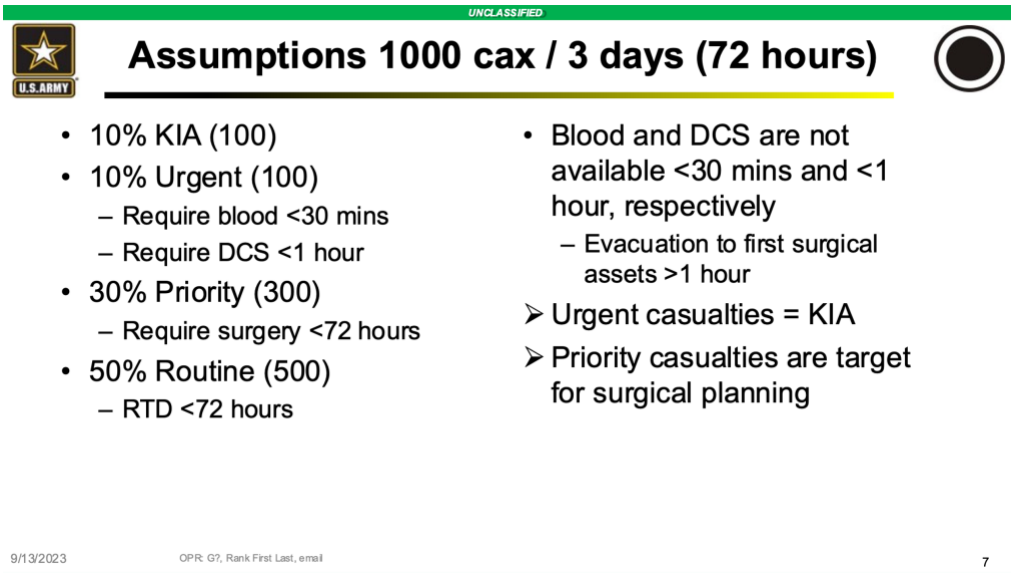
COL Gurney – I think all solutions are "local". If Guam gets a MASCAL, you must force multiply with help outside the MTF. If they say they can run a MASCAL on their own is either lying to themselves or they have never run one.

CDR Brill – You can't just do JTS CPG's in a Trauma center. You have to acknowledge local needs and adapting MTF CPG's to nest under JTS CPG's. I agree we should not go off into left field, but we must adapt.

CAPT Barrows – There is cognitive dissonance between DHA and the Services. They are interested in Phase 1+ not really Phase 0. Access to care, delivery to care, train the force…be we must look at real things like warehousing that need to come from Service funding. I'm sure some of Guam's hurdles are shared in Okinawa for example…having a Trauma Center is great, but planning for long term contingency is critical.

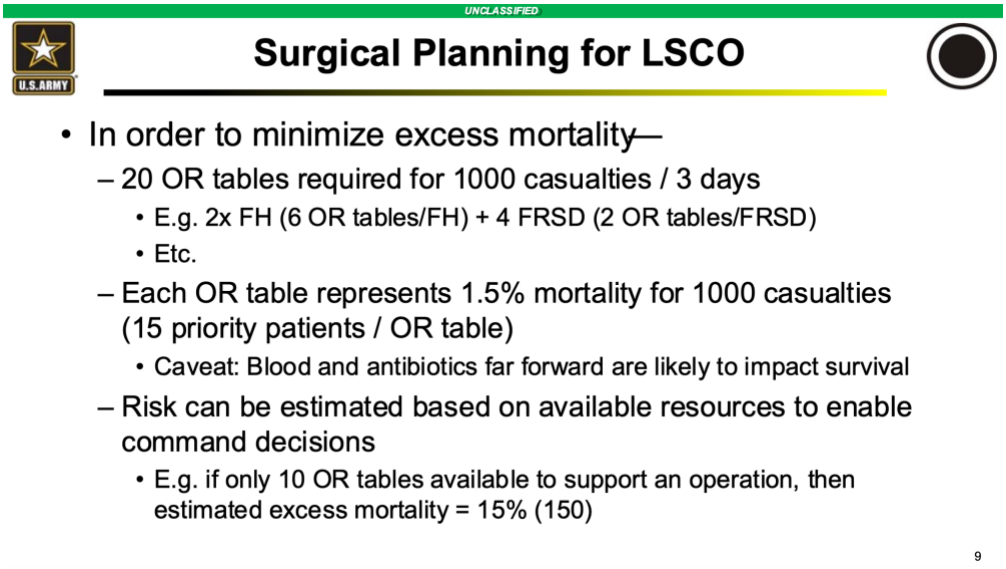
TALISMAN SABER 2023 INDOPACOM Trauma System Lessons Learned (COL Baker) – COL Baker discussed lessons learned during the TALISMAN SABER Combined, joint, partnered exercise to support partners and allies for a free and open Indo-Pacific. About 30 thousand combined and joint forces. COL Baker provides a scenario for fighting on the ground which is often forgotten in LSCO.

The scenario produced an estimated 8K casualties in 18 days. The scenario was broken to 1k (division level estimation) taking into account DCS, Blood, Urgent, Priority Expectant and walking wounded.



- Assumptions
  - Priority patients require surgery <72 hours or 100% mortality
  - Average surgical case ~5 hours
  - Each OR table sufficiently resourced to operate continuously for 72 hours
- Derived planning factors
  - Each OR table = ~15 cases / 72 hrs
- 300 priorities / 15 priorities/table

  20 OR tables / 1000 estimated casualties / 3 days



This analysis is an example of what should drive Medical Planning for LSCO…Class XIII, Evacuation, Blood, Resupply…this can be calculated by how many casualties I think I can save based on estimated mortality and surgical capability…and estimate Risk to the Line Commander.

LCDR Rausa – The Medical Modeling Tool (JMPT) is valuable, and more people should be trained to use it.

MAJ Modlin – We should ask them to use Ukraine data to look at past conflicts and do a retro analysis on casualty streams to predict and identify gaps.

COL Baker – Line Leadership did recognize the Golden Hour doesn't exist in LSCO. We need to plan MASCAL and sustainment…not just medical but a whole of staff response to tackle this problem set.

COL Gurney – I think we can use this to show the Line the reality of lives lost, and medical asset needs. Showing them casualty numbers that demonstrate with current asset allocations we can only save a maximum of 3500 out od 8500 casualties in this proposed scenario…are you willing to take that risk?

CAPT Bitterman – The big takeaways are defining requirements with everything from manning to blood to Trauma System development. We must be a unified front. We still have gaps and must get visibility on those gaps IPL/FPL to get it into requirements and get resourced and funded. JTS can help define those requirements and educate CCDM Working Groups.

-Blood
-Evacuation capabilities
-Role 2/3 Capabilities in the Theater of War

Col Sampson – AF is reorganizing how they do force presentation and architecture. This is driving some changes in how Medical is organized. The Single Surgeon Team Position Statement was very impactful. For the AF it would be very impactful to have an Orthopedic Surgery Statement and the Role 1 Surgical Procedures Position Statement.

COL Gurney – Why can't the Navy and Army implement and use these Position Statements as leverage to affect change.

Col Sampson – We aren't there yet either, but we are moving in the right direction…some is just luck because Line has taken a focus on imbedded Medical assets in their O-planning. AF is also smaller.

MAJ Merkle – Why did the AF scratch the TACET concept?

Col Sampson – I believe the Army wanted to take over that mission.

Break Out Session Work Groups / Line of Effort:

- Conventional Role 1 Surgical Procedures Work Group
    - 5 Questions for the Group to decide if this Position Statement needs to be drafted:

- Is a statement needed?
    - Where did the demand signal come from?
    - What procedures are we talking about performing?

Discussion - 50/50 Members in the room were for and against – debate ensued with a consensus that there is a potential this could backfire and be taken literally by some. Phrasing it with so many variables is a dangerous ground. Role 1 is not definitively defined. What are we trying to tell the force? Is it to inform training requirements and residency?

Scope creep is a real thing and helping to define tasks and education corresponding to expectations is crucial.

The statement can drive resource and requirements. It could empower providers to perform procedures they otherwise may not be properly trained to perform. If we don't make a statement these things for expeditionary skill sets will be developed either way.

CAPT Drew – There is a preliminary consensus that this will not pass through CoTCCC as a needed document.

Dr. Holcomb – There is nothing wrong with providing left and right lateral limits on paper. It can always be updated or amended, but not providing a SME based Position Statement leaves it up to someone else to define.

Dr. Remick – If there is ever a need to write a formal policy in the future, this will be a preliminary foundation where to begin with SME consensus.

Lt Col Hall – It is better to tell people how to do things in strange situations, I think it's a better way to do things than to prescriptively say these providers can and can't do this list of things.

COL Gurney – maybe it should be more of "you need to know how to do this at this level instead of can and can't."

LCDR Hout – The intent was to tell everyone in advance that the PCC guidelines were being updated to align with the statement, not to be interpreted negatively in anyway…more to help people expand on their skills. I am sad to hear that CoTCCC is so against it.

CAPT Barrows - If we identify now who can do what when and the balloon goes up, we will have a force multiplier. I agree with minimizing people and their background, but more categorization based on resourcing and capability.

CAPT Moore – I feel like this is already there with Emergency War Surgery, I feel like this is trying to prescribe everything…you can't spell out too many things.

CDR Brandau - I think a statement is worthwhile. The discussion of medics performing laparotomies and packing in the austere environment needs to be tempered. Our entire profession is organized around limiting professionals to the scope of practice that they have been trained to through privileging authorities. I don't think that a statement restricting non-trained professionals from doing known risky procedures like truncal surgery is controversial.

HMCM Wilson - we aren't just talking R1 enlisted, we're talking about a R1 ER physician or PA that is a NON-surgeon that needs to do something to ligate a leg or do a fasciotomy. Stuck in a strange place with a strange injury and no telemed. Not saying we're going to do a procedure, just like the idea of getting out of PCC is the goal but we have to train to it. we need to train to some of these tasks if we have to do them in PCC.

Final- standing by on this line of effort until feedback is received from CoTCCC.

- ARSC Operational Planning Guidance - ELOs/TLOs; Primary Goal is to Discuss course structure.

Meeting Adjourned 1700

Day #2 CoSCCC August 25th, 2023

Day #2		
Time	**Presentation**	**Speaker**
0800	Exploring The Critical Care Capability Gap for ARSC teams during current Operation Moderated Panel Session. Read Ahead: Critical Care & Small Surgical Teams 2023	Hardin et al. (45 min) (Brandon Blake, Rob Modlin, Clinton Burroughs, Rich Betzold, Liz Powell, Jeff Biberston, Dan Flieger)
0845	GME Training Requirements & Gaps Preparing Expeditionary Providers for LSCO	Shaun Brown Intro (5 min) (virtual)
0850	General Surgery	Jason McCartt (10 min)
0900	Emergency Medicine	Daphne Morrisonponce (10 min)
0910	Orthopedic Surgery	Stinner (10 min)
0920	**Moderated Discussion:** Definitive Vascular Repair (GS), Critical Care (GS/EM), External Fixation & Complex Wound care (Ortho, GS), DNBI/tropical medicine (EM). Moderator: Shaun Brown	
0945	**BREAK**	
0955	CCRP Intro	Travis Polk (5 min)
1000	Trauma Outcomes & Resuscitative Practices & In a Prolonged Care Setting: Overview of the C3 Global Network Read ahead: Feasibility of conducting a military-relevant multicenter cohort study to assess outcomes of early trauma resuscitative interventions in a prolonged care civilian setting	Nee-Kofi Mould-Millman (25 min)
1025	LITES update	Jason Sperry (25)
1050	REBOA UPDATE	Dave Baer (25 min)
1115	**Discussion/Q&A**	Polk: Moderated Discussion
1130	**Discussion:** -Role 1 Procedures Statement Report out (5 minutes) -ARSC Curriculum Structure Report out (5 minutes) Putting it All Together CoSCCC Priorities, Lines of Effort, Planning for Next Meeting, Next CoSCCC Position Statement? (20 minutes)	
1200	JTS Chief Comments and CoSCCC Closing Remarks	Gurney/Tadlock
1230	**ADJOURN**	

0700 Weekly JTS Combat Casualty Care Conference: Patient presentation on a Vascular Injury from a self-inflicted stab wound to right thigh.

CAPT Tadlock – Some feedback I received yesterday was that we didn't talk about burns and the resources needed to manage burn patients in LSCO.

1). Panel Discussion: Exploring the Critical Care Capability Gap for ARSC teams during current Operation Moderated Panel Session. (Brandon Blake, Rob Modlin, Clinton Burroughs, Liz Powell, Jeff Biberston, Dana Flieger)
Maj Betzold Moderator: We plan to discuss many aspects of Critical care to include burns.

MAJ Modlin – We are in Phase zero right now and we are talking INDOPACOM and its specific challenges, but they apply to all COCOMs in many aspects…tyranny of distance, we should be thinking AFRICOM…Complicated geopolitical issues, EUCOM. Let's look at this panel discussion as phased approach, in a theater and domain agnostic mindset while addressing gaps.

Col Lonergan – I spend a lot of time thinking about how we are going to get rescue strategies like ECMO and renal replacement therapy out to casualties. We are not investing in people, training needed to build this capability. We aren't investing in our people or equipment to be successful.

COL Gurney – If we had more CDID and Logisticians in the room, do you think we would be more successful solving this problem? How do we influence this message to the line? Through BUMED, AMEDD, through DHA?

MAJ Modlin – Medical needs to stand up and pollenate best practices and say they have an integrated piece to this problem. SPECOPS is viewed as very niche, but what we do have is placement access and loud and annoying voices so please weaponize us.

Col Lonergan – Personnel policies, education and retainment of skills are not being prioritized. For example a civilian ECMO specialist would not be transferred to a Department Head position, an Admin billet as a "career progression."

Maj Powell – I'd like to address the clinical gap. Post-op resus and stabilization...because even if we have a successful surgical procedure in battle, the follow-on care and specialty organ support as acute resuscitation strategy is a major need that is being ignored. The potential solution is an investment in the people who are doing and have done the mission in areas of opportunity and investing in the technology like our partner nations…making equipment small…expedient.

MAJ Burroughs – We deal with fixing the fielded force. How do we sit on Critical Care long term patients, The Prolonged Casualty Detachment (PCAD) could serve as one of the solutions. There will be 3 (core level assets) HQ and split into 3 squads and 4 person teams in squad…but modular in nature consisting of 0-3 PA, 0-3 RN, E-5+ LVN/68C, and 68W.

COL Gurney -An 0-3 will most likely not have the specialty and experiences ICU/Critical Care patient population. This is a rapid portal to the afterlife. You must have experienced personnel to care for these patients.

MAJ Burroughs – Yes this was identified and solidified this was a Gap in the most recent exercise. There were many things upon inception that were overlooked or not thought of, so we are taking a hard look and making many recommendations across the board.

CAPT Tadlock -I plead that our Intensivist colleagues are integrated into this concept decision making.

COL Armen -We have Critical Care NP in the AF that are not being utilized and are functioning way below their level of training or capability…is this being looked at?

MAJ Burroughs – yes, that is one of the things identified. It has been a blessing and a curse to have the people we have on the initial review team…they had significant experience above the proposed position and it was great to have them dissect the proposal.

LCDR Flieger – The need for proper pre-deployment training is not adequate. I am an O-4 now and have been deemed a Dept Head, but on paper I am labeled as a Critical Care RN and I am not getting the day to day experience with hands on patients. Having a title, label, NEC does need equate to proficiency or

capability. I am not ready to perform at the level expected of me. We don't have the acuity at Military Hospitals, we need to be embedded in the Civilian institutions prior to deployment.

LCDR Biberston – Intensivist in Okinawa. Numbers being reported are not accurate…numbers suggest that every staff member is being adequately skill sustained. They rubber stamp proficiency because readiness equates to money. On paper we were "adequately training" Critical RNs with 40 admissions, only 3 of which were ventilated patients. The projected numbers for 2027 Intensivists in the navy is 30% manning or 19 Navy-wide. We are managing 1 patient on average, not maintain skills and being transitioned to Admin Roles. We had many instances where we didn't have the resources to keep patients in Okinawa…this should be concerning to everyone in the room. Equipment is NOT transferable… We had a pediatric trauma with EBD but CCATT showed up and they had no way to monitor pressures of the patient, and this is in peacetime.

SGT Blake – As an RT being embedded in AUB not only keeps my skillset proficient but it enhances decision making skills because you're seeing and getting trauma team setting experience every day. We cross train as surgical first assist, so we know what it looks like and troubleshooting, so if the team was reduced by a MASCAL, you have advanced skills and know how to handle it. As a SOF medic our focus was how do we give long term patients nutrition on post op surgical patient, until we can evacuate, how to prioritize resources.

Maj Betzold summarized the gaps and informed COL Gurney the takeaway may be a revised Top 10 Research Topics list.
DUE OUT CAPT Tadlock tasked the Panel members with reporting 2-3 GAPS so we can summarize and potentially publish to the appropriate platform.

2). GME Training Requirements and Gaps: Preparing Expeditionary Providers for LSCO (LTC Brown) – LTC Brown reviewed the successes we have had in Iraq and Afghanistan and the tyranny of distance we face with LSCO. In Iraq and Afghanistan was about MEDEVAC and Damage Control Surgery…Golden Hour…Platinum 20…those luxuries are not going to be afforded to the next generation in the next conflict.

MAJ McCartt – GME is our pipeline to care for the force after current Leadership are gone. MAJ McCartt gave some statistical data about Vascular surgery, residency and the actual readiness levels of those coming out of residency with inadequate skills, experience and cases.

Difficulties:

- Decreasing open case volume
- Decreasing non-vascular mentors
- Increasing integrated residency

Possible Solutions:

- ASSET/Perfused Cadavers
- Improved residency rotations
- Invest/Develop Simulation
- Civilian Partnerships

CDR Morrison-Ponce – Posed the question of "where are we currently" with our MUC/ Military Unique Curriculum and how much it varies Service to Service and Duty Station to Duty Station before deployment. Trying to break down the barriers of teaching Residents to be involved with Line Leaders before entering AOR with no previous experience having a seat at the table.

3 Gaps in Emergency Medicine Training:

1. Critical Care
    a. MASCAL and triage best practices
    b. Prolonged field care
    c. Enroute care

2. Procedural Skills
    a. Orthopedic
        i. Downgrading TQs
        ii. Compartment release
    b. Surgical
        i. REBOA
        ii. Surgical assist
    c. Non-surgical management of traumatic injuries

3. Disease Non-Battle Injury
    a. Equipment/AMAL/set up familiarity
    b. Interservice interoperability
    c. Cold weather medicine
    d. Caregiver occupational stress

If there is a sub-specialist in the facility and you decide to do these procedures by yourself to get case load, what are the legal risks and what is right for the best outcome for the patient. It's a had juxtaposition to get past.

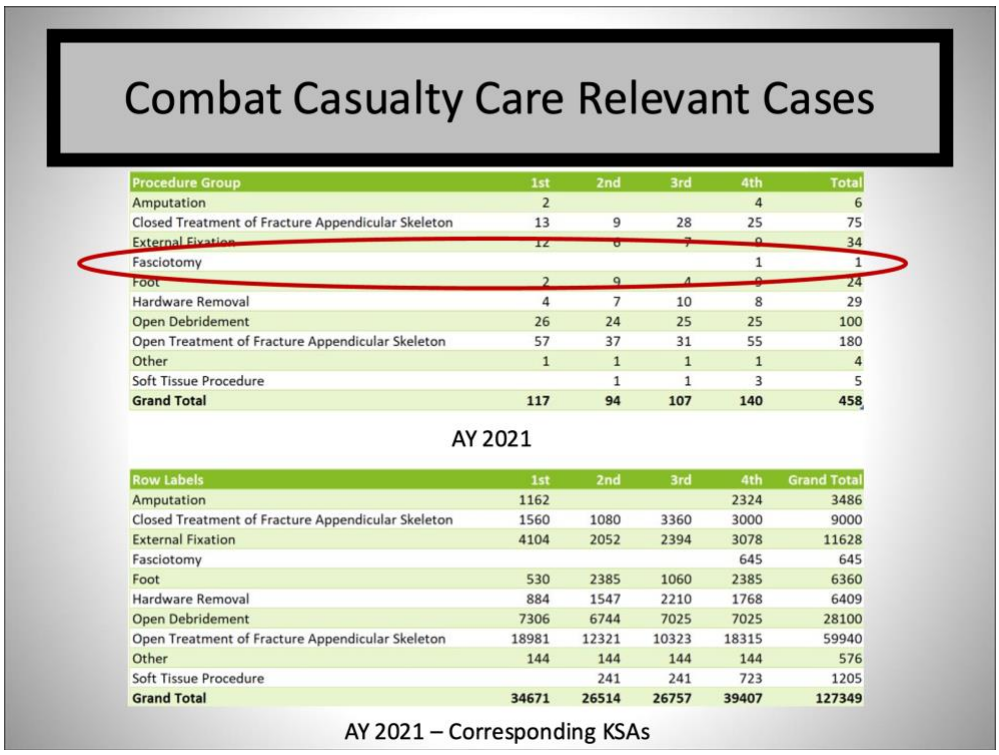
Recommendations

- Leverage DHA tri-service instructions
    - Identify funding sources
    - Standardizes training
- Collaborate on open access resources
    - Just in time training
    - Curricular aids
    - Simulation cases
    - Procedural models
- Resiliency and mental health resources
- Residency exchanges

LCDR Thota – Do JTS CPG's form MUC and JMEX curriculums?

CDR Morrison-Ponce – Yes, we do use them as part of our longitudinal curriculum, but I can not answer about them being part of the JMEX planning process.

LTC Stinner - We need well trained orthopedic surgeons. We were busy during previous conflicts, but we need to be realistic about current case volume in our MTF's. KSA's are not transparent if you look at Ortho vs Gen Surg…we arbitrarily assigned what those minimum scores would be. We may be seeing complex cases and meeting KSA's but they are not the same as the combat environment requirements of placing an ex-fix or traumatic amputations etc.



Procedure Group	1st	2nd	3rd	4th	Total
Amputation	2			4	6
Closed Treatment of Fracture Appendicular Skeleton	13	9	28	25	75
External Fixation	12	6	7	9	34
Fasciotomy				1	1
Foot	2	9	4	9	24
Hardware Removal	4	7	10	8	29
Open Debridement	26	24	25	25	100
Open Treatment of Fracture Appendicular Skeleton	57	37	31	55	180
Other	1	1	1	1	4
Soft Tissue Procedure		1	1	3	5
Grand Total	**117**	**94**	**107**	**140**	**458**

Row Labels	1st	2nd	3rd	4th	Grand Total
Amputation	1162			2324	3486
Closed Treatment of Fracture Appendicular Skeleton	1560	1080	3360	3000	9000
External Fixation	4104	2052	2394	3078	11628
Fasciotomy				645	645
Foot	530	2385	1060	2385	6360
Hardware Removal	884	1547	2210	1768	6409
Open Debridement	7306	6744	7025	7025	28100
Open Treatment of Fracture Appendicular Skeleton	18981	12321	10323	18315	59940
Other	144	144	144	144	576
Soft Tissue Procedure		241	241	723	1205
Grand Total	**34671**	**26514**	**26757**	**39407**	**127349**

We need to try harder to match the SAMMC Model.
Summary:

- Combat Casualty Care Readiness
  - Majority lack consistent trauma exposure
  - Expected level of competence
- Do we need to advocate for more?
  - MTF based training
  - Mil-Civ partnerships/Exposure at high volume-high acuity trauma centers
- Need to make simulation/training a priority
- Ortho-centric training or Glorified FA
  - We need to arm the future deployed ortho surgeon with as many tools as we can

CAPT Tadlock – With incoming Residents not having deployment and austere mindset or experience, how are you trying to teach that gap?

LTC Stinner – Teach procedures you will potentially perform in combat…ex-fix using floro to confirm for example. We are aware Residents want to be Board Certified Doctors and not Deployable Ready Military Surgeons in Combat Environment.

MAJ McCartt – It's very hard to replicate, but exposure to conversation, simulation etc. is what we can do, and reinforce to them that the deployed environment is why you're here.

LTC Stinner - Mil/Civ is hard even though it is essential, the less visibility I have on them to see what they are doing Training wise, to insert that deployment situational question and answer or "what if scenario" So even though we have to use Civilian partners, we have to have that Military mindset when they return…if we continue to allow our MTF's to run like Cillian institutions it will get worse before it gets better. Reminding yourself and your team that you are in the Military is essential. I can't oversee any other Service member imbedded at my institution…that's horrible, and that language needs to be addressed and changed if possible.

COL Gurney – This problem has been discussed for years. Has anyone been through a CBA…I think this needs a Capability Based Assessment from a sponsored entity, and a Doctrinal Change Recommendation through the JCID/JROCM process incorporating all these local solutions and language changes. Military and ACGME partnership need to go to USU to request sponsorship.

LTC Jackson – This screams for standardization, but I think we just need a POC champion and not take it that high. Another issue is that the budget I have doesn't have enough to get me to conferences let alone fund training of this level and standardize it.

Dr. Mattox – This needs a "Philip Sun" long term process. Maybe someone in this room needs to write a book titled "Critical Care for Dummies" or Vascular Surgery for Dummies" and can be read as you're on the airplane for deployment.

CAPT Tadlock – The ARSC Team Based handbook is targeting that very mindset. We hope to have a rough draft finalized this year.

LCDR Flieger – I think Case studies are a great way to expose people to patients with unique deployment/Trauma experiences for simulation. Just an idea we can implement. Create a data base for all to access.

LCDR Ravindra – There is a systemic issue here…we are bleeding our experience to the Network and it's a problem. Local fixes are not working well enough. Neuro residents need 40 hours of Crani to graduate and it should be at minimum 3X that for a war time situation and that's not ok.

Dr. Bailey – This issue DOES compel an enterprise-wide solution. Command and control that can drive standards across the services.

LTC Brown – Closed the discussion by stating Program Directors must hold resident accountable by what the ACGME is requiring. We have internal work to do because the reality is we don't all agree on what's being said.

COL Gurney – would we agree that there should be a requirement for future Program Directors (PD's) to have some prior combat deployment experience?

LTC Brown -Yes of course I think they should, but I'll tell you people with that experience are NOT knocking down the door to be PD's…so when only 2 people apply, one of them becomes the PD.

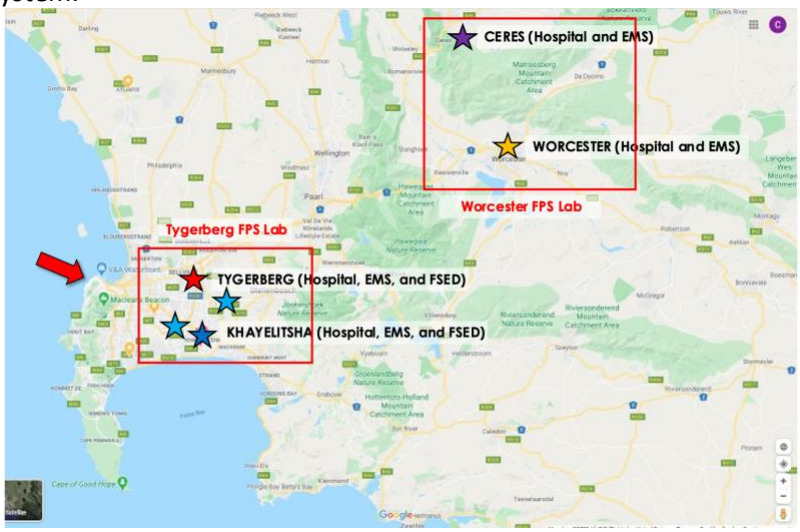
Dr. Holcomb – Money drives all of this. Most of the retired high-level officers go to these very institutions we are talking about. It's a sad story but it's reality. It's not going to change because money rules the decision-making world.

Combat Casualty Care Research Portfolio Update (CAPT Polk): CAPT Polk gave an intro for an update on one of the relevant clinical product developments in process. He introduced Dr. Mould-millman and his project:

Dr. Mould-millman: Resuscitative Practices and Outcomes in a High Trauma Prolonged Care Setting – Our work tries to fill gaps in pre-hospital and early trauma resuscitation, resource constrained care and prolonged field care. To improve knowledge and solutions through high quality interventional and trial work through CCCRP.
Our current Focus Areas:

- Hemorrhage and Shock
- Traumatic brain injury
- Polytrauma (multisystem) injuries
- Wound infections
- Training & Education

Dr. Mould-millman gave an overview of South African Hospital system and how they are deeply embedded in the system.



Data Collection platform:

- Modeled after DODTR, NTDS, NEMSIS
- Collect >5-million data points per year
- Electronic data capture at point-of-care
- Trained teams of data collectors and staff
- We are embedded within facilities/organizations
- Data linking procedure is >99% accurate

- Transmittal to UCD REDCap database

Follow-up Capability implementation:

- Neuro-trauma outcomes:
  - Glasgow Outcomes Scale Extended
  - Disability Rating Score
- Follow-up periods:
  - Discharge
  - 6 weeks
  - 3 months
  - 6 months
  - 1 year
- Reach:
  - 140 pts per month (4-5 per day)
  - Outpatient contact rate >75%

Dr. Mould-millman gave demographics on the patient population they treat in this environment and their tiered system of trauma care.

- Highest trauma (& mortality) rates in world
- Approx. 100,000 EMS scene transports per year
- We enroll >6,000 major trauma cases/year
  - Penetrating injury ~45-50%
  - Compared to 5-10% in USA
  - Hemorrhagic shock (~20%)
  - Traumatic brain injury (18%)
  - Multi-system injury (~25%)
  - Frequent prolonged care

Anatomic Injuries (AIS)

Severity	Body Region									
	Head	Face	Neck	Thorax	Abdo	Spine	Up. Ext	Low. Ext	External	Total
Minor	18%	20%	5%	15%	4%	1%	20%	14%	3%	3922
Moderate	13%	12%	1%	18%	7%	4%	18%	26%	1%	1041
Serious	32%	3%	1%	29%	11%	1%	7%	17%	0%	793
Severe	54%	0%	4%	21%	14%	1%	0%	2%	3%	118
Critical	37%	0%	0%	43%	3%	13%	0%	0%	3%	63
Maximal	67%	0%	0%	0%	0%	0%	0%	0%	33%	3
Total	20%	16%	4%	18%	6%	2%	17%	16%	3%	5940

Median number of anatomic injuries = **3**
Physiologically critical ("trauma activation") = **54%**

Trauma Death Data Outcomes:

- Mortality rate:
  - Prolonged care ~4%
  - Non-prolonged care ~7.5%
- Timing of deaths:
  - Peak #1: <1 hour (on-scene)
    - GSW (33%)
  - Peak #2: 1-4 hours (ED)
    - Multiple penetrating (38%); GSW (41%); CNS (45%)
  - Peak #3: >24 hours (ICU)
    - Multiple blunt trauma (30%); multi-organ failure & sepsis (47%)

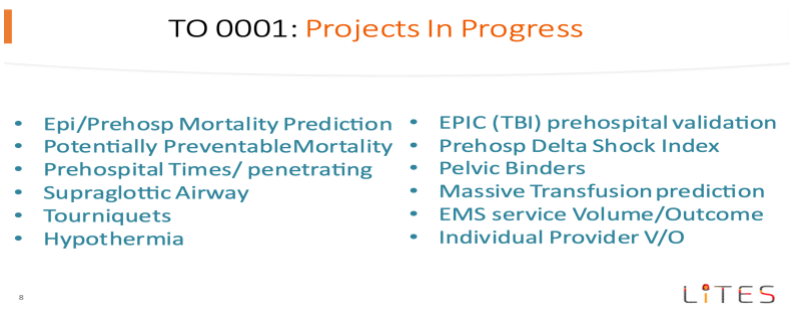
Most advanced EMS system in Africa mirroring some of US EMS system and cap[abilities and they use electronic data capture. Dr. Mould-millman gave some patient scenarios and outlined the care delivered. They equate to a Level 1 Trauma Center with extensive penetrating and gunshot wound injury patterns. A lot of security and gang warfare equating to the Combat Environment.

Wrap-up

- Built on collaborative MIL-CIV partnerships
- Answer priority questions for MIL and CIV
- Variety of research approaches
  - Observational studies
  - Interventional studies & trials
- Focus on prolonged care
- Focus on specific populations:
  - Hemorrhage/shock
  - Traumatic Brain Injury
  - Multi-system injury
  - Complex wounds
- Helps DOD to be adaptive to updates to the NDS

CAPT Tadlock introduced Dr. Sperry who oversees the LITES Network for Clinical Trials. Unique in the fact that we propose questions to them, and they prepare a study for that.

Dr. Sperry - Linking Investigations in Trauma and Emergency Services (LITES) – LITES Network has 42 sites currently facilitating studies with criteria and approval process. Dr. Sperry introduced several "Task Orders" outlining current studies in process.

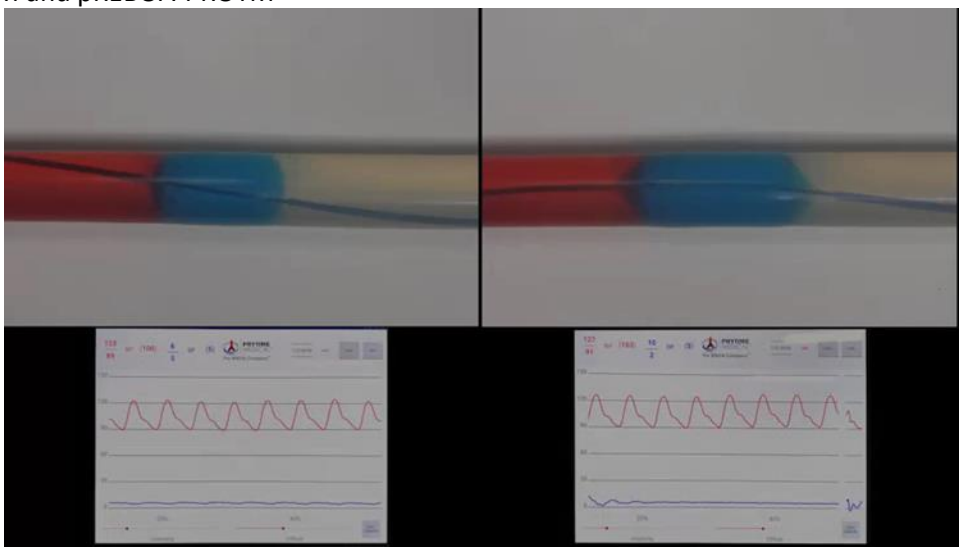


- SWAT: Shock, Whole blood and Assessment of TBI
- CriSP: Cold-Stored Platelet Early Intervention
- PACT: Prehospital Airway Control Trial
- PAIN: Prehospital Analgesia INtervention Trial
- TOWAR: Type O Whole blood and assessment of Age early Resuscitation Trial
- DEEP: DSUVIA Early Evaluation of Pain Trial
- CAVALIER: CAlcium and VAsopressin following Injury Early Resuscitation

COL Gurney – We need to operationalize this data. How can we use this for Military goals to message our Line Leaders that we are not kidding when we say we are losing people to clinical practices in the Civilian Sector.

Prytime Medical Devices Update (Dr. Dave Baer): Dr Baer is a consultant and divulged his association with his current Company. Dr. Baer outlines the disconnect with occlusion and down stream problems that come from extended occlusion. Time is the enemy

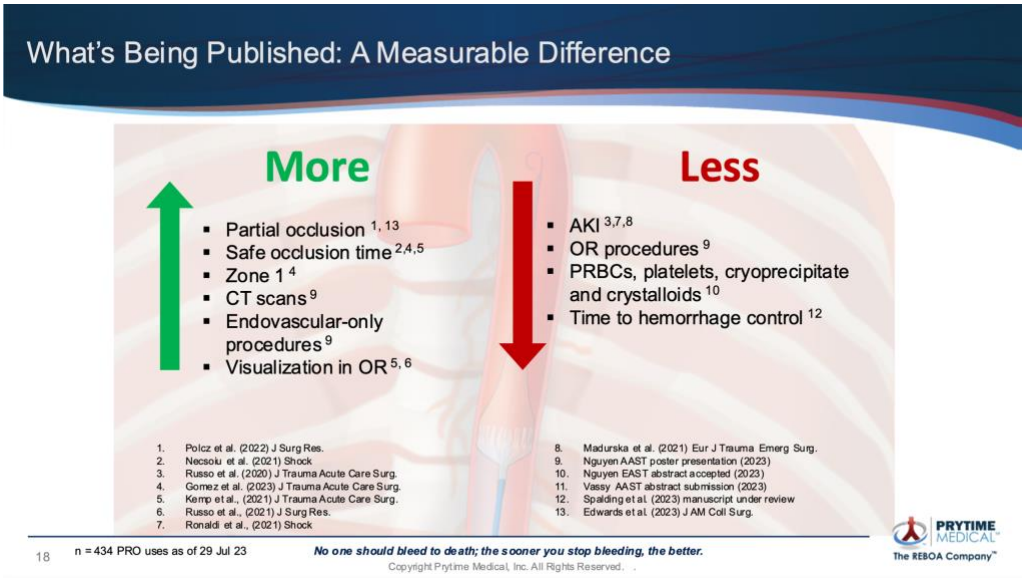
pREBOA-PROTM Enables Precise Titration of Blood Flow Past the Balloon: Deflation Comparison of ER-REBOATM and pREBOA-PROTM



Compared to ER-REBOA, use of pREBOA-PRO resulted in:

- 60% reduction in rate of AKI, the most frequently reported ischemia-reperfusion injury
- 30% reduction in mortality rate after zone 1 occlusion

What's being Published:



Dr. Baer outlined some Cases of extended Occlusion time. New style of warfare negatively impacts existing US / NATO doctrine for transporting combat casualties and The need: 9 – 12 Hours+ of Point of Injury Hemorrhage Control and Resuscitation.

CAPT Polk – The relevance with this study, even though it is only looking at one device, the focus is on delays in surgical intervention and uses in LSCO because we are seeing the catheters being able to be used for longer inclusion time.

CAPT Tadlock – ARSC standardized curriculum Update and desired End State:

- 22 Terminal Learning Objectives & over 250 Enabling Learning Objectives Complete
- FOR ALL ROLE 2 PLATFORMS
  - → **The Standard In Surgical Role 2 Pre-Deployment Training**
- Curriculum VS Course
- Standardized, Platform Agnostic & CPG Based
- Demonstrate & Train Curricula, Evaluate & Endorse
- Rapidly Adapt based on contemporary DoDTR/PI

Each service have all appointment representatives for this group. One of the biggest questions is what is happening to the Non-surgeon and Surg Tech during this training time?
How to do an AAR for a MSACL and make the Team better for the next situation (Hotwash) How to.

Closing Comments:

MAJ Merkle – We need to ensure we are including Geographic Combatant Commands/SPEC Ops SOCPAC, SOCAF etc…combined offices to future meeting as they are our main customers. (Follow up email needed to identify POCs.

CAPT Tadlock – Follow up Deliverables:

- **-ARSC Course**
- **-CBA GME Training Gaps**
- **-AFRICOM as next Meeting Focus**
- **-Ortho Position Statement**
- **-Role 1 Position Statement (CoTCCC as conduit)**
- **-Critical Care Gaps**

COL Gurney thanks VIP Guests – Dr Sun and Dr. Mattox

Meeting Adjourned at 12:42

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

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Jennifer Gurney, MD, FACS
COL, MC, USA
Chair, Defense Committees on Trauma

Enclosure (1) – Meeting Attendance

JTS Staff:
COL Jennifer Gurney (DCoT Chief)
Mr. Dallas Burelison (JTS Chief Administrator)
COL Brian Sonka (PI Chief)
Cord Cunningham (ERCCC Chair)
CAPT Brendon Drew (CoTCCC Chair)
CAPT Matt Tadlock (CoSCCC Chair)
LTC Chris Graybill (JTET Branch 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)
Ed Whitt (Pubs)
Dr. Russ Kotwal (Spec Projects)
Dr. Sean Keenan (JTET Spec Proj)
Trevor Gipper (A/V Spec)
Curtis Hall (Pubs)
Larry Crozier (PI)
Linda Martinez (PI)
Laura Runyan (PI)
Dr. Kenneth Leffler (PI)
Teresa (Teri) Duquette-Frame (PI)
Caryn Stern (Epi Stats)
CDR Darshan Thota (Data)
Dr. Jonathan Stallings (Data)
Dr. Dan "Tre" Mosely (JTET)
Dr. Jeff Bailey

VIP Guest Speakers
Dr. Philip Sun
Dr. Ken Mattox

CoSCCC Attendance
Donald Adams
Paul Allen
COL Scott Armen
MAJ Michael Ash
COL Jay Baker
CAPT Dave Barrows
LTC Tyson Becker
COL Linda Benavides
Maj Rich Betzold
CAPT Virginia Blackman
MSgt Brandon Blake
CDR Jason Brill
COL Mark Buzzelli
COL John Chovanes

MAJ Michael Clemens
Luis Diolazo
Dr. Brian Eastridge
LtCol Ryan Earnest
Dr. Matt Exkert
Ms. Amanda Gano
COL Chris Graybill
LtCol Andrew Hall
Dr. Jason Hiles
MAJ Heather Holmb
Dr. John Holcomb
LCDR Brittany Hout
LtCol Remealle How
CDR Shane Jensen
COL Brian Lanier
Col Chris Mahoney
MAJ Alex Malloy
LTC Megan Matters
LTC Nathan Marsh
MAJ Jason McCartt
MAJ Alex Merkle
Dr Rob Modlin
CAPT Meg Moore
CDR Daphne Morrison-ponce
Dr. John Oh
CAPT Travis Polk
CDR Paul Porensky
SFC Andrew Proctor
LCDR Rebecca Rausa
LCDR Vijay Ravindra
Dr. Kyle Remick
LCDR Chris Renninger
LTC Brad Rittenhouse
MAJ Michael Robertson
LtCol Andrew Rhorer
Col Jay Sampson
COL Sandra Wanek
Col Dan Cox
LTC Brad Dengler
CAPT Ted Edson
Mr. Brent F
COL T Goksel
Mr. Nick Graham
Ms. Allyce Hunt
COL James Jones
Maj Thomas Jones
Peter Kalamaris
MAJ Maya Lowell
CDR John Maddox
MAJ Nekkeya McGee
CDR Ellie Mentler
Mr. Marlon Muthuveeran
Dr. Nick Namias
Mr. Stephenson Palmos
COL Mark Plooster
Ms. Kimberley Pope
COL James Pratt
CPT Joshua Randles
CAPT Leslie Riggs
LtCol Anne Rizzo
LTC Erik Roedel
COL Marty Schreiber
LTC Lecreshia Shields
MAJ Martin Smallridge
LTC Daniel Song
Dr. Mary Ann Spott
MAJ Nicholas Studer
Ms. Jennifer Trevino
MAJ Cecily Vanderspurt
CDR Ligia Villajuana
CDR Jay Yelon

CoSCCC Virtual Attendance

Ms. Emily Baird
CAPT Jeffrey Bitterman
CDR Jack Brandau
CAPT Kimberley Broom
LTC Shaun Brown
LTC Richard Caballero
COL Jason Corley