

Committee on Surgical Combat Casualty Care Meeting

3-4th November 2021

San Antonio, TX

Meeting Minutes Prepared by: Mr. Dominick Sestito

Day #1 CoSCCC November 3rd, 2021

0700	AFMES Conference	Rhoher	Casualty Review
CoSCCC Day #1			
Time	Presentation	Speaker	Topic and Intent
0800	Opening Comments / Tribute	Gurney / Jensen / Spott	
0820	JTS -- Where are we now / DHA	Shackelford / Remleywe've gotten a lot done!
0845	Group Discussion / Questions	Understanding DHA space / Deliverables / LOE to assist with	
0900	Deployed Surgeon	Dave Hardin	HKIA / deployed experiences
0940	Train like you fight	Becker	Challenges with concept to doctrine – Joint R2 training
1005	Moderated Group Discussion	TBD	
1030	BREAK		
FO / GO Talks and Panel			
1050	Comments by RDML Hancock	Navy Trauma Readiness / Way Ahead	
1110	Comments by BG Cox	Perspectives from the FORSCOM Surgeon	
1130	Roundtable Discussion with RMDL Hancock and BG Cox -- submitted questions and group discussion		
1200	CCMD Trauma System – how do we plan for the next fight?	Jay Baker	Understanding the CTS, Improving trauma care delivery & trauma systems
1230	LUNCH		
1400	Hot Topics Presentation: LTOWB in civilian trauma centers		
1405	Jenkins and the San Antonio Experience		
1425	Schreiber and the Portland Experience		
1445	Discussion		
1500	Working Groups / Line of Effort -		
Single Surgeon Team Consensus Statement		Gavitt / Tadlock / Eckert / Brown / Edson	
NSG Requirement for R3 Position Statement		Bell / Jackson / Hall / Schreiber	
Trauma Lexicon Terms and ARSC OPG		Remley / Allen / Cunningham / Baker / Holcomb	
1645	Adjourn		

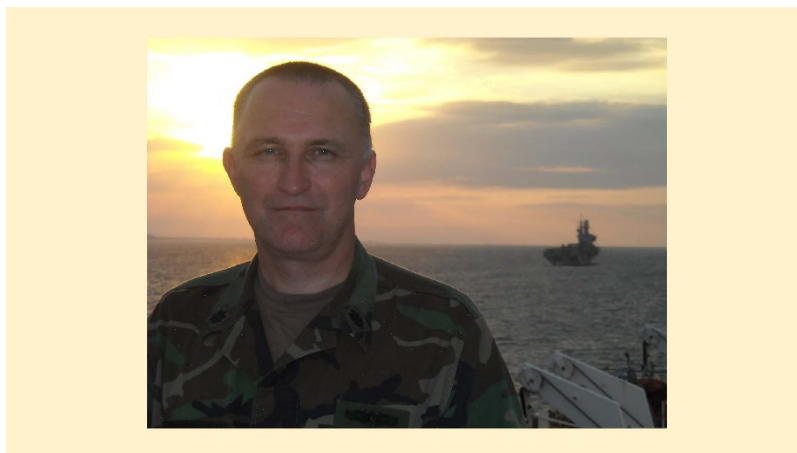
0800 – Introduction: The CoSCCC conference opened with an introduction by CDR Jensen, the Chair of the Committee on Surgical Combat Casualty Care (CoSCCC).

CDR Jensen restated the purpose of this meeting, which is to stay ahead of changes to the MHS and the casualty care system and to come up with the best ideas and the processes that we can help contribute to the customer and the war fighter. CDR Jensen also touched on the new Strategic Goals of the JTS to the surgical casualty care response to make sure we continue the effective care of the war fighter.

Three major lines of effort for this meeting are Neurosurgeon Role 3 Position Statement, Trauma Lexicon review, and Single Surgeon Team Statement – consensus was to ensure the line is our target and not overuse medical terminology. We have an 85% solution and will work to get a finalized drafts for each of these, and get this out for Vote at the conclusion of the meeting. COL Gurney expressed the importance of taking ownership of these documents and others.

COL Gurney reviewed the importance of CBA’s and completion of JROCM Tasks. She concluded with an overview of the agenda topics and presenters. Emphasizing the importance of avoiding the “Walker Dip” during peacetime. Focus on what we can change and what is important, and understand where we have influence and authority.

The Committee offered a moment of silence as Dr. Mary Ann Spott payed tribute to CAPT Zsolt Stockinger, who the Surgical Community tragically and unexpectedly lost during a recent routine medical procedure.



1. **JTS Director’s Perspective/ JTS under DHA Update** (Col Shackelford/MSG Remley): Col Shackelford presented the JTS Chief update showing what we’ve been working on at the JTS:

MSG Remley

- a. Emphasized we are the trauma enterprise for the whole DoD, advising trauma care throughout DoD.

- b. Improve Data efficiency – Lack of data input from POI/pre-hospital realm. ERC and Role 2/3 do a much better job...how we do a better job of recording and receiving data?
- c. National defense strategy – Near-peer conflicts and what they are doing to disable our medical community and our homeland...an all hazards approach. How do we integrate a Corpsman, medic into a civilian facility in a Pandemic? Skill sustainment. It's very hard to incorporate these types of needs...interoperability with NATO partners, Civilian partners etc.
- d. Recruitment, Assessment, Selection, Training -Development – succession plan. Who should we be investing in, building up to ensure the success of the JTS and avoid the effects of the walker dip...we must invest in and groom the next generation.

Col Shackelford

- a. Improve infrastructure in terms of data and into an “information space.” Interact with Electronic Health Record and establish data points and audit filters. Building and providing access to dashboards by COCOM. Within the next 6 months hope to have a good number of Trauma dashboards and “real time PI.”
- b. Joint Military Interoperability Standards – Training, Blood and Equipment and Data are the 4 major lines of effort.
- c. Joint Medical System/CTS – mixing casualty care with trauma care, bring the scope together and Involve the other Clinical Communities and have them model after the JTS and the registry to be the foundational structure with interchangeable modules.
- d. Implement the 12 core functions of the Trauma System – essential elements of a successful CTS.

Goals

Goals: 1 year

2021 Priorities

1. Deliver PI Products to improve buy-in of stakeholders:
 - Implement C3QIP
2. Establish joint medical interoperability standards
3. Expand CCMD Trauma Systems:
 - Tabletop Exercise
 - Field Exercises (ea. CCMD)
4. Support future operations, National Defense Strategy, and National Disaster Medical System.
 - **Sustain Expeditionary Skill Sustainment Strategy**
5. Improve data efficiency

Goals: 5 year

1. JTS coordinates an enterprise PI capability (Joint Casualty Care System) to enhance Commander's casualty response.
2. CTS is integral to CCMD operations (Performance improvement/12 core functions)
3. Build framework to improve educational opportunities, system-based practices, and research capabilities with NAEMT and other MIL/CIV partnerships.
4. Create and employ a deliberate JTS recruitment, assessment, sustainment, training, development (RAST-D) program to ensure long-term mission success.

"Medically Ready Force...Ready Medical Force"

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Open Discussion on current or future JTS topics:

- Where should JTS be going in the next 5 years?

Gurney – Looking back at the JTTS, no doctrinal authority but did possess influence, 20 years ago...what would be the one thing you would want to change to be more effective?

Holcomb – We worked to established/assigned FTE's to stabilize CTS. Recognized the needs but didn't have the time needed to make the impact and I think that's why we are still working on this.

Eastridge – Didn't have a lot so we needed to establish influence and position ourselves with those that had authority...need "top cover" we had great top cover (Robb). Team needs to have flexibility and make salient medical decisions as SME.

Jenkins – CSH had spent almost a year in San Antonio before getting ready, but were not at all knowledgeable on the "Mission" or what TCCC was...no one had a tourniquet. They were prepared to "move "stuff" and "people" ...but they needed someone to inform them of the mission to prep them to enter the battle-space. SME's imbedded with Leadership.

GO's had to understand the value of having a CTS.

Kotwal – PI data on accident in early 2000’s ...I would promote the need to understand PI and analysis. I feel like it has still not caught on and MUST happen.

Cordoni – Influence and Authority in DoD has increased tremendously in the recent years. We can authorize and direct the MILDEP to get up to the “Modern standard of care.”

-We have to better coordinate our efforts! DoD level entity trying to execute for ALL services and its always a roadblock. It would be wise in future DoDI to direct the services.

-Have to avoid mix-messaging or we lose our audience.

-Establishing requirements is a major task that has to be taken on...no requirement, no capability development, material, equipment won’t be created or followed up with.

Sampson – This room is getting a little older every year and how our young surgeons are going to grow and retain with the war dwindling etc. Sustainability is a huge concern. Through the DHA..JTS needs to have influence on what we want and need for career sustainability, where they are train/stationed.

Remick – Clinical readiness, but rapid response and the standing up of CTS for enduring success.

Schreiber – Urban war in Civ trauma centers with penetrating trauma. Key for JTS to get better, leverage the care of trauma patients from the Civilian sector partnerships.

Holcomb – Need to get CTS into each of the Leadership courses for Line guy’s not just Medical career courses.

-Shackelford – we are actively working on this and have integrated in to a couple pilot courses.

Cunningham - DHA must direct MTFs to focus on battlefield care and not just clinical care.

2). Recently Deployed Surgeon (LTC Hardin): LTC Hardin presented a very moving recap of his experiences following the events at Hamid Karzai International Airport (HKIA).

- ISIS-K x2 SVEST IED blasts followed by small arms fire
- 183 killed (13 US military)
- 150+ wounded
- Largest single loss of US personnel since 6 August 2011

LTC Hardin recapped the interwoven paths of Dr Jigar Patel and those he would care for on the day of the bombing. He spoke of the training and turn over he received and those who had served before him and how to handle what he was about to endure. He discussed the care rendered to several patients, and how their lives would be forever intertwined. He recalled the timeline of those presenting to the Role 2, and the chaos that ensued. He recounted how vivid the memories are and how we remember our losses much more vividly than our wins.

LTC Hardin closed with the following quotes:

“If a military surgeon has purpose, they will spend the rest of their life to get the chance to be in that position again.”

“Every decision you have ever made in your life has led you to this point tonight.”

A Letter received after the incident by LTC Hardin from one of his Mentors (Dr John Pryor)

“...So I will dispense with saying "you did your best" and "the injuries were not survivable" and say this. Don't give up. When you are tired, drink coffee and keep going. If you cut corners, don't look at the wounds, don't do evening rounds, your patients will suffer. Suck up all the emotion and reality when a soldier dies on you and use it as energy to forge ahead. They are relying on you are their last line of defense - you're the wall. I know you had no idea how serious this was going to be, none of us did before we showed up. But you have the experience and the skills to get it done.

You will not fail.

-JP

3). Train Like you Fight: STaRC Training (LTC Becker): Strategic Trauma Readiness Center of San Antonio- a great opportunity for the individuals to get their daily practice and experience in trauma and keep their skills up. Despite STaRC training being well embraced – there still does not remain a requirement for R2 team training and a secured funding source.

- -STaRC is holistic small team training course incorporating both tactical and clinical components for both the individual provider and the surgical team in an austere dynamic environment.
- -As the operational demand for austere surgical teams continues to grow, pre-deployment training incorporating fluid leadership, qualified peer-based facilitation and evaluation of performance, and tactical and clinical team based skills in CCC will be integral to ideal patient outcomes.
- -Standardizing a program such as STaRC into a Joint Forward Austere Surgical Team training program has the potential to aggregate Services' lessons learned and increase the efficiency and quality of this training.

Current State: Building trauma readiness requires a multi-modal approach that incorporates challenging, realistic, iterative, and battle-focused training. Surgical units currently struggle to replicate these conditions during Home-Station (HS) training for several reasons.

Future State: MHS transformation provides a unique opportunity to reorganize and innovate how we maintain surgical teams' deployment readiness. San Antonio has the ability to serve as the premier military trauma skills readiness platform with its comprehensive and holistic approach to training.

Phase I: Didactics and Labs

Phase II: BAMC Trauma Clinical

Phase III: Field Training Exercise



Strategic Trauma Readiness Center



What Have the Teams Done?

- Between May 2020 and Sep 2021, 9 teams and more than 140 individuals have been trained.
- Average training time per individual for each phase are:
 - Phase I: 5 days/40+ hours
 - Phase II: 6 days/64+ hours
 - Phase III: 6 days/66+ hours
- Over 20,000 ICTLs were reported with the mean per 10-person team of 1,712 (range 1,159-2,429)
- Mean completion of individual AOC/MOS readiness ICTLs was 80% (median 82%; mode 100%; range 40-100%)
- Mean number of trauma resuscitations per 10-person team at BAMC was 19 (range 14-24)
- Mean number of operative cases performed per 10-person team at BAMC was 4 (range 2-7)

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What is Next?

- Pilot phase ends JAN 2022 with USAR 848th FRSD.
- Long term (FY 24-28) planning through operational Council of Colonels and TGOSC: endorsed as a validated requirement but is unfunded currently lacking a bill payer.
- Short term (FY 22-23) planning with BAMC/RHC-C in the lead and involving coordination with MEDCOM, DHA, MEDCOE, and FORSCOM.
- To continue past JAN, the short and long term plans must have the personnel and equipment support for all three phases. This requires clear support among all parties.

Tadlock - Funding is the issue – Some Navy teams are funded differently...it is a requirement depending on the type of team you are...and it's not a Marine Corps Requirement.

Remick – The services have the tile 10 authority for trauma team readiness and has taken the lead and that's their "lane". This is why KSA are focused on individual clinical skills. It's all inter-related, but the team funding doesn't exist.

RDML Hancock – we have not done a great job on this. The line doesn't work the way the Medical SME are looking at this. We have to look at the Requirement, put a team together, and put them through a scenario and then prove to the line if this doesn't happen...people will die. To get the funding to do this we are going to have to have a collective effort that is validated to get the "joint money"

4). Moderated Group Discussion General Officer Presentations: (RDML Hancock/ BG Cox)

CAPT Drew introduces RDML Hancock summarizing his bio and extensive Military experience.

RDML Hancock – Opens with paying respect to the loss of CAPT Stockinger. Gives respect to Dr. Hardin after his very difficult presentation and the toll this job takes and to never be afraid to take time to heal yourself and get help and talk through what we do.

I have learned that it is never about being right, but being able to articulate our requirements to the COCOM and to Senior Leaders so they care as much as we do.

Have to document and prove and quantify...as much as I am not a fan of KSA's they are the best we have right now and it's our job to make them better...be in the military facility and force change (Lejeune)

I do not think Civ Trauma centers are the answer...Enlisted aren't permitted to go with providers to train. Our large Mil hospitals need to part of the Trauma system or we should close them. Don't be constrained but open up to the realm of possibility.

Words matter – GO's will say "we support the war fighter" ..I call BS! Medical is part of the war fighting team...survivability not support...we can be right sized but we are vital...we can never be cut! Make them integrate us into their plans! Be prepared to defend second and third order of effects because that's where the most casualties occur.

Our political landscape has changed because we haven't had large casualty populations of recent...the next conflict will not be the same. Have to articulate this in a fact based, non-emotional way...to include simulation like we have never seen before to prepare our POI providers to be better prepared for the worst.

COL Gurney thanks RDML Hancock and introduces BG Cox: BG Cox has deployed as a FST and Role 3 CDR and continued to lead as the current FORSCOM Surgeon.

BG Cox discussed FORSCOM surgeon perspective on the link between the Service components, DHA, and the combatant commands

- Training, currency, readiness
- Investments, expectations
- Keeping combat casualty care relevant in the interwar period

How to turn ideas into requirements

The three P's – we must be Present, Personable, and Professional.

Present – You have to insert yourself to the Line...they will not come to Medical SME. There is a shortage of "us" here in the room in the pipeline. We don't want to be in "Admin" but we have to identify and support those that are capable and willing of taking these things on.

Personable – Create inter personal relationships so you're the person they call and your name is known as the SME...throughout the Medical enterprise, not just in your own communities.

Professional – Embrace everything about your profession and how it impacts the Line. Learn how to get money and how the processes work.

If things aren't programmed, you may be able to secure funding, but it will not be a formal program of record.

Before any "team" goes down range a Medical Commander somewhere is briefing that these units are fully trained and fully capable and ready to go. This is mixed messaging...and has to be honest and transparent.

Medical tries to be special and often segregates itself from the Line mentality...can't have it both ways.

Floor is opened for questions from the CoSCCC to the GO Panel:

Schreiber – Portrays a scenario of civilian drug dealer getting better care than an injured war fighter because of amount of Trauma proficiency in a Civ Trauma center.

RDML Hancock – that’s a myth. In some metropolitan areas, but where MC bases are or rural areas, they will probably die because that’s not the case. But I think the real question is the point that training needs to parallel CIV trauma centers...but battlefield casualties are not equal to Trauma centers in the Civilian sector...quad amputation, CBRNE, DE blast etc.

BG Cox – agree we want access to the best care possible, but I believe that is happening by our Trauma System and its getting better every day. The services have recognized this...maybe slowly, but it’s improving.

Cunningham – Individual proficiency vs Team training...how do we get DHA to recognize the importance of “Team Training” like platoon, squad training for combat readiness?

RDML Hancock –Define Team? Ideal Team Training is not realistic and fraught with difficulty. The goal we should try to get to is a System of Care. Interoperability and similarity across the services...everyone familiar and trained to the “Best” standard set by the JTS.

BG Cox – Some misconception that the line does this...they often spend a lot of time doing collateral duties...gate duty, motor pool etc. I think we actually do a sufficient amount of Team/war fighting function...it’s just not practical until identified to deploy.

Hall –Closing MTFs that are not Trauma Centers...Eglin and I tried to integrate into Level 2 but resistance. How do we get a Team aspect integrated into a local CIV Trauma System?

RDML Hancock – Million \$\$ question...but it’s not going to happen in an overnight situation. That hospital CEO is losing \$\$ but not losing \$\$ on OBGYN, PEDs etc...this is where we say we as an enterprise want to transition and this is how we’d do it. A true partnership integrating Mil to the Civ centers as well as Civ systems integrated into our system in the areas “we exist”.

BG Cox – Money is always the issue because DHA wants their money to manage an MTF and will not pay salaries for their employees to work elsewhere. It will require funding approval and that’s a huge hurdle. International partners have had success so not out of the question.

Holcomb – Trauma generates a lot of money that’s why they don’t want to integrate or “profit share” The quality of care and outcomes is more important than measuring KSA. At the highest Trauma centers we don’t count quantity, we monitor outcomes weekly with a continuous string focus on outcomes and if not meeting marks they get fired and we don’t have that in the Military.

Trauma center “Team” needs approx. 2K admissions to meet expectation...those other 51 MTF’s need to transition and change focus. I challenge the GO’s to look at these vs KSA’s because they don’t talk about any of this.

RDML Hancock – “assumption” is that the quality exists...and we know that’s not true. Strategically look at where we are at and where we allocate resources and communities with highest potential ROI from a training aspect...but remember KSA are a starting point...all in agreement they are not the end point.

BG Cox – I agree we are starting to measure something even though I too am in agreement the KSA are not the answers.

Gurney – how do we balance clinical proficiency and this Leadership pathway you allude to?

BG Cox – I said go do it for a couple years and go back to clinical proficiency. It's ok to take a break to advance your career and understand and impact change.

Remick – KSA are happening, so the real question is how to we shape them to get MHS where we need them/want them?

RDML Hancock – Fully understand where we have sets and reps and quality and understand how to reshape the Reserves, right size the force.

Namias – Only way to make proficient Trauma surgeons is to practice Trauma. Why can't you just pull surgery out of the hospitals and send all to an imbedded network. Make Money a condition of CMS if they want partnership.

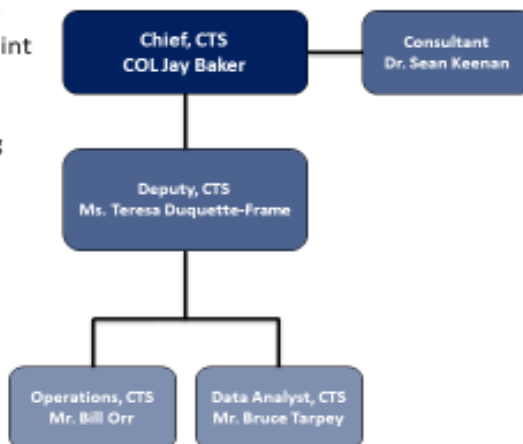
RDML Hancock – issue is meets a portion of the team but not includes ancillary Trauma support services, blood, x-ray, lab etc.

6). CCMD Trauma System – Planning for the Next Fight: (COL Baker): COL Baker opened with the intent of the CTS: Combatant Command Trauma System (CTS) maintains a constant framework of core functions and capabilities during Phase 0 operations IOT be prepared to provide optimal care for trauma and other casualties with ability to rapidly scale to meet CCMD requirements during contingency operations.

CTS Branch



- Major Focus: Support the CCMDs in their development and implementation of a joint casualty care system (JCCS)
 - With a goal of integration into CCMD level operational planning, exercises and training
 - Current and Future Projects:
 - ✓ Complete Table Top Discussions with CCMDs
 - ✓ Prioritize Trauma Program Manager (TPM) Position
 - ✓ CTS Orientation Course (in development)
 - ✓ Design and Develop CTS Assessment Template
 - ✓ Functional Review & Analysis for CTS Branch Requirements



Unclassified

8

Internal JTS Partners for CTS



DCoTs: Provide Subject Matter Expertise to Support the Mission of the Joint Trauma System (JTS) to Improved Trauma Readiness & Outcomes through Evidence-Driven PI.

- Committee on Tactical CCC
- Committee on Surgical CCC
- Committee on En Route CCC

DMRTI: Tri-Service Organization for Joint Medical Readiness Training Courses

JTET: To Ensure Armed Forces Combat Casualty Care Personnel Maintain Readiness & Able to Deploy Rapidly for Future Armed Conflicts.



PI: Employs a systematic approach to determine acute & long-term outcomes of all casualties, the quality of care, improvements in prevention & treatment and logistical implications.

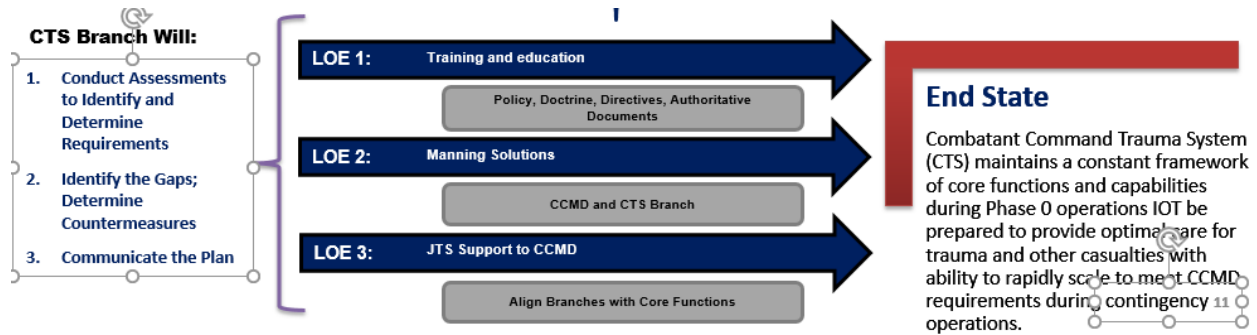
DA: Data Collection Tool to Support PI Initiatives with Global Collection and Aggregation of Combat Casualty Care Epidemiology, Treatments and Outcomes.

DE: Manage Raw & Analyzed Data Requests

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9

COL Baker outlined the 12 core functions and the top three Lines of Effort of the CTS Branch. The JTS needs to absolutely support the CCMDs and implement PI.



CTS Core Functions

- Address the Full Spectrum of Casualty Care
- Establish Authority to Enforce Standards
- Establish Multidisciplinary Advisory Group
- Conduct Trauma System Planning
- Verify Readiness
- Provide Infrastructure Support
- Collect & Analyze Data
- Ensure Patient ID & Confidentiality
- Monitor Performance
- Establish Research Capability
- Ensure Preparedness
- Facilitate Interoperability & Cooperation

Gurney – Implementation of the CTS is a robust PI system that saves lives and improves operational performance. Constant feedback loop and PI is the foundation for this; basic PI is foundational to any trauma system.

Baker – expand the system and communicate to the Line that it’s not just about chest tube placement in CENTCOM because in SOUTHCOM what’s going to happen is a dive injury...these need to be included into the CCMD CTS.

Shackelford – We are working on a huge initiative on human performance concept. We can build off of this, what we are working on is System Performance...using this prior understanding as a spring board.

Remley – Tasks are closed and are very open ended, often without follow up. How do we close these tasks? What are the metrics measuring success of these task decisions? They seem to me to get “closed” but what happens after that? How does it translate to proficiency and outcomes?

Gurney – CTS decision points? How does the DCoT integrate with CTS since Operational subcommittee has fizzled out?

7). Hot Topics Discussion - Blood: (COL Schreiber/ Dr Jenkins) – **Low Titer O Whole Blood.**

Purpose: The hot topics session is designed to discuss emerging clinical or scientific evidence and highlight new literature and to discuss the potential for adopting care paradigms in the CCC environment.

COL Schreiber gave his perspective and Lessons Learned during Whole Blood Research in Portland, Oregon. Our experience and how we use it and what our results are. These results are not as “rosy” as Dr. Jenkins in the San Antonio Region.

Study Outline:

- Program started July 9th, 2018
- 20 units provided per week
- Whole blood provided by the American Red Cross (ARC)
 - Low titer Ab to A and B (< 200)
 - Mixture of Rh + and Rh –
 - **Leuko-reduced with platelet sparing filter**

Distribution:

- 486 trauma patients
 - 2079 units (4.3 units/pt)
 - Range 1 – 44, 12% \geq 10 units WB)
 - 1 documented transfusion reaction
- 312 non – trauma patients
 - 1288 units, (4.1 units/pt)
 - range 1 – 41, 13% > 10 units WB)
 - GS, Med, OB/GYN, Cardiac

Whole Blood defined:

- Warm fresh whole blood – Transfused immediately or stored up to 8 hours at 22C. Can be stored an additional 24 hours at 4C.
- Cold whole blood – Stored at 1- 6C
 - Fresh if transfused within 48 hours
 - CPD, CP2D – Stored up to 21 days
 - CPDA – 1 Stored up to 35 days

I had it in my mind that all blood was good and equal...but quickly learned not all blood is created equal. We implemented a “Resource Nurse”.

TABLE 2. Quantity of Blood Products Administered Within 24 Hours of Presentation by Cohort

Units of Blood Products Median (IQR)	Component Therapy Only	Received WB	<i>p</i> Value
	n = 83	n = 42	
WB Units	—	6.5 (3–11)	—
RBCs	6 (3–12)	4 (1–8)	0.003
FFP	5 (2–10)	4 (0–6)	0.01
Platelets	0 (0–2)	1 (0–2)	0.2
Cryoprecipitate	0 (0–0)	0 (0–0)	0.9
Total bags of product	12	18.5	0.19

More bags of product...anti-coagulated product...without improved survival based on the survival curve of Whole Blood vs Component Therapy. It's not a survival bias.

Conclusions:

- No survival benefit
- No increase in efficiency
- Reasons?
 - Leukodepletion?
 - Storage lesion on coagulation?
 - Others?

Dr. Jenkins gave his perspective and Lessons Learned during Whole Blood Research in San Antonio, Texas.

Study Outline:

- 22 Counties covering 26,000+ sq miles
- Population 2.5M
- 4hr drive end-to-end @ 80mph

Distribution:

Prehospital Cold Stored O+ Whole Blood in San Antonio

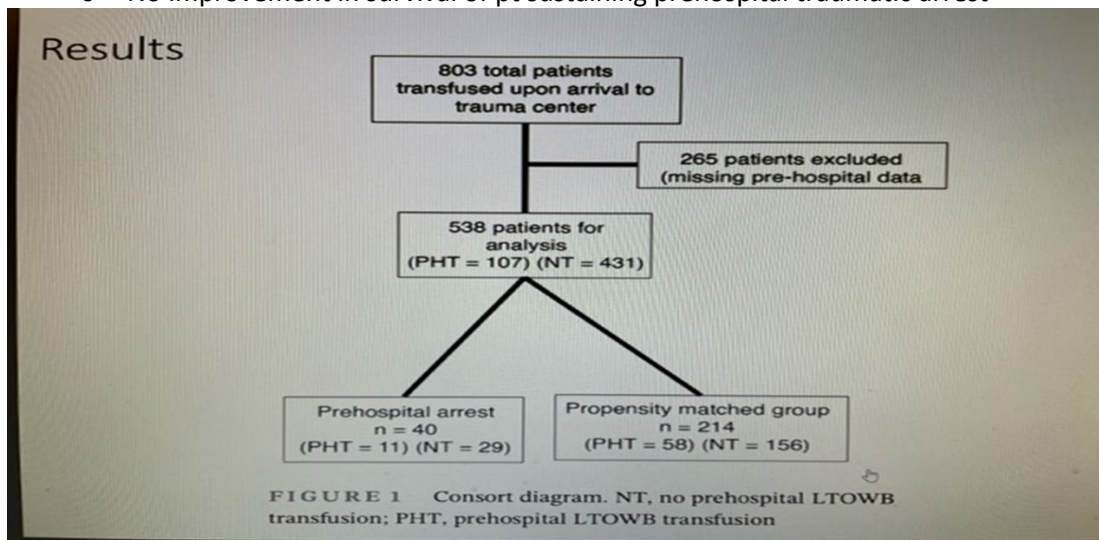
- Kicked off January 29 2018
- 18 helicopters
- 2 units each
- Mayo criteria for transfusion
- Women of child bearing potential not excluded—Rh isoimmunization risk versus bleeding to death
- Children 5 years and older

Discussion:

- LTOWB was associated with less hospital crystalloid
- PHT had lower ISS but were physically worse as defined by SBP and shock index.
- PHT associated with significantly lower transfusion requirement upon arrival
- PHT is associated with a lower incidence of traditional MT

Conclusions:

- January 2021 3 year anniversary
- 950 pre-hospital patients
- Prehospital LTOWB is associated with:
 - Greater correction of physiologic deficit/shock burden
 - Reduction in ED mortality for pt in prehospital shock
 - No improvement in survival of pt sustaining prehospital traumatic arrest



Cap – How you use the blood is very important. Leuko-depletion studies have been done...show that it is basically a different product and the ASBP does not do it. LTOWB push was for pre-hospital use, but every product can have a place.

Gurney – Deployed HEROES study going back to DoDTR and ASBP aggregating data base and be able to answer these questions...can answer and inform whether LTOWB is logistically feasible.

Working Group Lines of Effort – Members broke into three breakout sessions for Committee Deliverables

- Single Surgeon Team Consensus Statement
- Neurosurgeon Requirement for Role 3 Position Statement
- Trauma Lexicon Review/ ARSC OPG Discussion

ADJOURN 1645

Day #2 CoSCCC November 4th, 2021

Time	Presentation	Speaker	Topic and Intent
0700	JTS Combat Casualty Care Conference		
0800	WG Brief backs (10 minutes each) -- Discussion Gurney / Jensen		
0845	Deployed Surgeons Perspective	Buzzelli / Lynch / (How)	HKIA MASCAL: multinational, multiservice perspective
0915	Deployed Surgeons Panel and Discussion	Buzelli / Lynch / Hardin / Wanek	Discussion on recent deployments and any LL
0940	BREAK		
1000	Between the Devil and the Deep Blue Sea:	Tadlock	A Review of Naval Mass Casualty Incidents and need for medical planning factors
1020	Medical Direction	Cord Cunningham	What is Medical Direction? Why should the CoSCCC care?
1040	What are the Gaps (Medical Direction /NAVY/PCF)	Group Discussion lead by Tadlock/Cunningham	
1210	CCCRP Perspective	Polk	Where are research dollars being spent
1100	Red Book Update, Draft Revision	Gross	Review Red Book Draft / Assign additional WG members / Review Due Outs
1140	Tactical Medical Research Gaps	Cap	What happened to FDP? Should we test TQ/Bandages? Perspective on CCC Research
1230	Group Discussion on Research Gaps and Where CoSCCC should have an impact	Discussion led by Schreiber / Holcomb	
1315	BREAK (need snack – or break for lunch and have short afternoon)		
1330	Next Meeting Planning	Jensen / Dom / Gurney	Dates / Ideas / Themes
1400	JTS Director /SEA Concluding Comments	Shackelford / Remley	

1). Administrative Remarks (CDR Jensen): CDR Jensen, the Chair of the Committee on Surgical Combat Casualty Care (CoSCCC), convened the meeting with a brief review of the meeting's agenda for the day.

2). Working Group Brief Backs: Focus is to put our names (CoSCCC Membership) on these lines of Effort.

Single Surgeon Team Statement - LtCol Hall disagrees.

Tadlock states DCoT should be consistent as a “Body” across all three committees. Gurney states intent is to “List” membership at end of CPGs that have been voted on by the entire committee.

Holcomb – I can see both sides of the argument. We want to establish this “Body” of the committee as the “author” of the statement, who is our intended audience and should the names be important. I don’t think the names are as important as the collective group.

JP 4-02 and Trauma Lexicon – COL Cunningham briefed the discussion on the WG discussion.

Kotwal – important from a Research/Communication perspective to ensure EVERYONE can interpret what is being said.

18 terms were discussed. Terms were adjudicated and will be circulated across the DCoT for agree/disagree...some needed more discussion.

This task is designated to the Secretaries and is that inclusive of all the critical war time specialties...we may not have the authority and/or purview.

Neurosurgeon Role 3 Statement – Consensus statement on Neurosurgical assignment

1. Decline in AD service members (Neuro surgeons)
2. Differences in service deployments/billets
3. Number of cases seen when deployed
4. Concern about how we view CPG non-neurosurgeon Craniotomy

WG decided on 5hr marker as DoDTR showed outcomes were improved with Severe TBI arrived within 5hr of initial injury.

- Defined capability requirement
- Risk needs to be incorporated to meet optimal capability/requirement (DoDTR data)
- Caveat for Gen Surg/non-neuro specialty

Jensen – attrition and inability to have enough Neurosurgeons?

Gurney – Just needs to state “Joint Capability”

2). Recently Deployed Surgeon (COL Buzzelli/Col Lynch): From Craig to Chaos – How did we end up at HKIA?

- Decreased Staffing
- Retrograde
- COVID
- Government of the Islamic Republic of Afghanistan (GIROA) handover
- Transition to HKIA

Key Dates

15May- R2 HKIA to be sole remaining medical facility

- 4June-1st US Surgical Teams arrive at HKIA
- 16June-Last Afghan pt moved from CJTH to HKIA via CCATT
- 29June-CJTH/BAF turned over to GIRoA
- 1July-GST moved to USEK-SOCO to establish DCS capability
- 5Aug-USEK begins construction for on-site hospital
- 15Aug-Fall of Kabul to the Taliban
- 22Aug- 1st "MASCAL" event
- 23Aug-Orphan flights begin
- 24Aug-Increased threat Intel
- 25Aug-Turkish forces depart Afghanistan
- 26Aug-Suicide Bomber at Abbey Gate
- 30Aug-US Medical teams depart



Role 2 HKIA 15-30Aug



U.S. AIR FORCE

8 Surgical Teams

- 936th FSRST
- 455 EMDG
- AFSOC SOST x2
- JSOC SRT x2
- British Surgical team
- Norwegian SOST(26Aug only)

Other Units on HKIA

- Navy Shock Trauma Platoon
- 274th FRST
- German Surgical Team
- Italian Surgical Team

HKIA MTF Aug 15-Aug 26:

- 187 patients evaluated
- 45/187 (24%) Trauma patients
- 147 orphans evacuated



Distribution A: Approved for public release; distribution is unlimited. Case Number: 88ABW-2014-0664, 24 Feb 2014

8

HKIA capabilities

Beds:

7 ICU Beds – can flex to 10 ICU beds

14 Ward Beds– can flex to 36 beds

Operating Rooms:

2 Operating Rooms – flex to 2 pts per room for a total of 4 – rehearsed with walkthroughs

Blood bank:

Par level 100 unit's whole blood

Aug 15-Aug 30 – whole blood levels >120units



HKIA MASCAL Aug 26, 2021



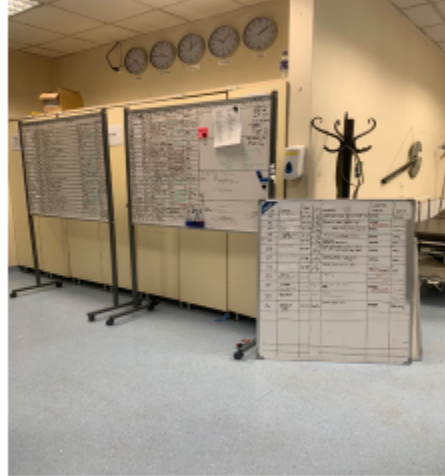
1740: Suicide bomber at Abbey Gate

8 trauma teams, 7 trauma bay beds
196 units of whole blood
7 units of platelets
9 units FFP
2 current inpatients

1752: First patients arrives

- Wave 1: 1752-1930 – 36 patients
- Wave 2: 2026-2241 – 23 patients
- Wave 3: 0000-0700 – 3 patients

0700 Aug 27: Last patient arrives



Distribution A: Approved for public release; distribution is unlimited. Case Number: 884BW-2014-0964, 24 Feb 2014

23

Patient Numbers

- Total patients seen in hospital (including dead on arrival) = 68
- Total patients seen in hospital for/during incident = 62
- 30 US patients, 32 host nationals seen total

COL Buzzelli briefed on the Deployed Surgeon Experience for the HKIA MASCAL

“Wrong time Wrong Place, but The Right Team for the Task”

Is there a way for this committee to reverse engineer the team concept we had based on the success we experienced in a MASCAL situation.

Discussion Topics

Who put this team together? I still don't have a clear picture of how we all got there...the units that came down range...were they dictated by decisions back home?

- MEDCOM / Consultants
- FORSCOM
- CENTCOM
- U.S. Forces - Afghanistan
- Task Force - MED
- NATO / Coalition Partners

Cordoni – Joint Chiefs will validate and then decide which MILDEP takes on the assignment...9/10 will come to FORSCOM we also have 2 FRSD/ERF and are on 72hr recall and used on almost every rotation and reconstitute for another potential mission (Airborne)

Buzzelli – this should be a process that the TMD needs to understand because I didn't have eyes on when I was TMD.

Sonka – ERF showed up without medical equipment both times I have seen them deployed. If it's not prioritized for the mission...was 274th supposed to be the last boots on ground..? Were they supposed to have equipment?

Buzzelli – Team was broken up and separated from equipment...medical equipment was not prioritized.

Baker – There was a tactical reason that cannot be discussed.

Jensen – We may already be in the walker dip as far as triage. People have not done this type of care in the last 3-5 years. How do we capture the Lessons Learned?

-How did you do Triage?

-Capture that data and disseminate the findings

What can we do to improve military medical planning?

Is there a future role for the Combatant Command Trauma Medical Director?

3). Prehospital Medical Direction and EMS (COL Cunningham): COL Cunningham opened by discussing three most important aspects of the topic:

- Field Triage

-Evidence has shown that time to intervention and system increase survivability

-pre-hospital AEMS Subspecialty fellowship focusing on 1&2

EMS Physician Practice



-
- EMS ABMS recognized in 2010 DoD fellowship ACGME 2012
 - “Provide physicians with proficiency in managing the breadth of clinical conditions and operational aspects encountered by EMS systems in non-traditional healthcare settings.”
 - “Initial identification and treatment of emergency conditions with limited resources in uncontrolled circumstances.”
 - Examples of difference from general EM practice extrication, airway management in challenging settings, and field triage
 - “Understand and perform effectively in air medical rescue and transport operations.”
 - Mass gatherings, mass casualty situations, all-hazard disaster and catastrophic events, and public health emergencies
-

“Medically Ready Force...Ready Medical Force”

4

Pre-hospital providers have this constant battle with “license” “certification” etc. What is your scope of practice?

- Phase I and beyond recommends Prehospital Medical Director licensed physician (optimally EM fellowship trained in EMS) a PA or Trauma RN with similar qualification may serve as substitute

JROCM Task 16 – pulled over some Transport System air and ground governing bodies ACS, ACEP, NAEMSP, USTRANSCOM etc. to make up a board of review to recognize the importance of Medical direction.

Is it just administrative or is there another aspect of the “retrievalist” where EMS trained are on Ambulances and the survival difference with advanced provider at POI.

Cap – There is an installation EMS program being stood up...improving safety of course a top priority, but the larger picture is train as you fight.

Cunningham – FORSCOM installation MEDEVAC practices were identified as needing leverage what we have and enhance our transportation system to “train as we fight”

Gurney – PI process to give them metric feedback to motivate them to send more info and continue the communication loop.

Remick – Sustainment for LSCO this is a must. KSA for EMS need to be incorporated.

4). CCCRP Perspective (CAPT Polk): CAPT Polk briefed on the current status of CCCRP and goals to enhance LSCO.

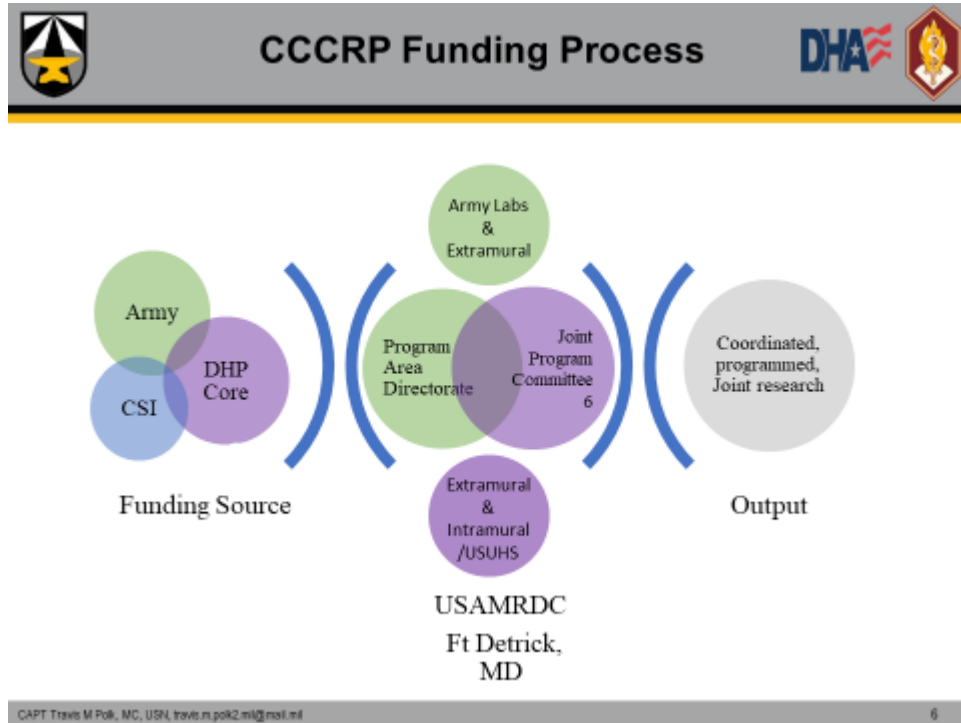
Mission: Drive medical innovation through development of knowledge & materiel solutions for the acute & early management of combat related trauma including point of injury, en-route, and facility based care

CAPT Polk highlighted the DCoT Charter language and the JTS relationships with CCCRP and how DHA-PI 6040.05, Jun 2020 provides translation of DHP funding.

The Defense Committee on Trauma will:

- Make DoD trauma care delivery policy-related recommendations to the Assistant Secretary of Defense for Health Affairs (ASD(HA)) and the Service Surgeons Generals through the Defense Health Agency (DHA) Director and provide trauma subject matter expertise across the DoD.
- Develop, approve, and review Clinical Practice Guidelines (CPGs), and make recommendations to the Chief, JTS, regarding needed changes and gaps.
- Review current training and sustainment programs *to identify gaps, and recommend specific modifications, based on existing combat casualty care research findings and the most up-to-date state of the science* and proven medically-related tactics, techniques, and procedures.

- *Inform the DoD Medical Research, Development, and Acquisition Enterprise on current research and performance capability gaps* that can be addressed with research, materiel, and training solutions.

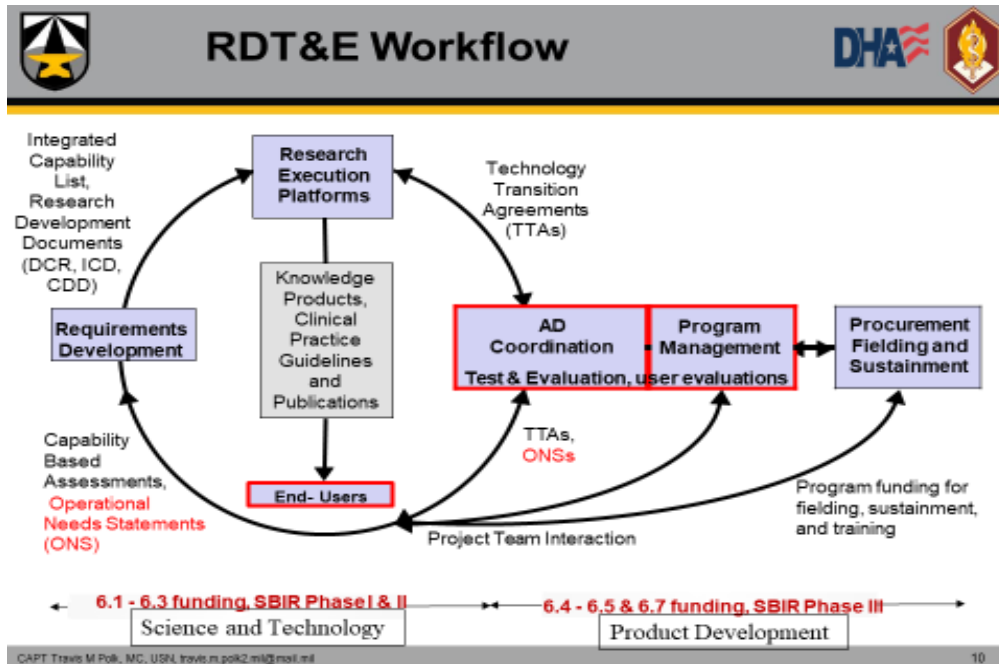


Meyer - Integrate JTS and SME and how do we translate that into Army/DoD processes and how to prioritize?

- standardized processes exist
- requirement and funding are separate
- prioritize research to help inform decisions
- identify critical places to engage/focus

Remley – JTET falls under JTS and DoDI have responsibility to services to standardize content for curriculum...how do you see that relationship maturing overtime and integrate to educational content for the services to build from?

Polk – JPC-1 is now targeted towards the information space. A decision was made to divest from the simulation Research world. On the Education side it exists, but in terms of simulation research the investment has decreased and targeted towards to specific aspects of skill sustainment.



Way Forward:

Recommendation:

Establish a combined DCOT Research and Technology Committee that spans across all three committees (CoTCCC, CoSCCC, CoERCCC)

Committee responsibilities:

- i. Formal research gap analysis/update biannually
- ii. Coordination with OJSS, CCMDS to address emergent research priorities
- iii. Generate letter following each meeting to CCCRP and/or other relevant research entities with any critical research gaps/priorities identified
- iv. Review knowledge products upon delivery from research partners to determine appropriate use (incorporation into CPG, recommendation for additional research, etc.)
- v. Provide quarterly journal watch and make recommendations when appropriate if new literature is located
- vi. Make recommendations for test and evaluation of products when appropriate.
- vii. Develop platform research capability for future C3 studies with CTS.
- viii. Establish implementation science capabilities for JTS products/systems

5). Tactical Medical Research Gaps (COL Cap): COL Cap briefed on the Transformational Change in Combat Casualty Care Research highlighted by the decreased time to surgery & early blood transfusion save lives.

COL Cap reviewed some of the most important product developments over the last 20 years.

1. Combat Application Tourniquet
2. Cold-stored Platelets
3. Low Titer Type O Whole Blood

4. Damage Control Resuscitation
5. Combat Gauze Dressing
6. Burn Navigator System
7. Freeze-Dried Plasma
8. Compensatory Reserve Measurement
9. In-flight ECLS (ECMO & CRRT)
10. REBOA

Military doctrine is shifting away from counter-insurgency operations in Iraq and Afghanistan to: Large Scale Combat Operations (LSCO) in a Multi-Domain Operating Environment (MDO).

Afghanistan / Iraq: Improvised explosive devices Small arms, mortars, RPGs → **Low casualty density, rapid evacuation to surgery**

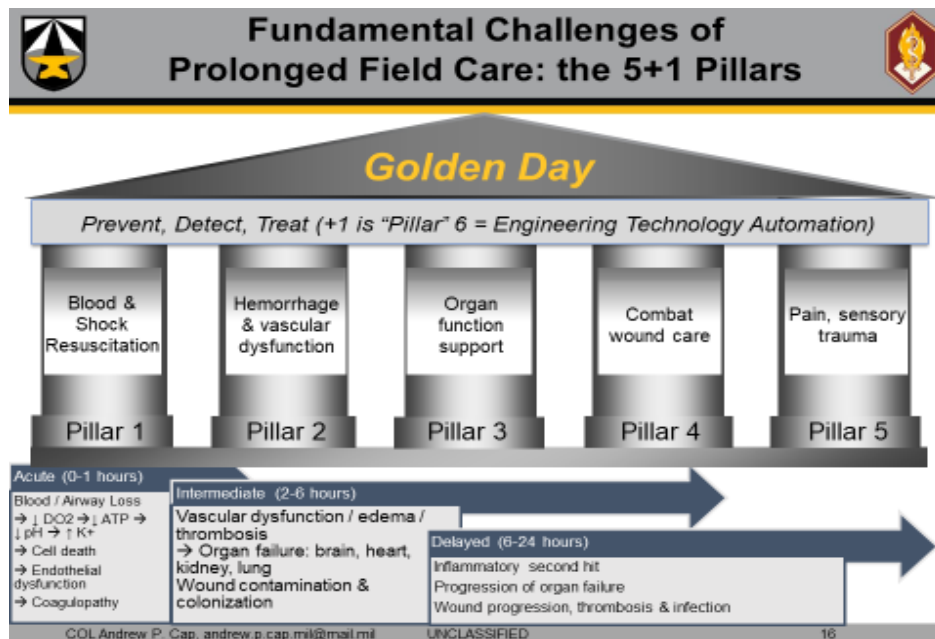
Russia / China: Sophisticated / lethal weapons, contested air → **High casualty density, delayed evacuation to surgery**

How are we going to preserve recent gains in battlefield survival without rapid access to blood & surgery and increased casualty volumes? **WE CAN'T KEEP DOING WHAT WE'VE BEEN DOING FOR 20 YEARS**
.....WE NEED BREAKTHROUGHS!

Goals:

Extend pre-hospital survival window from the 'golden hour' to the 'golden day' for as many as possible using new approaches:

- Keep tissue viable and not infected to allow functional recovery
- Prevent organ failure if possible, treat optimally if needed
- Control pain
- Keep Soldiers in the fight



CCC Literally working on DOZENS of EFFORTS

- **Blood products:**
 - **Cold-stored platelets (2016):** multi-apheresis, storage solution, shelf life, adaptive, multi-site cardiac surgery trial with companion lab assay study (\$15M+)
 - NB: FDA already granted variance (2019) for storage to 14d
 - **Cryo-preserved platelets (1972)** (requires storage at <-65°C, thaw; shelf life maybe 2 yrs): new manufacturing process by Cellphire, multi-site cardiac surgery trial (\$20M+)
 - **Lyophilized platelets (2005)** (Thrombosomes, Cellphire): early phase trials for safety; will require bleeding trials as above for efficacy; mostly BARDA with some DOD funding (>>\$20M in recent years)
 - **Dried plasma (2005?):** Teleflex (still at least 18 months out... again), Terumo BCT (theoretically ready for Phase 1 trial), Velico (spray-dried; further out...)
 - **Blood pharming (2005?)** (RBCs, PLT): several early stage efforts...
 - **DARPA “synthetic WB” (1980s):** combo of several early stage efforts...
- **Hemorrhage control:**
 - New bandages: CounterFlow (TXA/Ca2+/thrombin) is interesting...
 - Foam!
 - Partial REBOA: now in clinical use; promising extension of REBOA utility (from 30 or so min balloon time to maybe 2 hours?)
- **TBI:**
 - Diagnostics, drugs (3 re-purposed candidates in adaptive platform trial)
- **DIAGNOSTICS:**
 - Xray, US
 - Sensors, medical informatics (DSS, documentation, etc.)
- **EQUIPMENT:**
 - Litters, instrument, sterilization, fluids

Meyer – JTS needs to be strategic in how we engage and influence and where we focus efforts.

-rethinking how we communicate across DoD and how requirements are developed (CDID)

-system based not “widget based”

-Integrated Product Team and user touch points

-clinically meaningful

Schreiber – We need to establish clear direction how our committee recommendations get action? And how do they get implemented.

-Formal process for implementing research effort recommendation

-TBI is underrepresented in Research Gaps (maybe the biggest problem for warfighter)

-KSA controversy ...what is the legitimacy? Why are we not studying it?

-outcomes vs procedures

-does higher KSA = comfort range for deployment?

Meyer – TBI is one of the highest priorities in DoD. Intramural, extramural and across the DoD not even including TBI CoE.

How do Research actions get funded? – It's not just CAPT Polk...we are making those decisions currently for 2024-2029. The decisions for the next 3 years were made years ago. Money can be shifted, but hard to do and must align with National Defense Strategy and where the DoD is focused. LSCO, Multi-domain etc.

****Most influence can come from planning and being prepared for long term Research directions...and Lessons Learned to transform new scenarios. ****

Cap – TBI research is at the resuscitation/systemic level. Programmatic reasons TBI lives in other institutional arenas.

Marion – NDAA 18 war fighter brain health and blast injury. Huge enduring effort for blast effects short and long term... DE and Havana syndrome and support individual programs at TBICoE for clots, burr hole devices etc.

Loos- have to remember no matter how great the product is, if we can't implement it on the ground or allocate training dollars...it will never reach the casualty.

Gurney – how is it being measured at the ground level?

6). Between the Devil and the Deep Blue Sea (CAPT Tadlock): CAPT Tadlock briefed on the current status of USN Maritime Surgical Teams; ERSS- Expeditionary Resuscitative Surgical System; and Maritime Blood Capabilities

11 Aircraft Carrier (CVN)

- 1 Surgeon - 1 Anesthesia Provider
- 1 CCRN - 1 OMFS
- 2 Surg Techs - 1 OR
- Not designed to be a casualty receiving ship, surgical capabilities are for on board emergencies.

9 Large Amphibious Assault Ship (2LHA/7LHD)

- No Organic Surgical Provider/Team
- Usually deploys with embarked 16 person Fleet Surgical Team (1 surgeon)

-Air Craft Carrier: WBB only

-LHA/LHD: 400 RBC's, 40 FFP, +/- Platelets, WBB

1 Technician and 4 cell washers can deglycerolize 96 units of frozen RBC's in 24 hours

-ERSS: What you can carry

-Role 1 Cruisers/Destroyers: No Formal WBB capability

"A key aim of Defense Maritime Operations and Expeditionary Advanced Base Operations is to improve the ability of the Navy and Marine Corps to counter China's improving maritime military capabilities."

Individual components of the naval force will be more geographically dispersed & sometimes isolated

Role 1 and Role 2 afloat medical and surgical teams supporting DMO will have to provide prolonged care of injured and acutely ill patients in austere maritime environments.

The following publication focuses on ****Identify Clinical and Training Lessons Learned to Prepare Forward Deployed Caregivers for future DMO****

2021 MILITARY SUPPLEMENT

Between the devil and the deep blue sea: A review of 25 modern naval mass casualty incidents with implications for future Distributed Maritime Operations

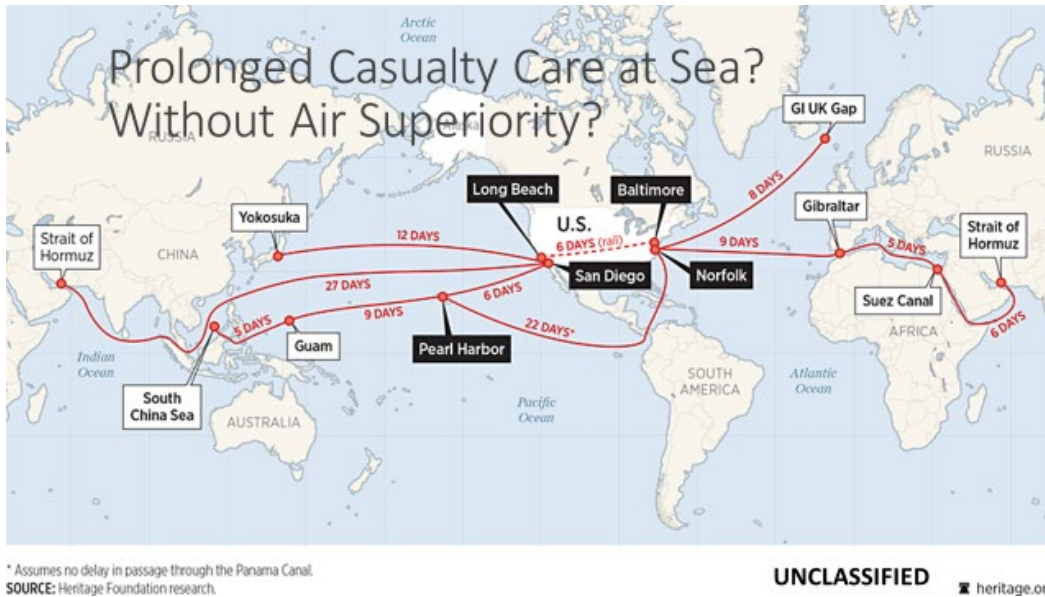
CAPT Matthew D. Tadlock, COL Jennifer Gurney, CAPT Michael S. Tripp, COL (Ret) Leopoldo C. Cancio, CDR (Ret) Michael J. Sise, CDR Jesse Bandle, CAPT Miguel Cubano, ENS Joseph Lee, LCDR Matthew Vasquez, and CAPT (Ret) José A. Acosta, San Diego, California

CAPT Tadlock briefly discussed some major Maritime attacks on Naval vessels, injuries, cause of death, and characteristics of Mass casualty incidents.

Injury Type	WWII (32) (N=4529)	Falklands War (N=516)	USS Stark & Cole (N=58)	Non-Combat (N=223)
Penetrating	39.2%	52.3%	6.9%	----
Burns	26.1%	21%	15.5%	4%
Soft Tissue Injures	7.6%	----	41.4%	21.5%
Fractures	6.8%	----	24.1%	4%
Concussion/TBI	4.5%	----	17.2%	5.8%
Asphyxiation/ Inhalation	1.1%	15.5%	10.3%	----
Amputation	0.6%	----	0%	0.5%
Immersion/Hypothermia	0.2%	13.4%	8.6%	----
Aspiration (Fuel, Water)	----	----	----	1.8%
Other Minor	----	----	----	35.9%

Injury Patterns and Clinical Skills Required in Maritime MCI:

- CRITICAL CARE
- BURN
- TRAUMA
- PROLONGED CASUALTY CARE
- WALKING BLOOD BANK
- STORED WHOLE BLOOD
- *TCCC



Conclusions:

- DMO is Now
- No surgical capability without appropriate blood product resuscitation
- Despite several doctrinal improvements in NHSS, Deployment Relevant Clinical Skills Sustainment & Replenishment is a gap

7). Red Book Draft Revision/Update (COL Gross/COL Gurney): This Line of Effort was conducted outside the confines of the Committee Meeting and will be briefed and disseminated at conclusion of adjudication.

Committee Due Outs:

1. Monthly/Quarterly Subcommittee Updates (Dial-in)
2. Feedback Survey Intelink
3. JP 4-02 Trauma Lexicon review
 - i. Disseminate to entire committee for review and input
4. Consensus Statement “Single Surgeon”
 - Gavitt
 - Seery
 - Tadlock
5. Neurosurgeon Summary Slide/Vision Statement
 - Dirks/Bell/Berg
6. Establish Research Subcommittee for DCOT.

Closing Comments (CDR Jensen/COL Gurney/Mr. Sestito):

Col Shackelford – Discussed the importance of the Stakeholder Report. Great outcomes are based on a medically ready force...and a ready medical force. Tie everything back from unit, MTF etc to sustain our expeditionary medical skills to maintain our forces.

- Meeting Proposal to be in-person April 2022 Dates TBD
- Topics for next Meeting to be e-mailed to CoSCCC Leadership
- increased inter-meeting correspondence and determination of next agenda

Shane Jensen, MD, FACS
CDR, MC, USN
Chair, Committee on Surgical Combat Casualty Care

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

Enclosure (1) – Meeting Attendance

JTS Staff:

Col Stacy Shackelford (JTS Chief)
MSG Michael Remley (SEL)
Dr. Mary Ann Spott (JTS Deputy Director)
Mr. Dallas Burelison (JTS Chief Administrator)
COL Jennifer Gurney (DCoT Chief)
CDR Shane Jensen (CoSCCC Chair)
COL Brian Sonka (PI Chief)
Cord Cunningham (ERCCC Chair)
Harold Montgomery (TCCC)
Mr. Dominick Sestito (SCCC)
Mr. Tom Rich (ERCCC)
Dr. Russ Kotwal (Spec Projects)
Liz Mann-Salinas (PI)
Larry Crozier (PI)
Laura Runyan (PI)
Andrea Sotelo (PI)
Curtis Hall (JTET/PUBS)
Dr. Sean Keenan (PFC)
Linda Martinez (PI)
Danielle Davis (CoTCCC Admin)
Lisa McFarlan (PI)
Katherine Robbel (PI)
Kenneth Leffler (PI)
Kimberly Smith (PI Lead)
Teresa (Teri) Duquette-Frame (PI)

Jay Sampson
Jennifer Trevino
Joe Kotora
Keith Jackson
Kirby Gross
Kyle Remick
Margaret Morgan
Mark Buzzelli
Martin Schreiber
Matt Eckert
Matt Tadlock
Nicholas Namias
Obie Powell
Paul Allen
Paul Loos
Peter Learn
Rich Lesperance
Sandra Wanek
Ted Edson
Thomas Brockmann
Travis Polk
Tyler Scarborough
Tyson Becker

CoSCCC Attendance

Amanda Staudt
Andre Cap
Andrew Hall
Ana-Claire Meyer
Brian Eastridge
Brian Knipp
Brian Gavitt
Bruce Lynch
Chris VanFosson
David Hardin
Don Jenkins
Donald Marion
Eric Verwiebe
Jason Corley