



JTS Works to Bring Walking Blood Banks to Point of Injury

JTS is working with the Armed Services Blood Program to develop guidelines for pre-deployment whole blood donor screening for the Military Departments (MILDEPs) and the U.S. Marines in accordance with DoD Instruction (DODI) 6480.04 Armed Services Blood Program (ASBP), 07 Jan 2022. The effort reinforces the importance of Walking Blood Banks (WBB) to battlefield care and the need to standardize screening and execution of these blood banks.

DHA selected JTS to spearhead the effort with a Donor Screening-Walking Blood Bank Working Group (DS-WBB WG) for the task because of its work in educating and training Service Members in battlefield care and prolonged field care. The DS-WBB WG is comprised of DHA/MHS officials and members of Air Force, Army, Navy, Marines to reflect the joint service nature of the initiative.

Blood transfusions have been a crucial component of acute care for well over a century. The development of blood banks during World War I was a colossal leap forward for medicine at large, and military medicine in particular. Unfortunately, the chaotic conditions of combat makes securing adequate supplies of whole blood a challenge. Safely transporting and storing whole blood (as well as the necessary transfusion equipment) is difficult in the deployed setting, and most combat units do not receive blood products in advance. Enter the concept of walking blood banks. WBBs provide fresh whole blood where conventional blood components or stored, tested whole blood are not readily available. WBBs are in a setting where fresh WB is drawn from a pre-tested "walking" donor pool for immediate use. Service members in the deployed setting have the potential to become blood donors for their wounded colleagues, providing potentially life-saving transfusions immediately at the point of injury. Doing so requires performing transfusions in the field where combat conditions preclude screening blood donors on site. This is why a system of pre-screening potential donors is needed.



Photo by Lance Cpl. Alexandra Munoz

The goal of the DS-WBB WG is to develop and publish DHA implementation guidance in the form of a DHA-Multi-Service Regulation (MSR) on donor screening. The final DHA publication will include guidelines for implementing these new policies. The objective is also to standardize these procedures, in order to ensure inter-service operability.

LTC Chris Graybill, JTS Joint Trauma Education and Training (JTET) Chief, leads the working group. JTET's role is to translate research into practice/doctrine. LTC Graybill noted it is insufficient to create an MSR guideline or DHA Procedural Instruction without creating training regimes to support the policies and procedures. JTET will assess and devise the required training through the deployed medicine training platform.

"JTS has been working on establishing WBB capability as a standard at all roles of care," said Col Stacy Shackelford, JTS Chief. "There are three components: prescreening, training, and equipping. The prescreening requirement is new in the updated ASBP DODI; we are helping them with the implementation policy. It is essential that all components of the WBB capability are in place and are uniform across the services in order to deliver this capability on the battlefield."

Ultimately, it will be up to the MILDEPs to create and implement their own donor screening processes, including enlisted training, in alignment with the guidance provided by DHA. It is understood that each MILDEP has its own unique needs and constraints, which is why implementation will be up to them. Therefore, the guidelines will include input from the MILDEPs, and the ASBP Division, the Joint Staff Surgeon's Office, Veterinary Services, JTET, and Health Affairs. Upon completion, the project will be handed off to the MILDEPs, who will begin implementing the new guidelines within 18 months upon issuance of the final DHA document.

To learn more about the use of walking blood banks in combat situations, see: Gaddy M, Fickling A, Hannick VC, Shackelford SA. Use of Walking Blood Bank at Point of Injury during Combat Operations: A Case Report. *J Spec Oper Med*. 2021 Winter;21(4):94-98.

New Registry to Capture Havana Syndrome Injury Data

An Anomalous Health Condition Registry to capture Anomalous Health Incidents (AHI), otherwise known as Havana Syndrome, is in the works with JTS at the forefront of its development. The primary goal for the project is to abstract and analyze clinical data for AHI treatment and outcome-related variables, not currently captured in the JTS' DoD Trauma Registry (DoDTR) or National Intrepid Center of Excellence (NICoE) registries, in order to support best-practice guidelines for optimal treatment of AHI and to compare outcomes with conventional Traumatic Brain Injury (TBI) casualties. The data will include the demographics, condition-producing event, diagnosis and treatment, and outcomes of anomalous health conditions experienced by employees of the United States Government and their family members who are assessed or treated, as outlined in the National Defense Authorization Act Fiscal Year 2022. The registry will greatly expand the potential for ground-breaking epidemiological research and performance improvement on AHI among military personnel.

The first step, the publication of the DHA 245 AHI Consent Form, enabled DHA to legally begin collecting non-DoD patient data of confirmed and suspected cases related to AHI, Acquired Idiopathic Neurological Syndrome, or Unconventional Brain Injury.

The next step involves the expansion of the JTS Traumatic Brain Injury (TBI) Registry and the NICoE Registry to capture data inclusive of confirmed and suspected cases. The addition of AHI data to the two registries is temporary until the Anomalous Health Condition Registry is developed as part of the MHS Information Platform.

The AHI Registry represents synchronized efforts between JTS and NICoE for retrospective data collection and analysis and prospective enrollment on AHI. The JTS will collect data on the acute injury while the NICoE will collect data from the time they enter rehab; each are complimentary and do not overlap. The DoDTR will focus on collecting data from the initial post-injury care of those exposed to a likely AHI. JTS is expanding the DoDTR's data points to cover AHI-related injuries.



FROM THE DESK OF THE JTS CHIEF

Where have we come from and where are we going?

This will be the last address by JTS Chief Col Stacy A Shackelford, USAF, MC, Trauma Surgeon.

Four years ago, the Joint Trauma System transitioned from the Army to the DHA. This move was directed by Congress through the National Defense Authorization Act (NDAA), recognizing the essential role the trauma system played in advancing trauma care over two decades in U.S. Central Command (CENTCOM). It was written into law and DoD policy that never again should the U.S. go to war without a trauma system. So where have we come from since the transition and where are we headed?

Combatant Command Trauma Systems

In 2018, JTS had a longstanding relationship with CENTCOM, having originated in support of the conflicts in Afghanistan and Iraq. Additionally, we worked with U.S. Indo-Pacific Command to establish the loose framework of a trauma system in the Pacific. Since that time, JTS has formalized the guidance to establish the framework of a trauma system during peacetime and the concept of operations to rapidly expand during conflict. We have expanded the trauma system framework in U.S. Africa Command, U.S. European Command, U.S. Southern Command, and U.S. Special Operations Command. For the first time in military history, a formal plan for a deployed trauma system has been integrated into a theater's operational plans. We will work to ensure that a trauma system is integral to military operations by establishing the 12 core functions of a trauma system in each combatant command, embedding trauma management teams into training exercises, developing a worldwide network of trauma medical directors and program managers to lead the trauma systems, and providing robust training and data management to support performance improvement (PI) for each Combatant Command. We will implement a trauma capability verification program to ensure all deployed trauma teams are mission capable.

Data efficiency

The JTS developed the largest and most complete registry of combat casualties in the history of armed conflict, integrating data from prehospital, en route care, forward resuscitative care, and definitive care. We established subspecialty modules to support orthopedic injuries, traumatic brain injury, trauma infectious disease, and canine casualties. We developed the expertise to not only run, but to build a registry through trained registrars, a robust quality assurance process and technical support. We have struggled with the challenges of missing and lost documentation, handwritten records, a slow process of data abstraction, and lack of access to long-term outcome data. JTS was recognized as the sole DoD organization capable of rapidly supporting the COVID pandemic registry, a feat recognized by the DHA Director and throughout the DoD. We have partnered with DHA to begin transition to a much larger registry capability. We are struggling through the IT challenges that must be surmounted to take the registry into the future. The pandemic and war in Ukraine have given us a glimpse of what a large-scale conflict will look like, when data on thousands of casualties must flow at the speed of operational decision-making. The registry of the future will be integrated with electronic health records, mobile recording platforms, situational awareness software, and casualty reporting systems. We will rely on automated data feeds to achieve rapid situational awareness while continuing to rely on registrars to conduct the detailed reviews and coding needed to support performance improvement. Our registry dashboards provide support worldwide research efforts with easy access to data.

Performance improvement

After the end of Operation Enduring Freedom in 2014, JTS no longer had a forward deployed team to conduct rapid performance improvement, and the PI/education team in San Antonio was only three members. This small but mighty team was responsible for clinical practice guidelines, the weekly Combat Casualty Care Conference, and CENTCOM support with ongoing registry-based analyses. After the DHA transition, the PI team expanded to eight nurses and two physicians with a supporting team of data scientists. We painstakingly updated the adherence metrics for over 50 CPGs and began to build the data infrastructure to support the Combat Casualty Care Quality Improvement Program (C3QIP). Moving forward, the team will integrate standardized after action reviews and C3QIP metrics to deliver rapid PI updates to the field. We will expand our team of trauma program managers and trauma PI nurses worldwide to support each geographic Combatant Command and arm them with the data needed to identify opportunities for improvement. We will integrate in-garrison care and deployed operations to support trauma system readiness and an integrated PI plan. Working with the office of the Joint Staff Surgeon, we will identify and prioritize capability gaps. Working with DHA J-9, we will establish the implementation science approach to best practice updates. The JTS Defense Committees on Trauma will provide the boots-on-the-ground operational experience to advise teams on operational needs throughout the continuum of care.

Ready medical force

In 2018, JTS received the mission to establish the Joint Trauma Education and Training (JTET) directorate that was mandated in the NDAA. This greatly expanded the JTS role in readiness, incorporating the mission to establish standardized trauma training courses for the DoD and to facilitate military-civilian partnerships for medical skill sustainment. Near the same time, the DoD established a requirement to train all Service Members in Tactical Combat Casualty Care (TCCC). JTET collaborated with the DHA J-7 and J-9 and the Office of the Assistant Secretary of Defense for Health Affairs to charter joint working groups to support four tiers of TCCC curriculum development: all Service Members, combat life-saver, combat medic/corpsman, and combat paramedic. A partnership with Uniformed Services University supported expansion of the Emergency War Surgery Course to include skills verification and additional training sites, resulting in an increase in trained surgeons from 30% to 100% at deployed locations. JTS was selected to lead the DHA campaign plan for Sustain Expeditionary Medical Skills, consolidating a myriad of existing policy and guidance for medical readiness into five work streams, prioritizing highly perishable mission essential medical skills and robust MTF platforms for skill sustainment. Pivotal to successful implementation, JTS guided integration of the Joint Knowledge-Skills-and-Abilities (JKSA) metrics to quantify success of the five work streams. Subsequently, when Health Affairs policy directed the DHA to establish the JKSA program management office, this mission was entrusted to JTS. The path forward will lead to a robust system of MTF trauma centers responsible for military and civilian casualties where providers can practice the full scope of their operational skillset, integration with the VA system, and a leadership team that embraces the responsibility for readiness of the medical force.

It has been the honor of a lifetime to serve as JTS Chief, and I look forward to the future of the organization.

JTS Supports Ukrainian War Effort with Critical Care Data

Role 2 Registry is being modified for use by the Ukrainians and Poles.

JTS publishes [Ukrainian versions of Tactical Combat Casualty Care Guidelines](#).

New JTS Joint Knowledge, Skills, and Abilities (JKSA) Branch to Empower Hospitals and Combatant Commands with KSA Data to Improve Readiness

In April, JTS opened the doors to the JKSA Branch which will help raise medical readiness and improve the services of the military medical treatment facilities (MTFs) as well as bolster the capabilities of Combatant Command (CCMD) trauma systems. Sustaining medical readiness is a top priority for medical personnel who provide highly-perishable mission essential medical skills (HPMEMS) in deployed settings. HPMEMS are defined as medical and surgical skills, which, when not performed regularly during deployed operations and throughout the range of military operations, degrade the capability of medical personnel below accepted professional performance standards to reduce morbidity; save life, limb, and eyesight; and function. The goal is to prepare Service Members from all aspects of medical care to work together in a rapidly deployable, fully functioning hospital.

KSAs are an integral part of sustaining HPMEMS.

- ▶ KSAs are the specialty-specific knowledge, skills, and abilities utilized by the expeditionary clinician.
- ▶ KSAs were developed by clinicians based on JTS CPGs, case registries, and relevant literature such as journal articles.
- ▶ Mapping KSAs to peacetime workload yields a readiness indicator (KSA score) for each clinician, MTF, and market. Scores do not determine deployment readiness, but they help inform Commanders' decisions regarding deployment.
- ▶ KSAs measures are used to identify and address gaps prior to deployment.

Aligning the JKSA program within the JTS strengthens DHA's strategy to focus on HPMEMS. The JTS is the lead for the Sustainment of Expeditionary Medical Skills (SEMS) which support clinical readiness through the use of KSA metrics. The DHA and larger MHS lack an overarching, synchronized strategy to systematically optimize the military MTFs as readiness platforms, integrate military MTFs into civilian trauma systems, and develop relationships between military and civilian trauma centers to sustain expeditionary medical skills. The JTS and JKSA program linked together bridge this gap. The JKSA can leverage the best practices and lessons learned in SEMS effort to help MTFs improve and sustain their readiness. KSAs are foundational to ensuring the clinical readiness and interoperability of critical wartime specialties and other Military Department (MILDEP)

defined joint interoperable specialties. They support the MILDEPs' authority to organize, train, and equip ready medical personnel to meet CCMD requirements and emerging threats.

JTS will collect the data. The JKSA will incorporate JTS updated combat casualty care best practices and lessons learned into the Med-KSA repository. The result will be an interactive dashboard for key stakeholders to utilize the readiness metric to identify and address gaps in clinical currency and readiness prior to deployment.

The JKSA program will optimize the MTFs' practices by identifying medical personnel's KSAs, pinpointing gaps in skill sustainment, influencing readiness-training requirements, and providing immediate solutions through military civilian partnerships (MCPs). For instance, MTFs that don't meet their KSA thresholds can leverage the JTS Joint Trauma Education and Training (JTET) Branch MCPs and simulation training to supplement the threshold to bring it up to expected standards.

Others will be able to leverage the KSAs. JTET and readiness trainers can apply the knowledge to optimize and standardize knowledge curricula and skills courses to maximize Med-KSA delivery to the Joint Medical Force. The J-5 teams will use the data to inform business case analysis. JTS CTS Operations use the dashboards as planning tool for CCMDs which have not reached or achieved readiness sustainment.

KSA metrics are in development for 16 combat casualty care team (CCCT) specialties noted in the table.

CCCT		CCCT+ (Surgical Subspecialties)	
1	General Surgery (incl. Colorectal)	9	Ophthalmology
2	Orthopedic Surgery	10	CT Surgery
3	Critical Care	11	Vascular Surgery
4	Emergency Medicine	12	Plastic Surgery
5	Anesthesiology (incl. CRNA)	13	Urology
6	ER Nursing	14	OMS
7	CC Nursing	15	Otorhinolaryngology (ENT)
8	Trauma Surgery	16	Neurosurgery

NEW CLINICAL PRACTICE GUIDELINES

[Hyperkalemia and Dialysis in the Deployed Setting, 25 Apr 2022](#)

[Pending publication: Chemical, Biological, Radiological and Nuclear \(CBRN\) Injury Response Part 3: Medical Management of Radiation Exposure and Nuclear Events](#)

COMING SOON [Neurosurgery CPG & Hypothermia CPG](#)

PODCASTS [Surgical Combat Casualty Care Role 2/3 podcasts](#)
[Tactical Combat Casualty Care podcasts](#)

SAVE THE DATE

COMBAT CASUALTY CARE

JUN 23 *Trauma System in the Middle East*

INDO-PACOM

JUN 28 *Naval Hospital Okinawa Trauma Capabilities*

JUL 26 *Clinical Affairs Overview*

AUG 23 *Global Health Engagement Overview*

Info: dha.ibsa.j-3.list.jts-conferences



DoD TRAUMA REGISTRY DATA (DoDTR) IN ACTION

RESEARCH, STUDIES BASED ON DoDTR DATA

- Gurney J, Graf V, Staudt A. [Humanitarian trauma care delivered by us military facilities during combat operations in Afghanistan, Iraq, and Syria](#). American Surgical Association, 142nd Annual Meeting, 7-9 Apr 2022
- Kronstedt S, Fisher A, Boyle J, et al. [An analysis of combat-related urologic injuries](#). Journal of Urology. May 2022.
- Escandon MA, Tapia AD, Fisher AD, et al. [An analysis of the Incidence of hypocalcemia in wartime trauma casualties](#). Med J (Ft Sam Houst Tex). 2022 Apr-Jun; (Per 22-04/05/06):17-21.
- Wilson KE, Vasek M, VanFosson CA, et al. [An assessment of nursing skills required for sustaining a casualty during prolonged casualty care: implications for training and preparing for the next major war](#). Med J (Ft Sam Houst Tex). 2022 Apr-Jun;Per 22-04-05-06(Per 22-04-05-06):83-88.
- Copeland LA, Pugh MJ, Bollinger MJ, et al. [The VA vascular injury study: A glimpse at quality of care in Veterans with traumatic vascular injury repair](#). Injury. 2022 Apr 6:S0020-1383(22)00277-7.
- Hall A, Qureshi I, McMinn H, et al. [US Central Command military blood utilization practices 2011 to 2020](#). J Trauma Acute Care Surg. 2022 Mar 28.
- Johnson SA, Lauby RS, Fisher AD, et al. [An analysis of conflicts across Role 1 guidelines](#). Mil Med. 2022 Mar 28;187(3-4):e263-e274.
- Gurney JM, Staudt AM, Del Junco DJ, et al. [Whole blood at the tip of the spear: A retrospective cohort analysis of warm fresh whole blood resuscitation versus component therapy in severely injured combat casualties](#). Surgery. 2022 Feb;171(2):518-525.
- Hesling JD, Paulson MW, McKay JT, et al. [Characterizing pediatric supermassive transfusion and the contributing injury patterns in the combat environment](#). Am J Emerg Med. 2022 Jan;51:139-143. Epub 2021 Oct 24. Erratum in: Am J Emerg Med. 2022 Feb;52:275.
- Fisher AD, Paulson MW, McKay JT, et al. [Blood product administration during the Role 1 phase of care: the prehospital trauma registry experience](#). Mil Med. 2022 Jan 4;187(1-2):e70-e75.
- Qasim Z, Butler FK, Holcomb JB, et al. [Selective prehospital advanced resuscitative care - developing a strategy to prevent prehospital deaths from noncompressible torso hemorrhage](#). Shock. 2022 Jan 1;57(1):7-14.

HOW TO REQUEST DoDTR DATA

The requestor must be U.S. Military, U.S Government or sponsored by a U.S. Military or Government entity who will accept responsibility for safeguarding the data set and ensure all applicable DoD and Federal requirements are met by the non-Federal requestor.

JTS does not help non-Federal requestors find DoD sponsors. DHA requires the end user of the data to be identified.

Issuance of identifiable data for research purposes is subject to oversight by the Institutional Review Board (IRB). If the protocol was reviewed by a non-DOD primary IRB, the DHA Human Research Protections Program must review research documentation.

1. Complete the Request for Information Worksheet to request counts of patients and determine if the DoDTR offers enough information for a particular research or performance improvement project.
2. Complete the [DoDTR Data Request Form](#) to specify the data elements as listed in the approved protocol.
3. Complete a Data Sharing Agreement Application (DSAA) and submit it to the DHA Privacy Office with the above forms. DHA may determine a MOU/MOA. If one is needed, it must be signed prior to release of data. More requirements are listed in the [DSAA](#).
4. DHA Privacy Office approves the DSAA. Once JTS is notified of DSAA approval, data will be queried/reviewed and released.
5. For more information, email the Data Release Branch at: <mailto:dha.jbsa.j-3.list.jts-data-release@mail.mil>

JTS Contact Information

JTS Chief Col Stacy A Shackelford

JTS Deputy Chief Dr. Mary Ann Spott

JTS Chief Administrator Dallas Burelison

Leadership email: dha.jbsa.j-3.list.jts-leadership@mail.mil

Data Enterprise (Data Sharing) dha.jbsa.j-3.list.jts-data-release@mail.mil | Branch Chief Juli A Beadleston

Data Registry/DoD Trauma Registry dha.jbsa.j-3.list.jts-trauma-registry@mail.mil | Branch Chief Phil R Sartin

Epidemiology/Biostatistics dha.jbsa.j-3.list.jts-epi-bio@mail.mil |

Joint Trauma Education and Training (JTET) dha.jbsa.j-3.list.jts-jtet@mail.mil | Branch Chief LTC John Christopher Graybill

Performance Improvement dha.jbsa.j-3.list.jts-pips@mail.mil | Branch Chief COL Brian Sonka

CCMD Trauma System Operations (Support) dha.jbsa.j-3.list.jts-cts-wg@mail.mil | Branch Chief COL Jay B Baker

Defense Committees on Trauma (DCoT) Chief COL Jennifer M. Gurney jennifer.m.gurney.mil@mail.mil

Tactical Combat Casualty Care (TCCC) Joint Program Manager Harold "Monty" Montgomery harold.r.montgomery2.civ@mail.mil



The Joint Trauma System Chronicles

is an authorized publication of the Joint Trauma System, DHA Healthcare Operations and approved for public release. Contents are not official views of, or endorsed by the U.S. Government, Department of Defense or Defense Health Agency. Email questions, comments or submissions to Cynthia.r.kurkowski.ctr@mail.mil. JTS reserves the right to edit submissions selected for publication.