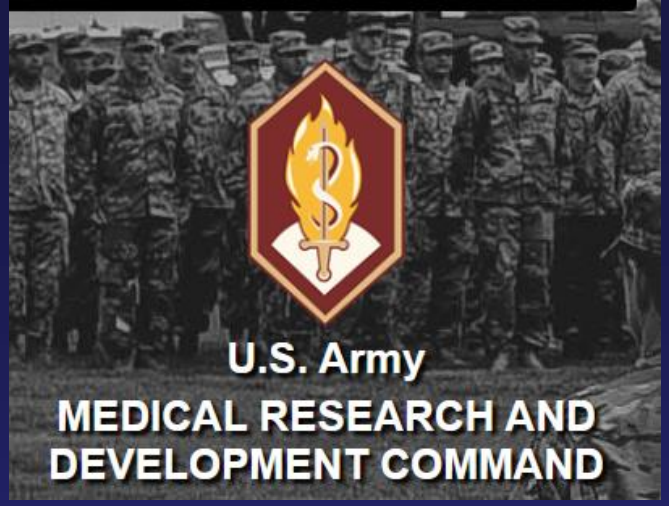
Continuing a US-Ukraine Partnership for Trauma Care and Education: Proceedings from Year Three of Targeted Symposia

John B. Holcomb, MD, FACS
COL (Ret) US Army
Professor of Surgery
University of Alabama at Birmingham and
Uniformed Services University of the Health Sciences
Associate EMS Medical Director, Washington County TX

Co-Authors

- Terry Rauch Jr LLM, Aspen Medical
- Shannon Dittlinger, MCPO (Ret), Aspen Medical
- Warren Dorlac MD, Uniformed Services University, University of Colorado,
- Tiffany E. Hamm PhD, The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.
- Sraddha Fonseka, The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc.
- Terry M Rauch, PhD, Office of the Assistant Secretary of War (Health Affairs),
- LTC Carl D Smith, PhD, DoW Combat Casualty Care Research Portfolio, Defense Health Agency
- Therese A. West, PhD, DoW Combat Casualty Care Research Portfolio, Defense Health Agency



USU
Uniformed Services University

hif

aspenmedical

This effort was awarded through contract HT9425-25-P-E041 and is funded by Combat Casualty Care Research Portfolio in accordance with Congressional direction to establish medical partnering with Ukraine specified in Sec 736 NDAA 2023 and Sec 721 NDAA 2024. The views and conclusions contained herein are those of the author(s) and should not be interpreted as representing the official policies or endorsements, either expressed or implied, of the U.S. Government, The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc., Uniformed Services University of the Health Sciences, or Aspen Medical.

Introduction

- Current war in Ukraine (UA) provides an opportunity to understand medical care associated with LSCO.
- US DoW funded a study to assess the UA trauma system, share actionable recommendations and develop lessons learned for the US military and NATO partners.
- Travel into UA was not possible for US DoW contractors, so we held a series of targeted symposia to better understand critical aspects of the UA system.
- Would this effort expedite and / or enable improvements in both the US/NATO and UA trauma systems?

Study Outline

- **Symposia 9 +11**
- Advanced Surgical Skills for Exposure in Trauma (ASSET+)
- Clinical Case Reviews
- Qualitative Key Informant Interviews

Methods

- Focused symposia (9 + 11) on key aspects of the US, NATO, and UA medical systems.
- The meetings were held in Warsaw, Poland from June 2023 to Aug 2026 allowing in-person collaboration.
- US, NATO and UA frontline personnel, thought leaders and policy makers shared wartime experiences, identified challenges while proposing actionable solutions.

Previous Symposia Topics

1. June 23	Trauma System/Registry	MHSRS 2024
2. Sept 23	Blood	
3. Oct 23	Rehabilitation	
4. Nov 23	Evacuation	
5. Dec 23	Tourniquets	
6. Feb 24	Research	
7. March 24	Mental health/TBI	
8. April 24	Telemedicine	
9. June 24	Med Log	

REVIEW ARTICLE

Assessment and training of Ukrainian trauma and combat casualty care via international symposia

J Trauma 2025

John B. Holcomb, MD, FACS, Terry M. Rauch, II, LLM, Shannon Dittlinger, MCPO (Ret), Warren C. Dorlac, MD, Tiffany E. Hamm, PhD, Terry M. Rauch, PhD, Therese A. West, DNP, APN, BC, *and* **Travis M. Polk, MD**, *Birmingham, Alabama*

ABSTRACT: The Russian Federation (RF) full invasion of Ukraine (UA) in 2022 presents a unique opportunity to understand how large-scale combat operations (LSCOs) strain and destabilize healthcare and trauma system infrastructure. To share clinical knowledge gained in combat casualty care and learn from the UA LSCO experience, nine symposia were held from June 2023 to June 2024, gathering international experts with key leaders and medical personnel from UA. This effort was supported by the United States Department of Defense Combat Casualty Research Program (DoD CCCRP) in accordance with the US Congressional direction to establish military medical partnerships with the UA specified the National Defense Authorization Acts of 2023 and 2024. The DoD CCCRP seeks to develop requirements driven knowledge and material solutions for the care of combat-related traumatic injury during current and future conflicts. The symposia summarized herein consisted of 40- to 60-person discussions focused on key topics of interest, including trauma system and registries, hemostatic resuscitation, evacuation, telemedicine, brain health, tourniquet use, rehabilitation, and research and logistical needs. Personal relationships were formed and feedback from the symposia have enabled evidence-based changes to United States and North Atlantic Treaty Organization trauma care guidelines and similarly have benefited our UA colleagues. (*J Trauma Acute Care Surg.* 2025;00: 00–00.

KEY WORDS: Traumatic brain injury; combat casualty care; trauma systems; rehabilitation; prehospital care.

Current 11 Symposia Topics

1. Nov 24 — Triage in Mass Casualty
2. Jan 25 — Medical Care in the Drone Era
3. July 25 — DNBI and CCC in Cold Weather
4. Aug 25 — Complex Wound and Infection
5. Sept 25 — Mental Health in Providers
6. Nov 25 — Organization of Surgical Care for the Wounded in Modern Warfare
7. Jan 26 — Damage Control Resuscitation & Non-compressible Truncal Hemorrhage
8. March 26 — Pediatric Trauma Management in LSCO
9. May 26 — Limb Preservation after Severe Injury
10. July 26 — Minimally Invasive Surgery in Modern Combat Trauma
11. Aug 26 — Role 1 & 2 Pre-Deployment Training for LSCO

AARs and Ex Summaries of Each Symposia

Selected Key Outcomes

Nov 2024: Triage in Mass Casualty

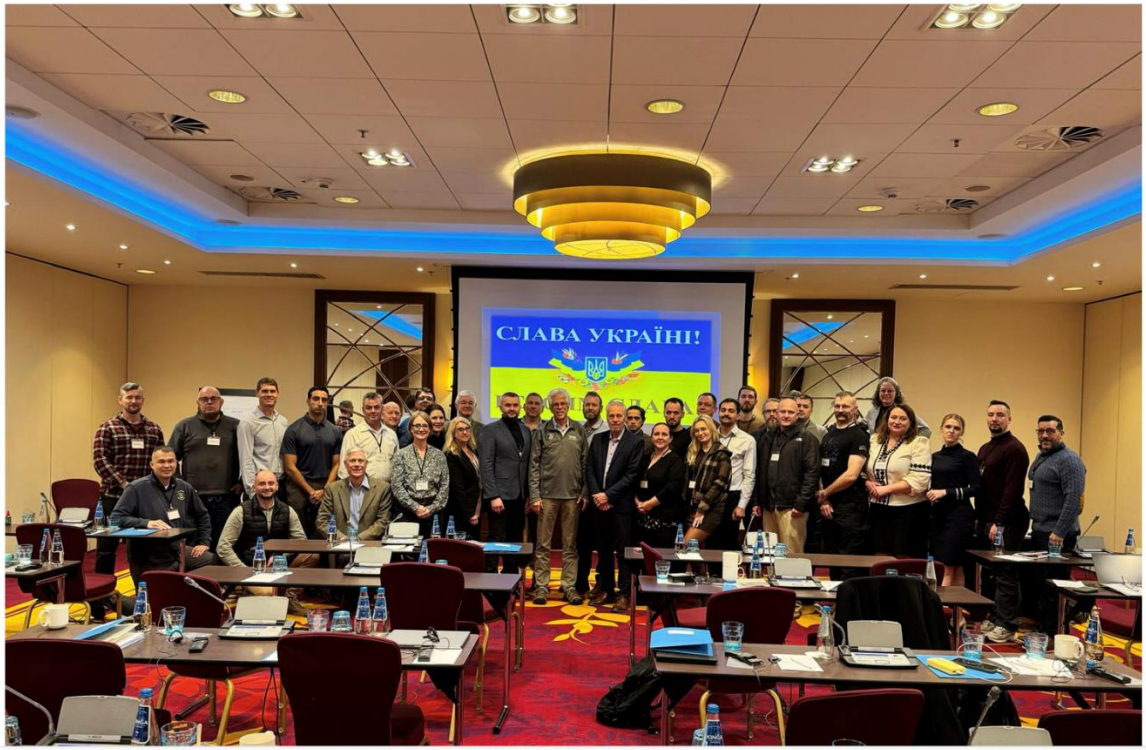
- UA delivered insights on resource-constrained trauma care, including expectant casualty care, triage improvisation under fire, and the emotional toll on providers.

- US and NATO participants learned how evolving realities of LSCO, drone warfare, and degraded MEDEVAC timelines challenge doctrinal norms.

Jan 2025: Medical Care in the Drone Era

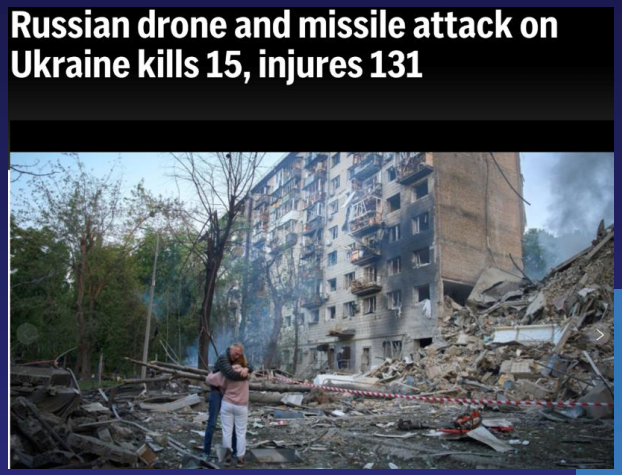
After Action Report: “Medical Care in the Drone Era” Symposium

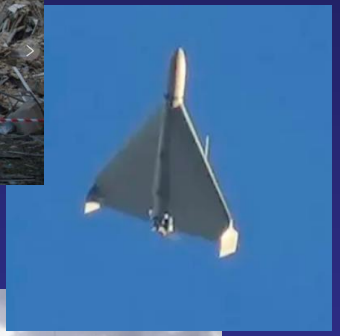
14–18 January 2025, Warsaw, Poland

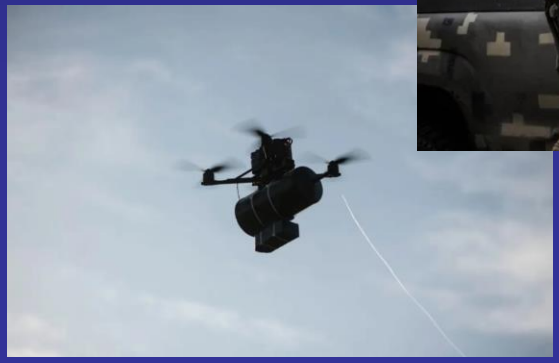


Jan 2025: Medical Care in the Drone Era

- Russians targeting civilians and health care
- Now a trench and drone war
- “New” weapon: fiber optic-controlled drones with range up to 40km (24.8 miles)
- Flying into your aid station and forward surgery unit
- Must move underground







July 2025: DNBI and CCC in Cold Weather

- DNBI is a primary driver of combat power loss, often exceeding battle injuries in medical encounters and evacuations.
- US, French, NATO, and UA experience linked illness, injury, fatigue, poor sleep, and stress to preventable evacuation and degraded unit cohesion.
- Exasperated by chronic disease in soldiers

Aug 2025: Complex Wound and Infection

- Slow culture-based diagnostics, early/overuse of broad-spectrum antibiotics, and nosocomial transmission along the evacuation chain drive multidrug resistance.
- Early irrigation and accurate wound debridement are critical for improved outcome.
- Strengthen practical infection control and antimicrobial stewardship, while prioritizing development of deployable diagnostics and evaluation of alternative therapies.
- Layered prevention of contamination, colonization and infection across all echelons, backed by training, accountability, and data, are essential to limit the spread of resistant organisms to NATO.

Sept 2025: Mental Health (MH) in Providers

- Increasing MH impact on combat medics and military medical providers
- Dual crisis of surging demand and strained provider capacity.
  - 80% of UA inpatients present with stress-related disorders
  - 40 to 50% of MH workforce meet PTSD criteria and 60-72% show burnout symptoms.
  - Symptoms include apathy/detachment, emotional exhaustion, and reduced sense of efficacy, but also signs of cognitive impairment, disengagement from work, personal mistakes, difficulty regulating anger, feeling numb and loneliness.
- Urgent system reforms needed to sustain MH care during prolonged, high-intensity conflict.

Nov 2025: Organization of Surgical Care for the Wounded in Modern Warfare

- Forward surgical teams must transition from short-duration stabilization nodes into distributed, resilient, and blood-enabled platforms capable of providing critical care during periods of delayed or denied evacuation.

- Survivability hinges upon doctrine emphasizing early hemorrhage control, forward transfusion, decentralized and tactically trained medical capabilities, sustained care, counter-drone integration, interoperable equipment, and concurrent trauma registry-driven performance improvement.

Jan 2026: Damage Control Resuscitation & Non-compressible Truncal Hemorrhage

- In PFC and delayed evacuation scenarios, blood-based resuscitation is capable of preventing death from hemorrhagic shock.
- Where early transfusion was normalized and supported by training and logistics, survival improved; where it was delayed by authorization, scarcity, or institutional caution, preventable mortality increased.
- There was persistent underestimation of blood demand during sustained operations. Role 2 facilities were often described as prolonged resuscitation and holding nodes rather than brief stabilization points, driving higher and more variable blood consumption than planned.
  - Thus organized walking blood banks were identified as essential

DCR & Non-compressible Truncal Hemorrhage (cont)

- Dried plasma reinforced its value as:
  - a logistics enabler, particularly in austere and prehospital environments where cold chain, storage, and transport constraints limit conventional products
  - consistently framed as a complement to whole blood
  - extended the resuscitation envelope
  - Manufacturing capacity and regulatory fragmentation remain limiting factors.

March 2026: Pediatric Trauma Management in LSCO

- Children should no longer be treated as an exceptional or rear-area casualty population.
- UA experience shows that pediatric casualties arrive with blast, burn, penetrating, mine and drone-related injuries, often after prolonged periods without definitive care.
- These injuries carry not only high physiological risk for the individual patient, but also immediate and lasting moral, psychological, and reputational consequences for military and civilian systems alike.
- Survivability for children in LSCO depends on designing clinical and logistics systems that expect pediatric casualties, rather than trying to improvise once they appear.

May 2026: Limb Preservation after Severe Injury

- Severe extremity trauma is an infection-control, rehabilitation, and mental-health problem across the continuum of care.
- Limb preservation depends on physiology-based decisions: hemorrhage control; disciplined tourniquet reassessment; adequate debridement; simple stabilization; timely soft-tissue coverage when the wound and patient are ready; realistic reconstruction; and early expectation management.
- Salvage should be pursued when it is physiologically sound and likely to restore meaningful function. Early amputation with rehabilitation and modern prosthetics must be treated as a valid outcome- not a complication.

July 2026: Minimally Invasive Surgery in Modern Combat Trauma

- Therapeutic Laparoscopy and Video Assisted Thoracic Surgery are used regularly at the Role III facilities (8-25% of cases).
- UA have demonstrated a low conversion to open rate (11%) and a low missed injury rate (2%)
- Use requires hemodynamic stability and equipment
- Decreased pain, infection and faster return to duty

Aug 26: Role 1 & 2 Pre-Deployment Training for LSCO

Next week!

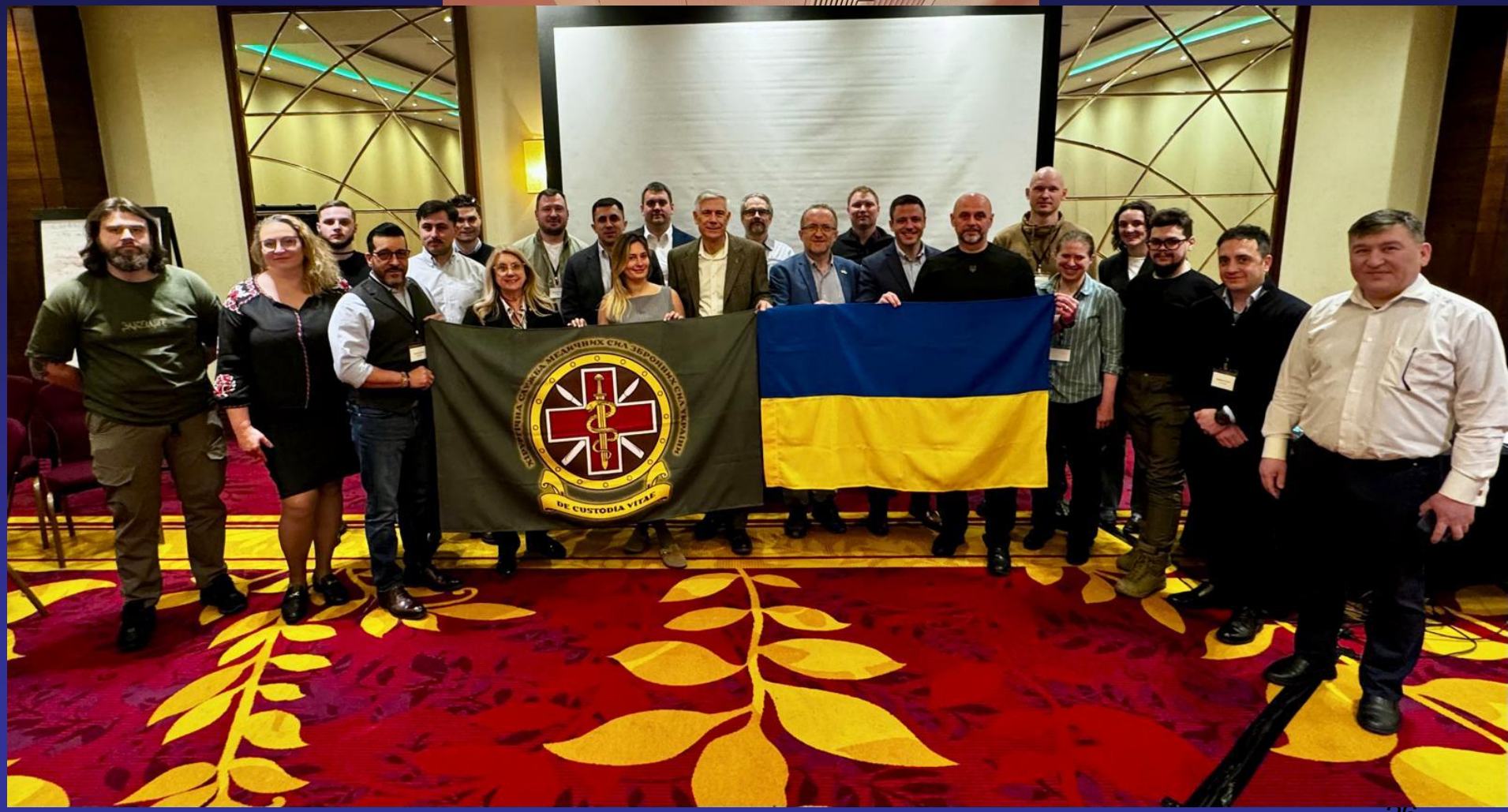
Results

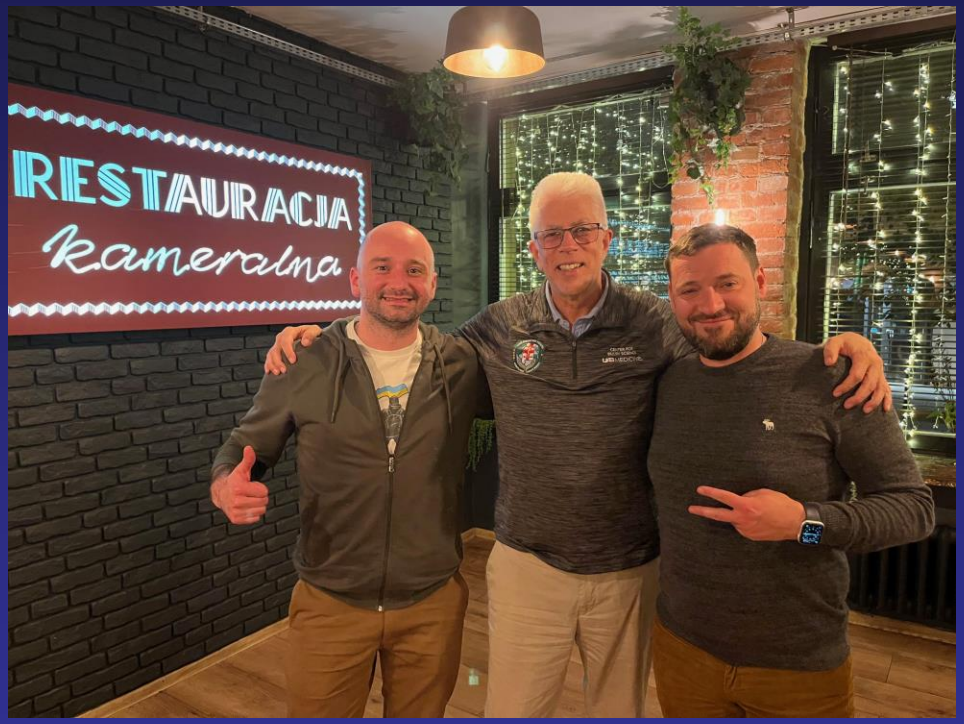
- Over 800 (US/NATO and UA) experts attended the symposia.
- 20 symposia over 3 years enabled leaders from the US, NATO and UA to partner, exchange experience, learn from each other and establish a bilateral roadmap for future data collection
  - Including 13 DoW-funded research activities within UA.

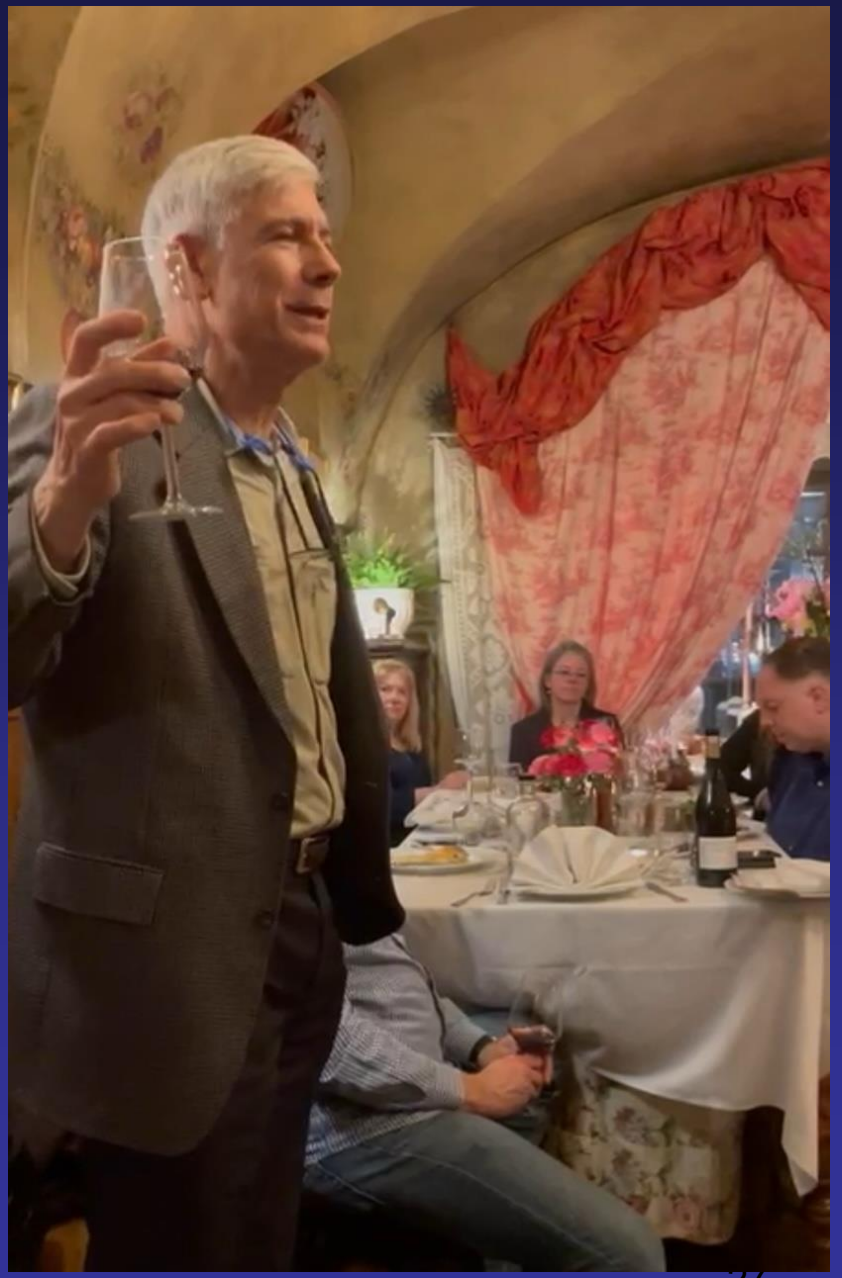
Conclusion

- The mutual benefit of this bilateral partnership is clearly apparent, with change already implemented in US and UA systems.
  - Tourniquets
  - Drones
  - PH blood/dried plasma
  - Therapeutic Laparoscopy

Great Friends

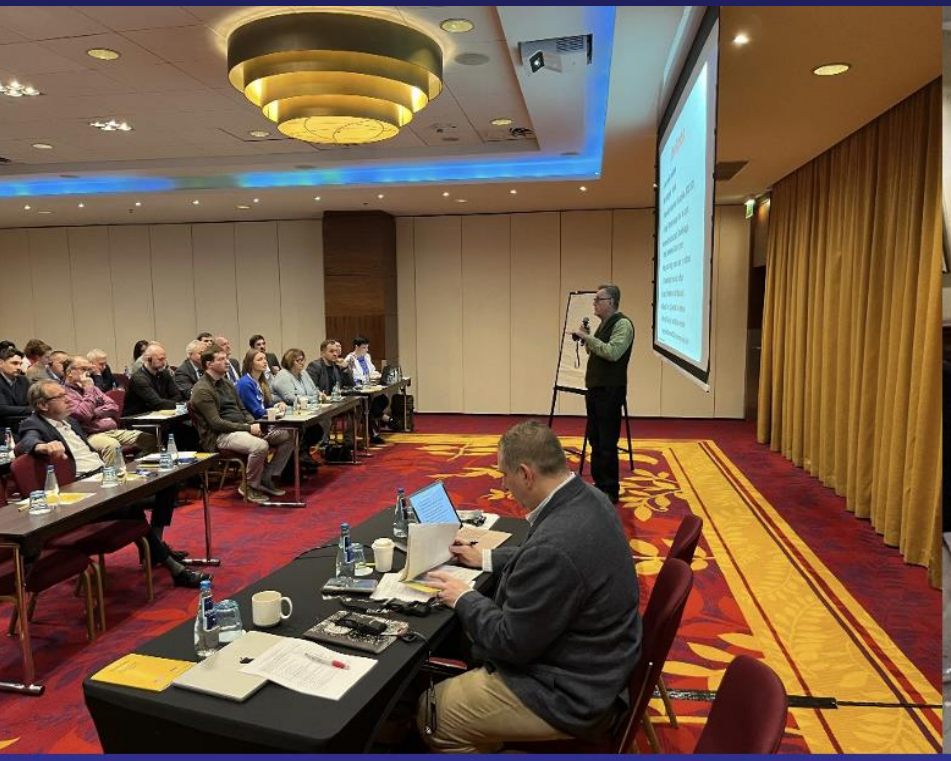


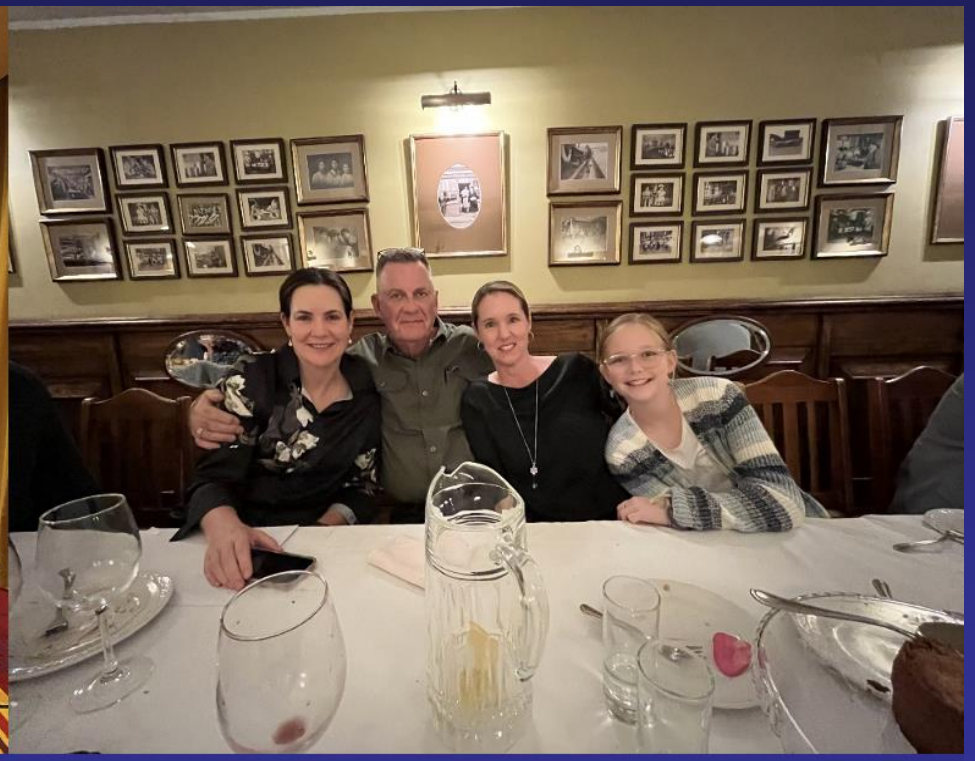

RESTAURACJA
kameralna



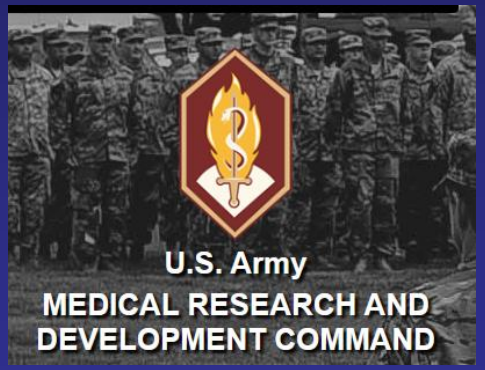

BAR
LOBBY
YOUR PLACE IN WARSAW

COL (Ret) Fred Gerber





Dedicated to our Ukrainian Colleagues, who have sustained the fight for the last 12 years… and are winning.



USU
Uniformed Services University

hif®

aspenmedical