

2021 SOMSA ABSTRACTS

2021 Scientific Assembly Research Award Winners and Presentations

BEST ORAL ABSTRACT

Strategy to Avoid Excessive Oxygen (SAVE-O2) for Critically Ill Trauma Patients: A Multicenter Clinical Trial to Define Oxygen Requirements for Combat Casualty Care

David J. Douin, MD1; Erin L. Anderson, RN1; MAJ Steven G. Schauer, DO, MS3; John Rice, PhD2; Layne Dylla, MD, PhD1; Conner Jackson, MS2; Alex Cheng, PhD5; Col Vikhyat S. Bebartha, MD1,4,6; Adit A. Ginde, MD, MPH1,6

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2 Colorado School of Public Health, Aurora, CO

3 US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

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Background: Recent evidence supports targeting normoxia (SpO₂ 90-96% or PaO₂ 60-100mmHg) to avoid hyperoxia. Our objective is to determine the feasibility, safety, and effectiveness of targeted normoxia to conserve oxygen and improve clinical outcomes in critically injured patients. **Methods:** This prospective multicenter clinical trial will enroll critically ill trauma patients at eight level 1 trauma centers in the United States (NCT04534959). We will follow patients from emergency department through hospital discharge or to day 90 – whichever comes first. Each hospital will contribute pre-implementation (control) and post-implementation (intervention) data. The start of the intervention period will be defined by randomized timing in a stepped wedge cluster randomized controlled trial design. All sites will begin in the control phase with usual care. When sites reach their randomly assigned time to transition, there will be a one-month training period, which does not contribute to data collection. Following the one-month training period, the site will remain in the intervention phase for the duration of the trial. The primary outcome is supplemental oxygen free days, defined as number of days alive and not on supplemental oxygen. **Results:** The Colorado Multiple Institutional Review Board, the Single IRB for this trial, approved with a determination of minimal risk. This was subsequently approved by the Human Research Protections Office with the same determination. Vanderbilt University is serving as the data coordinating center. As of November 30, 2020, one site has transitioned into the intervention phase. The next site transition will occur on January 15, 2021. Preliminary results will be available for the 2021 SOMA conference. **Discussion/Conclusions:** We hypothesize targeted normoxia will safely reduce the need for concentrated oxygen. These data will inform military stakeholders on oxygen requirements for critically injured warfighters, while reducing logistical burden in prolonged combat casualty care.

BEST POSTER ABSTRACT

MATV Storage of Blood Products During Long Duration Operations

MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician (1); CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse (1); SO2 Kyle Najar, Paramedic, SOTM, SEAL Team EIGHT, Virginia

Beach, VA; SO1 Paul Pelaez, SOTM, NRP, FP-C, SEAL Team FOUR, Virginia Beach, VA; SO1 Michael Stephens, SOCM, SEAL Team TWO, Virginia Beach, VA; CPT Mackenzie Schimpf, MD, Emergency Medicine Resident, Darnall Army Medical Center (1) Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa

Background: Current Joint Trauma System (JTS) Clinical Practice Guidelines (CPG) recommend blood administration within 36 minutes of injury, presenting logistical challenges in the far-forward environment. Insulated transport containers and fresh whole blood field transfusion protocols such as Ranger O Low Titer (ROLO) were developed to mitigate these challenges. These protocols, however, rely on having enough type O personnel with recent low antibody titers to serve ROLO donors and insulated transport containers cannot maintain temperatures for long operations. **Methods:** A FridgeFreeze portable refrigerator unit containing whole blood was carried in the bed of an M-ATV. It was plugged into the vehicle's onboard 120V power supply augmented by a marine backup battery to maintain refrigeration during periods when the vehicle was turned off. After extensive rehearsals and trial runs, the setup was fielded on a 10-day operation in East Africa. **Results:** The 15 L device maintained 13 units of whole blood within storage temperature range. This location had daytime high temperatures of 88-90 F. Temperature checks were performed a minimum of every 6 hours and ranged from 3.1-6.0 degrees Celsius, never coming out of the appropriate temperature range. The device also survived damage from a large IED blast, yet continued to function until mission completion 3 days later. **Conclusion:** The FridgeFreeze portable refrigerator unit is a practical solution to storing whole blood over prolonged periods in an austere environment. On long-duration mounted operations, the onboard power inverters plus battery backups make the storage of blood products a viable option for the length of the blood's usable life. Solutions such as this would allow for fully tested whole blood to be available to meet CPG goals and avoid the need to perform fresh whole blood field transfusions which may be logistically and tactically challenging.

2021 SCIENTIFIC ASSEMBLY RESEARCH PRESENTATIONS

More Sophisticated Than a Drink Cooler or an Old Sphygmomanometer, but Still Not Adequate for Prehospital Blood – A Market Review of Commercially Available Equipment for Prehospital Blood Transport and Administration

Silver M Martin, MSc, MS2, Battlefield Airway Research Intern, US Army Institute of Surgical Research, JBSA Fort Sam Houston, Texas, Doctoral Candidate, University of the Incarnate Word School of Medicine, San Antonio, Texas; Major Andrew D Fisher, MD, MPAS, Resident Physician, Department of Surgery, University of New Mexico School of Medicine, Albuquerque, New Mexico, Texas Army National Guard, Austin, Texas; Michael A Meledeo, PhD, Research Scientist; James Bynum, PhD, Chief, Coagulation and Blood Research, US Army Institute of Surgical Research, JBSA Fort Sam Houston, Texas; Major Michael D April, MD, DPhil, MSc, Chief, Emergency Medicine Service Brooke Army Medical Center, JBSA Fort Sam Houston, Texas;

David Wampler, PhD, LP, FAEMS, Associate Professor of Emergency Health Sciences; Susannah E Nicholson, MD, Associate Professor, Director of Trauma Research; Katherine Razcek, MD, Assistant Professor, Department of Emergency Medicine, University of Texas Health Science Center at San Antonio; Major Wells L Weymouth, MD, Physician-Battalion Surgeon, 160th Special Operations Aviation Regiment, Hunter Army Airfield, Georgia; Major Steven G Schauer, DO, MSCR, Capability Area Manager, US Army Institute of Surgical Research, JBSA Fort Sam Houston, Texas, Emergency Medicine Physician, Brooke Army Medical Center, JBSA Fort Sam Houston, Texas

Functional Hemodynamic Monitoring-Based Closed-Loop Diagnosis and Resuscitation In a Porcine Hemorrhagic Shock Model

Michael R Pinsky, MD, Professor of Critical Care Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA; Anthony Wertz, Graduate Student, Auton Lab, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA; Victor Leonard, Computer Specialist, Auton Lab, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA; Gus Welter, Computer Scientist, Auton Lab, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA; Artur Dubrawski, PhD, Professor, Auton Lab, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA; Ron Poropatich, MD, Professor of Pulmonary Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA

Bioresorbable Electronic Sensors for Tissue Monitoring

Matthew MacEwan, PhD (Civ.), Assistant Professor, Department of Neurosurgery, Biomedical Engineering, Washington University School of Medicine, Saint Louis, MO

Field Testing of a Commercially Available Pressure Cooker for Sterilizing Medical and Dental Instruments in an Austere Environment

MAJ Seung H "Justin" Hong, former 7th SFG(A) Group Dental Surgeon, Eglin AFB, FL USA

Precise Limb Tourniquet (TQ) Arterial Occlusion Pressure Determination Using Real-Time Ultrasonography (US) and a Capacitive-Based Force Sensor

Benjamin S Krippendorf, MD; Jeffrey N Wood, PA-C; Tobias Kummer, MD; Craig A Blakeney, MD; Alexander W Hooke, Senior Engineer; Matthew D. Sztajnkrycer, MD, PhD, Mayo Clinic, Rochester, MN

A Sequential Bayesian Mass Transfusion Decision Scheme for Blunt Trauma: Incremental value of ABC Score Shock Index and Lactate.

Amado Alejandro Báez MD, MSc, MPH; Nathan Harris MS4; Patrick Loeffler MD, Medical College of Georgia, Center of Operational Medicine

An Analysis of Conflicts Across Role 1 Guidelines

Sarah A Johnson-1; Ryann S. Lauby-1; Andrew D. Fisher, MD, PA-C, LP-2, 3; LTC Jason F Naylor, DSc PA-C USA-4; MAJ Michael D April, MD, DPhil, MSc USA-5; MAJ Brit Long, MD, FACEP USA-6; MAJ Steven G Schauer, DO, MS USA-1,6,7

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- (3) UNM School of Medicine, Department of Surgery, Albuquerque, NM
- (4) Madigan Army Medical Center, Joint Base Lewis-McChord, WA
- (5) Stryker Brigade Combat Team, Fort Carson, CO
- (6) Brooke Army Medical Center, JBSA Fort Sam Houston, TX
- (7) 59th Medical Wing, JBSA Lackland, TX

Analysis of Epidemiology, Capabilities and Outcomes of Small Surgical Teams

Col Stacy Shackelford, MD, Joint Trauma System Chief, San Antonio, TX; Dr Caryn Stern, PhD, Joint Trauma System Chief of Epidemiology, San Antonio, TX; Lt Col Andrew Hall, MD, General Surgeon, Eglin Air Force Base, FL; LTC Linda Benavides, MD, General Surgeon, Madigan Army Medical Center, WA; CPT Jeffery Conner, MD, General Surgery Resident, Madigan Army Medical Center, WA; Maj Erik Desoucy, DO, Trauma and Critical Care Fellow, Brooke Army Medical Center, San Antonio, TX; Maj Remealle How, MD, Trauma Performance Improvement Director, Brooke Army Medical Center, San Antonio, TX; LTC Peter Kreishman, MD, General Surgeon, Madigan Army Medical Center, WA; LCDR Blair Lee, MD, General Surgery Resident, Naval Medical Center Portsmouth, VA; Maj Marc Northern, MD, Special Operations Surgical Team Detachment 1 Commander, Birmingham, AL; LTC Bradley Rittenhouse, MD, Trauma and Critical Care Surgeon, Landstuhl Regional Medical Center, Germany; COL Sandra Wanek, MD, Deputy Commander of Professional Services, 396th Combat Support Hospital, WA; COL Jennifer Gurney, MD, Defense Committee on Trauma Chair, Joint Trauma System, San Antonio, TX; COL Jay Baker, MD, Special Operations Command Europe, Command Surgeon, Stuttgart, Germany

Point-of-Care Ultrasound Use by EMS Providers in Out-of-Hospital Cardiac Arrest

ENS Michael Kreiser OMS-II; 2LT Brianna Hill OMS-II; 2d LT Dikchhya Karki OMS-II; 2d LT Elke Wood OMS-II; Rocky Vista University College of Osteopathic Medicine, Parker, CO; Isain Zapata PhD, Assistant Professor, Department of Biomedical Sciences, Rocky Vista University, Parker, CO; COL Retd USAMC Anthony J. LaPorta MD, FACS, FACOS(H), Department of Defense Health Board Committee on Trauma and Injury and Professor of Surgery and Military Medicine, Rocky Vista University, Parker, CO; Ryan Shelton MPS, NTEMT-P, Paramedic Lieutenant and Training Lieutenant; Jodi Peterson BA, EMS Clinical Services Director and EMS Supervisor, South Metro Fire Rescue, Centennial, CO; John Riccio MD, Medical Director, South Metro Fire Rescue and Centura Prehospital Services, Centennial, CO; Paul Khalil MD, Assistant Professor and Assistant Director of Pediatric Emergency Medicine POCUS, Department of Pediatrics, University of Louisville/Norton, Children's Hospital, Louisville, KY; Toney Amanda MD, Assistant Professor/Director of Pediatric Emergency Ultrasound and Pediatric Emergency Medicine Physician, University of Colorado/Denver Health Medical Center, Denver, CO

A Direct Comparison of Two Simplified Neuro-Assessment Scores to the Glasgow Coma Scale for Appropriate Field Activation of Trauma Resources

Capt Matthew M. Gangidine, MD, USAF, MC, FS (EMS/Research Fellow, Staff Emergency Medicine Physician), Department of Emergency Medicine and Paramedic Division; Steven Hulac, BS, EMT-P (Captain for Quality Management), Paramedic Division; Taylor McCormick, MD, MSc (Staff Emergency Medicine Physician), Department of Emergency Medicine; Eric Campion, MD (Trauma and Acute Care Surgeon), Department of Surgery; Jason Haukoos, MD, MSc (Director for Research, Staff Emergency Medicine Physician), Department of Emergency Medicine; all from the Ernest E. Moore Shock Trauma Center at Denver Health Medical Center, Denver, CO

Change My Mind: Special Operations Medics Should Carry Paralytic Drugs

CPT Tyler Hummel, DO, Emergency Medicine Resident, Carl R. Darnall Army Medical Center Department of Emergency Medicine, Fort Hood, TX; LTC Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; SO1 Jacob Bax, SOCM, Lead Medic SO2 Mitchell Zwade, SOCM - SEAL Team EIGHT, Virginia Beach, VA

Austere Fasciotomy:

Alternative Equipment for Performance in the Field

Maj Erik DeSoucy, DO, USAF, MC, SFS, Department of Trauma Surgery, Brooke Army Medical Center JBSA Fort Sam Houston, TX; Maj Christopher Hewitt, DO, USAF, MC, SFS Department of Emergency Medicine, USAF, Brooke Army Medical Center, JBSA Fort Sam Houston, TX; Scotty Bolleter, BS, EMT-P Chair, Centre for Emergency Health Sciences Healthcare Innovations and Sciences Centre, Spring Branch, TX

Special Forces Medics Should Have Intranasal Medication Administration Capability

CPT Evan Stern, MD, Emergency Medicine Resident, PGY-1, Carl R. Darnall Army Medical Center, Fort Hood, TX; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; SO2 Kyle Najjar & SO2 Matt Devorin, SOTM, SEAL Team EIGHT, Virginia Beach, VA

In-Theater Assessment and Training of Resuscitative Balloon Occlusion of the Aorta

CPT Kyle Couperus, MD, RN, Emergency Physician, United States Army, Joint Base Lewis-McChord, WA; MAJ Thomas Kwolek, RN, Critical Care Nurse, United States Army, 30th Medical Brigade, Germany; 1LT Jamie Eastman, RN, Critical Care Nurse, Vermont Army National Guard, Colchester, VT; MAJ Kelly Green, RN, Emergency Nurse, United States Army, Virginia; COL (Ret.) Kyle Remick, MD, Trauma Surgeon, Uniformed Services University School of Medicine, Maryland

Special Operations Clinical Training at a Civilian Academic Medical Center during the COVID-19 Pandemic

Daniel Grabo, MD, Associate Professor of Surgery, West Virginia University, Morgantown, WV; Ashley Brumley, BS, Lab Technician, Fresh Tissue Training Program, WVU Critical Care and Trauma Institute Morgantown, WV; Josh Bombard BS, Graduate Research Assistant, West Virginia University Morgantown, WV; Kamil Abbas, Undergraduate Research Assistant, West Virginia University Morgantown, WV; Alison Wilson, MD, Professor of Surgery, West Virginia University, Morgantown, WV

First Hand Experience: A SOF Patient and His SOF Medics Detail an Evacuation from East Africa

SO1 Chandler Wright, Patient; SO1 Jacob Bax, SOCM, Senior Medic; SO2 Kyle Najjar, Paramedic, SOTM; SO2 Matt Devorin, SOTM; SO2 Mitchell Zwade, SOCM, SEAL Team EIGHT, Virginia Beach, VA; LTC Dan Brillhart, MD FACEP, Emergency Physician; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa

Multisite Randomized Clinical Trials on Sustained Acoustic Medicine for the Treatment of Musculoskeletal Injuries: Two Hundred and Ninety-Eight Patient Cohort Analysis

George Lewis, President/CEO, Zetroz Biosystems LLC

An Analysis of US Africa and Indo-Pacific Commands Military Working Dog Medical Transportation, 2008–2018

Mireya A. Escandon, BS (1); Brandon Carius, DSc, MPAS (1,2); Lauren Reeves, MS (5); Krystal Bean, DVM, (1); MAJ Steven G. Schauer, DO, MSCR (1,3,4)

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An Analysis of Prehospital Administration of Blood Products to Pediatric Casualties in Iraq and Afghanistan

Ryann S. Lauby, Research Assistant; Sarah A. Johnson, Research Assistant, USAISR, JBSA Fort Sam Houston, TX; Mathew A. Borgman LTC, MD, Brooke Army Medical Center, JBSA Fort Sam Houston, TX; Uniformed Services University of the Health Sciences, Bethesda, Maryland; James Bynum, PhD, USAISR, JBSA Fort Sam Houston, TX; Guyon J. Hill, LTC, Carl R Darnall Army Medical Center, Fort Hood, TX; Steven G. Schauer MAJ, DO, MS, USAISR, JBSA Fort Sam Houston, TX; Brooke Army Medical Center, JBSA Fort Sam Houston, TX; Uniformed Services University of the Health Sciences, Bethesda, MD

Treatment of Wound Infection Using Omadacycline Versus Linezolid: Pooled Results From Phase 3 Randomized, Double-Blind, Multicenter Studies (OASIS-1 And -2)

Kelly Wright, PharmD, BCPS; Dina Besece, PharmD; Surya Chitra, PhD, MBA; Amy Manley, BS, Paratek Pharmaceuticals, King of Prussia, PA

Carotid Arterial Occlusion Utilizing a Cadaver Flow Simulation Model

Jeffrey S. Williams, LtCol, DO, FACOS, Plastic, Hand and Craniofacial Surgery, ARC Trauma, LLC; Lauren Edmonson, Lt., BSAH, MS1, AEMT, ARC Trauma, LLC; Austin J. Ballentine, BSME, Flow Dry Technology and ARC Trauma, LLC; Caleb T. Williams, BSME, ARC Trauma, LLC; Joseph Agoston, BS Biology, BS Circulation Technology, CCP (Certified Clinical Perfusionist), Medtronic; Melissa K. Burns, MD, Emergency Medicine, Anatomy, Cedarville University; Timothy L. Norman, PhD, Mechanical and Biomedical Engineering Cedarville University and ARC Trauma, LLC

Hypothermia Management, an Evaluation of a Novel Lightweight System

Philippa Caine BSc (Hons), Final Year Medical Student Liverpool, UK; Mark Taylor, PhD, Research Fellow, University of Leeds, UK; Colin Smart BSc (Hons), Partner - TSG Associates LLP, Retired Sargent RAMC, Medical Support Unit Medic 22 SAS; Simon E Pennells BSc., V.P. Operations, Kingfisher Medical, Columbus OH; John Hall MBE, FIMC RCS Ed., Hon. Senior Clinical Lecturer, University of Birmingham, UK

S.T.A.T. vs. CAT: A Pilot Comparison after a Video Demonstration

CPT Brandon M Carius, DSc, MPAS, Brooke Army Medical Center, JBSA Fort Sam Houston, TX; 121 Field Hospital, Camp Humphreys, Republic of Korea; Ashley D. Tapia, BS; Nguvan Uhaa, BS, LVN; Sarah A. Johnson; Camaren M. Cuenca; Ryann S. Lauby, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; MAJ Steve G. Schauer, DO, MS Brooke Army Medical Center, JBSA Fort Sam Houston, TX; US Army Institute of Surgical Research, JBSA Fort Sam Houston, Texas Uniformed Services University of the Health Sciences, Bethesda, MD, 59th Medical Wing, JBSA Lackland, TX

Incidence of Post-traumatic Seizures in Children During Combat Operations in Afghanistan and Iraq

Camaren M Cuenca, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; LTC Matthew A Borgman, MD, Brooke Army Medical Center, JBSA Fort Sam Houston, TX; MAJ Bradley A Dengler, MD, Department of Neurosurgery, Walter Reed National Military Medical Center, Bethesda, MD; MAJ Steven G Schauer, DO, MS, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Brooke Army Medical Center, JBSA Fort Sam Houston, TX; Uniformed Services University of the Health Sciences, Bethesda, MD

Learning Cyber-Physical Models of Resuscitation

Mayra Melendez, Graduate Student, Auton Lab, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA; Michael R. Pinsky, MD, Professor, Department of Critical Care Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA; Joo Yoon, MD, Fellow, Department of Critical Care Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA; Gilles Clermont, MD, Professor, Department of Critical Care Medicine, School of Medicine, University of Pittsburgh, Pittsburgh, PA; Artur Dubrawski, PhD, Professor, Auton Lab, School of Computer Science, Carnegie Mellon University, Pittsburgh, PA

Epidemiology of Ankle Sprain in the Military: A Systematic Review of Literature

Allison Goodrich, BA, Medical Student 1; Brandon Lee Morris, MD, Civilian Physician 2; Christina Anna Hermanns, BS, Medical Student 1; Ashley Ann Herda, PhD, Professor/Researcher 1; Armin Tarakemeh, BA, Research Assistant 1; Bryan George Vopat, MD, Civilian Physician 1

- 1 University of Kansas Medical Center, Kansas City, KS
- 2 Southeast Kansas Orthopedic Clinic, Parsons, KS

Retrospective Review of Neuroendocrine Dysfunction among National Intrepid Center of Excellence (NICoE) Intensive Outpatient Program (IOP) Patients

LT Rachael Campbell, MD, Internal Medicine Intern, Naval Medical Center San Diego, San Diego CA; ENS Bryson Hewins, BS, MS2 USUHS SoM, Bethesda MD; Sara Lippa, PhD, ABPP, Senior Research Investigator, NICoE, WRNMMC, Bethesda MD; LCDR Kent Werner, MD, PhD, Assistant Professor, Department of Neurology, USUHS, Director of Research, WRNMMC Sleep Disorders Center, Bethesda MD; Dr. Kimbra Kenney, MD, Professor, Neurology, USUHS, Service Chief, Research Operations, NICoE, WRNMMC, Bethesda MD

Feasibility of Obtaining Intraosseous and Intravenous Access Using Night Vision Goggle Focusing Adaptors

Eric Koch, LCDR, USN, Emergency Medicine Resident; Alexander Iteen, LT, USN, Emergency Medicine Resident; Amanda Wojahn, LT, USN, Emergency Medicine Resident; Amy Hildreth, LDCR, USN, Emergency Medicine Staff; Combat Trauma Research Group West, Naval Medical Center San Diego, San Diego, CA; Sherri Rudinsky, CAPT, USN, Uniformed Services University of the Health Sciences, Military and Emergency Medicine Department; Travis Deaton, CAPT, USN, 1st Marine Division, I MEF; Greg Zarow, PhD, Combat Trauma Research Group West, Naval Medical Center San Diego, San Diego, CA; The Emergency Statistician, Idyllwild, CA

Practice Advancement: Resuscitative Endovascular Balloon Occlusion of the Aorta at the Point of Injury

CPT Tyler Miklovic, MD, Emergency Medicine Resident, Carl R. Darnall Army Medical Center, Fort Hood, TX; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command, Africa; SO1 Jacob Bax, SOTM, SEAL Team EIGHT, Virginia Beach, VA; John McCarley, Former PJ, Paramedic, Aevex Aerospace, San Diego, CA

Development of a Death Classification System for Conducting Combat-Relevant Research in Civilian Populations

Nee-Kofi Mould-Millman, MD1; Lina V. Mata, MD1; Chandni Patel, BPH1; Shaheem de Vries, MBChB, MPhil2; Hendrick J. Lategan, MBChB3; Julia Dixon, MD, MPH1; Maj Alexander Beardard, MD1; MAJ Steve Schauer, DO, MS4; Col. Cord Cunningham, MD, MPH5; COL Tyson E Becker, MD, MPH6; Ernest E. Moore, MD1,7; Col. Vikhyat Bebartha, MD1; and Adit A. Ginde, MD, MPH1.

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- 5 Joint Trauma System Committee on En Route Care, Fort Sam Houston, TX
- 6 Brooke Army Medical Center, Fort Sam Houston, TX
- 7 Denver Health, Ernest E Moore Shock Trauma Center, Denver, CO

Epidemiology and Outcomes of Combat-Relevant Prolonged Trauma Care (EpiC): A Prospective International Multicenter Study.

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A Descriptive Analysis of Battlefield First Responder and Combat Lifesaver Interventions During the Role 1 Phase of Care

CPT Matthew W. Paulson, BA, Medical Student (1, 2); John D. Hesling, BS, Medical Student (1, 2); MAJ (Ret) Jerome T. McKay, PhD, USA, CU Anschutz Center for COMBAT Research Program Manager (2); Col Vikhyat S. Bebartha, MD, USAF, CU Anschutz Center for COMBAT Research Director/Emergency Medicine Physician/Professor (2, 3); Brig Gen Kathleen Flarity, DNP PhD, USAF, CU Anschutz Center for COMBAT Research Deputy Director/Mobilization Assistant to the Command Surgeon/Associate Professor (2, 4); COL (Ret) Sean Keenan, MD, USA, CU Anschutz Center for COMBAT Research Assistant Director/Emergency Medicine Physician (2, 5, 12); LTC Jason F. Naylor (6); MAJ Andrew D. Fisher, MD, LP, Resident Physician (7,8); MAJ Michael D. April, MD (9); MAJ Steven G. Schauer, DO, MS, USA, Emergency Medicine Physician (3, 10, 11, 12)

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- 4 Headquarters Air Mobility Command, Command Surgeon, Scott Air Force Base, IL
- 5 Joint Trauma System, Defense Health Agency, JBSA Fort Sam Houston, TX
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- 7 Medical Command, Texas Army National Guard, Austin, TX
- 8 Department of Surgery, University of New Mexico School of Medicine, Albuquerque, NM
- 9 2nd Stryker Brigade Combat Team, 4th Infantry Division, Fort Carson, CO

- 10 Department of Emergency Medicine, Brooke Army Medical Center, Fort Sam Houston, TX
- 11 United States Army Institute of Surgical Research, JBSA Fort Sam Houston, TX
- 12 Uniformed Services University of the Health Sciences, Bethesda, MD

An Analysis of the Incidence of Administration of Expired Blood Products in Theater

MAJ Steven G Schauer, DO, MSCR (1, 2, 3); Ryann Lauby (1); MAJ Andrew D Fisher, MD, MPAS (4); COL Jason B Corley, MS, MT, (ASCP)SBB (5); Col Stacy Shackelford, MD (2, 6); LTC Matthew A Borgman, MD (2); COL Andrew P Cap, MD, PhD (1); James Bynum, PhD (1)

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- 4 University of New Mexico Hospital, Albuquerque, NM
- 5 Armed Services Blood Program, Falls Church, VA
- 6 Joint Trauma System, JBSA Fort Sam Houston, TX

A Prospective Assessment of a Novel, Disposable Video Laryngoscope with Physician Assistant Trainees Using a Synthetic Cadaver Model

Steven G Schauer, DO, MS (1, 2, 3); Tyler Davis, MD (2); Michelle Johnson, CRNA (4); Mireya A Escandon, BS (1); Nguvan Uhaa (1); Ashley D Tapia, BS (1); Kerri Van Arnem, PA-C (5); Joseph K Maddry, MD (2, 3, 4); Michael D April, MD, DPhil, MSc (3, 6)

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- 4 59th Medical Wing, JBSA Fort Sam Houston, TX
- 5 Medical Readiness Center of Excellence, JBSA Fort Sam Houston, TX
- 6 4th Infantry Division, 1st Brigade Combat Team, Fort Carson, CO

Rapid-Stop Tourniquet Self-Application by SWAT Operators Is Significantly Faster than Combat Application Tourniquet

James G Vretis, DO, Medical Director /Tactical Physician Marcos Mavromaras, MD, Tactical Physician Center for Tactical Medicine, Carlsbad, TX

Serial Physiologic Characterizations of the Trauma Care in a Rucksack (TRACIR) Project Cohort

Leonard S. Weiss, MD (Assistant Professor); David D. Salcido, PhD (Research Assistant Professor); Chase Zikmund, MS (Research Associate); Francis X. Guyette, MD (Associate Professor); Michael R. Pinsky, MD (Professor); Colonel/Retired Ronald K. Poropatich, MD (Professor), University of Pittsburgh School of Medicine, and the Center for Military Medicine Research, Pittsburgh, PA

Efficacy of Omadacycline in the Treatment of Acute Bacterial Skin And Skin Structure Infections (ABSSSI) in Patients With Cellulitis or Abscesses

Philip A. Giordano, MD, FACEP-1; Mauricio Rodriguez, PharmD, BCPS, BCCCP, BCIDP-2; Surya Chitra, PhD, MBA-2; Amy Manley, BS-2; Kelly Wright, PharmD-2; Gregory Volturo, MD, FACEP-3

- 1 Orlando Health, Inc., Orlando FL
- 2 Paratek Pharmaceuticals, King of Prussia, PA
- 3 University of Massachusetts Medical School, Worcester, MA

Lessons Learned During Prolonged Care of Combat Casualties by a Minimally Manned Surgical Team.

LTC Richard Lesperance, MD FACS, Brooke Army Medical Center, San Antonio, TX; LTCOL Steven Adamson, MD FRACGP, Directorate of Army Health, Australian Army Headquarters, Canberra, ACT, Australia; COL Jennifer Gurney, MD FACS, US Army Institute of Surgical Research, San Antonio, TX

Practice Makes Perfect: Integration of Hoist Operations into Trauma Lanes in the Deployed Setting

CPT Jessica Eker, MD, Emergency Medicine Resident, Carl R. Darnall Army Medical Center Department of Emergency Medicine, Fort Hood, TX; SO2 Matt Devorin, SOTM, SEAL Team EIGHT, Virginia Beach, VA; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command – Africa; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse, Expeditionary Resuscitative Surgical Team 6, Special Operations Command – Africa

Mass Casualty Preparations on Mounted Operations: A Solution from East Africa

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Proof of Concept: Orthopaedic Simulation Training

2LT Joshua Hansen; 2d Lt Austin MacDonald; 2d Lt Austin Rasmussen; 2d Lt Corbin Lee; ENS Bryson Hewins, Medical Students, USUHS, Bethesda MD; MAJ Brenton Franklin MD, Assistant Professor of Surgery, USU/Walter Reed National Military Medical Center; LtCol Robert McGill MD, Chief, Orthopedic Surgery and Podiatry, Fort Belvoir Community Hospital; CAPT (ret) Joseph Lopreiato MD, MPH, CHSE-A, Associate Dean for Simulation Education, USUHS, Bethesda, MD

Helicopter Crashes in the Deployed, Combat Setting: The Department of Defense Trauma Registry Experience

CPT Joseph W. Jude, MD, Emergency Medicine Resident (1); CPT Adam M. Spanier, MD, Emergency Medicine Resident (1); CPT Hugh Hiller, MD, Staff Physician (1); CPT Wells Weymouth, MD, Flight Surgeon (2); COL Cord Cunningham, MD, Staff Physician (1); LTC(P) Guyon J. Hill, MD, Staff Physician (1); MAJ Steven G. Schauer, DO, Staff Physician (3,4)

- 1 Carl R. Darnall Army Medical Center, Fort Hood, TX
- 2 Hunter Army Airfield, Savannah, GA
- 3 US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX
- 4 Brooke Army Medical Center, JBSA, TX

Albumin as a Blood-Sparing Resuscitation Fluid in Austere Environments

CPT Sam Lloyd, MD, Emergency Medicine Resident, Carl R Darnall Army Medical Center, Fort Hood, TX; SO2 Kyle Najar, Paramedic, SOTM, SEAL Team EIGHT, Virginia Beach, VA; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse; MAJ(P) Dan Brillhart, MD, FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa

The COVID-19 Army Rapid Assessment Tool (CARAT) for Management of COVID-19 in the Deployed Setting

LTC Michael J. Walters, MD (general surgeon)-1; COL Maurice L. Kliwer, MD (DCCS)-1; CPT Elizabeth M. Mannion, MD (emergency medicine physician)-1; LTC Angela L. Smith, DNAP, CRNA (CRNA)-1; LTC Henry R. Teplicki, MSN (OIC ICU/ICW)-1; COL Christopher W. Honea, RN (DCN)-1; CPT Chuck A. Venable, MSN, AG-ACNP (NP)-1

3D MCDS (Kuwait): LTC Brandon L. Aden, MD, MPH (physician)-2; LTC Charles L. Bruehl, MD, PhD (Chief of Professional Services)-2; CPT Mohit Sachdeva, PhD (theater microbiologist)-2; COL Donna E. Ward, MSN, CRNA (chief nurse)-2; COL Stephanie A. Wolloff, DNS, APRN (DCOS)-2; MAJ Adam D. Clark, MHS, PA-C (company commander)-3

1 411th Hospital Center FWD (Camp Arifjan, Kuwait)

2 3D MCDS (Kuwait)

3 230th Brigade Support BN, 30th ABCT

A Prospective, Feasibility Assessment of a Novel, Disposable Video Laryngoscope with Special Operations Medical Personnel in a Mobile Helicopter Simulation Setting

Jessica Mendez, BS (1); Nguvan Uhaa, LVN (1); MAJ Ian L. Hudson, DO, MPH (1, 2); CPT Wells L. Weymouth, MD (5); MAJ Steven G. Schauer, DO, MS (1, 2, 3, 4)

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4 59th Medical Wing, JBSA Fort Sam Houston, TX

5 160th Special Operations Aviation Regiment, Hunter Army Airfield, GA

Emergent Resuscitative Thoracotomy and REBOA Kit for Point-of-Injury Care.

CPT(P) Dallin Mitchell, DO, Emergency Medicine Resident, Darnall Army Medical Center; CPT Erick Thronson, BSN, RN, CFRN, Trauma Nurse, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; SO2 Kyle Najjar, Paramedic, SOTM, SEAL Team Eight, Virginia Beach, VA; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa

Seizure with an Explosive Ending. Seizure Presumptively due to Ingestion of C4 Plastic Explosive.

CPT Anthony Netzel, DO, Emergency Medicine Resident, Carl R. Darnall Army Medical Center, Fort Hood, TX; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command, Africa; SFC Christopher Holley, 18D, Senior Medical Sergeant, 7th Special Forces Group; CPT Evan Torline, MD, Battalion Surgeon, 7th Special Forces Group, Elgin AFB, FL

Austere Resuscitation of Delayed-Presentation Head Trauma in a Pediatric Patient: A Case Report From East Africa

MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; 2LT Kai Norbeck, MS4, Edward Via College of Osteopathic Medicine, Blacksburg, VA

The Sick Call Bag: A Packing List for Disease and Non-Battle Injury

CPT Alexandra E. Palmer, MD, Emergency Medicine Resident, Carl R. Darnall Army Medical Center, Fort Hood, TX; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa

DCR and NSW Integration

CPT Eric Phillips, MD, Emergency Medicine Resident, Carl R. Darnall Army Medical Center, Fort Hood, Tx; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse, Expeditionary Resuscitative Surgical Team 6, Special Operations Command - Africa; SO1 Jacob Bax, SOTM, SEAL Team EIGHT, Virginia Beach, VA; SO2 Kyle Najjar, Paramedic, SOTM, SEAL Team EIGHT, Virginia Beach, VA; SO2 Matt Devorin, SOTM, SEAL Team EIGHT, Virginia Beach, VA; SO2 Mitchell Zwade, SOTM, SEAL Team EIGHT, Virginia Beach, VA

Implementing an Ultrasound Guided Peripheral Intravenous Pathway for Difficult Access Patients in the Emergency Department

Michael T. Robertson Major RN, BSN, BCEN, Doctoral Student-Long Term Health and Education Training, Scholarship Recipient, University of Maryland, Acute Care Nurse Practitioner, DNP Candidate (Graduate May, 2021), AMEDD Student Detachment (ASD), 187th Medical Battalion, 32nd Medical Brigade, Joint Base San Antonio, TX; Melissa King, Hospital Corpsman 2nd Class (HM2), Corpsman, FMF, U.S. Navy Lead Petty Officer, Emergency Department, Walter Reed National Military Medical Center, Bethesda, MD

Novel Detection and Treatment Devices for Life-Threatening Subdural Hemorrhage in Prolonged Field Care Settings

Carissa Rodriguez, PhD; Kevin Wolfe, PhD; Michael Fitch, PhD; Max Basescu; Tim Slesman, PhD; Jared Wormley; David Blodgett, PhD, Johns Hopkins University Applied Physics Laboratory, Laurel MD; Adam Cohen, MD, Johns Hopkins University Applied Physics Laboratory, Department of Neurology, Johns Hopkins School of Medicine, Baltimore MD; David L. Brody, MD, PhD, The Center for Neuroscience and Regenerative Medicine, Uniformed Services University of the Health Sciences and National Institutes of Health, Department of Neurology, Uniformed Services University of the Health Sciences, Laboratory of Functional and Molecular Imaging, National Institute of Neurological Disorders and Stroke, Bethesda, MD

Placement Of Antibiotic Powder in Wounds During the Emergency Room

Darren S. Baldwin, BS, MAA, RN (1); Robert A DeLorenzo, MD (2); Joseph C Wenke, PhD (1); Major Steven G Schauer, DO, MS (1, 3, 4, 5)

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Prehospital Intervention Analysis of Helicopter Crashes in Afghanistan

CPT Adam M. Spanier, MD, Emergency Medicine Resident (1); CPT Joseph W. Jude, MD, Emergency Medicine Resident (1); CPT Hugh Hiller, MD, Staff Physician (1); CPT Wells Weymouth, MD, Flight Surgeon (2); COL Cord Cunningham, MD, Staff Physician (1); LTC(P) Guyon J. Hill, MD, Staff Physician (1); MAJ Steven G. Schauer, DO, Staff Physician (3,4)

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3 US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

4 Brooke Army Medical Center, JBSA, TX

A Novel Innovation for Prehospital Hypothermia Management via STEAM: System for Thermogenic Emergency Airway Management

2LT Bradley Pierce, BS1; 2LT Ryan A. Stevens, BS1; MAJ Laura Tilley, MD, FACEP2

- 1 Army Medical Student, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD, USA
- 2 Assistant Professor of Emergency Medicine, Dept. of Military and Emergency Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD, USA

External Focus of Attention to Mitigate Reinjury Risk and Maintain Readiness after Musculoskeletal Injury

Abbey Thomas, PhD, ATC, Assistant Professor of Kinesiology; Luke Donovan, PhD, ATC, Assistant Professor of Kinesiology, University of North Carolina at Charlotte, Charlotte, NC

Operator Syndrome:

Literature Review and Rehabilitation Model Development

COL Jeffrey M. Tiede, MD; Reginald O'Hara, PhD; Lewis Sussman, PsyD, Center for the Intrepid, Brooke Army Medical Center

Chemical Warfare Agents in Terrorist Attacks: A Regional Comparison.

Derrick Tin, MBBS Senior Fellow Alexander Hart, MD Director of Research Attila Hertelendy, PhD Faculty Gregory Ciottone, MD Director Department of Emergency Medicine, Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, Massachusetts, USA

Prolonged Field Care: A Case Report of Combat Casualties in an Austere Environment in East Africa

CPT Stefanie Williams, MD, Emergency Medicine Resident, Carl R Darnall Army Medical Center, FT Hood, TX; CPT Erick Thronson, BSN, RN, CEN, CFRN, Trauma Nurse, Expeditionary Resuscitative Surgical Team 6, Special Operations Command – Africa; SO2 Mitchell Zwade, SOTM, SEAL Team EIGHT, Virginia Beach, VA; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitation Surgical Team 6, Special Operations Command - Africa

The Advantages of Calcium Chloride for Blood Transfusion Induced Hypocalcaemia

CPT Stefanie Williams, MD, Emergency Medicine Resident, Carl R Darnall Army Medical Center, FT Hood, TX; SO2 Matt Devorian, SOTM, SEAL Team Eight, Virginia Beach, VA; MAJ(P) Dan Brillhart, MD FACEP, Emergency Physician, Expeditionary Resuscitation Surgical Team 6, Special Operations Command-Africa



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