

## 2016 Special Operations Medical and Scientific Assembly Abstracts

### TOP PODIUM PRESENTATION

#### Expanding Military Trauma Research in Law Enforcement and Responder Populations

Carolyn Elizabeth Cuevas, MS, NRP, Senior Lecturer, College of Health Affairs, University of Texas Rio Grande Valley, Brownsville, TX

Recent battlefield trauma research has resulted in significant translational improvements for survivability; however, they are slow to garner widespread acceptance and implementation. The lack of not only comparable but also understandably relevant studies that translate to civilian populations has fueled resistance to implementation of proven military trauma survivability recommendations.

Employing proven battlefield trauma severity and survivability assessment methodologies, this review of officer mortality deepens the understanding of law enforcement duty mortality through identification of causes, incidence of specific trauma, and determination of possible survivability with the aim to reduce future mortality.

Using well-established military and trauma mortality classification methodologies, this approach identifies factors influencing survivability, allowing for improved planning, training, and field operations. Law enforcement officer duty fatalities often occur in situations where either the location or environment hinders immediate access to a definitive trauma facility. Similarities to battlefield trauma will be examined in this study to better understand the circumstances of potentially survivable death in law enforcement populations and tactical situations. Utilizing approaches from military prevention and control for civilian populations with significant risk of survivable polytrauma, the identification of factors influencing survivability aims to increase acceptance and adaptation of established military trauma survivability practices.

### TOP POSTER PRESENTATION

#### Ultrasound Detection of Soft Tissue Abscesses Performed by Non-physician US Army Medical Providers Naïve to Diagnostic Sonography

CPT Michael LaDuke, PA-C, EMPA DSc Candidate, US Army-Baylor University EMPA Program, Madigan Army Medical Center, JBLM, WA

**Background:** Patients commonly present to emergency rooms and primary care clinics with cellulitic skin infections with or without abscess formation. In military operational units, non-physician medical personnel provide most primary care and initial emergency medical care. The objective of this study was to determine if, after minimal training, Army physician assistants (PAs) and medics could use portable ultrasound (US) machines to detect superficial soft-tissue abscesses.

**Methods:** This was a single-blinded, randomized, prospective, observational study conducted over the course of 2 days at a military installation. Active duty military PAs and medics with little or no US experience were recruited to participate in the study. They received a short block of training on abscess detection, using both clinical exam skills (inspection/palpation) and US exam. The participants were then asked to provide a yes/no answer as to abscess presence in a chicken-tissue model. Results were analyzed to assess participants' ability to detect an abscess, compare the accuracy of their clinical exams with their US exams, and assess how often US results changed treatment plans initially based on clinical exam findings.

**Results:** 22 participants performed a total of 220 clinical exams and 220 US scans on 10 chicken-tissue abscess models. Clinical exam for abscess yielded a sensitivity of 73.5% (95% confidence interval [CI], 65.3%–80.3%) and a specificity of 77.2% (95% CI, 67.4%–84.9%), while US exam yielded a sensitivity of 99.2% (95% CI, 95.4%–99.9%) and a specificity of 95.5% (95% CI, 88.5%–98.6%) for abscess detection. Clinical exam yielded a diagnostic accuracy of 75.0% (95% CI, 68.9%–80.35) while US exam yielded a diagnostic accuracy of 97.7% (95% CI, 94.6%–99.2%), a difference in accuracy of 27.7% favoring US ( $p < .01$ ). Ultrasound changed the diagnosis in 56 of 220 cases (25.4% of all cases;  $p = 0.02$ ). Of these 56 cases, US led to the correct diagnosis 53 out of 56 times (94.6%).

### PODIUM PRESENTATIONS

#### Prehospital Analgesia Administration and Adherence to TCCC Guidelines: The Prehospital Trauma Registry Experience in Afghanistan

CPT Steven G. Schauer, DO (USAISR); Cord W. Cunningham, MD, MPH, FACEP, LTC, MC, FS, DMO, 1st Air Cav Brigade/TMC-12, Battlefield Prehospital and Disaster Medicine

### **Dramatic Reduction of Body Impedance ('DIR') Effect Via Subcutaneous Electrode Placement and Ultra-Miniature External Battlefield Defibrillator Based on This Effect**

Gary Abramov, CEO, Pacific Blue Innovations, LLC, Vista, CA

### **IFMK: Integrated Field Medical Kit**

Gary Abramov, CEO, Pacific Blue Innovations, LLC, Vista, CA

### **Canine Battlefield Medicine: Lessons Learned from 14 Years at War**

Janice L. Baker, DVM, DACVPM, Director of Research and Development, Veterinary Tactical Group, Vass, NC

### **Evaluation of a Multi-Media Mobile Medical Application to Support Prolonged Field Care in Austere Environments**

LTC Elizabeth Mann-Salinas, PhD, RN, Research Task Area Manager, USAISR, TX; SSG Dennis Jarema, 18D, ADN, Special Operations Forces-Paramedic Instructor (SOF-P), Joint Special Operations Medical Training Center; LTC Jeremy Pamplin, MD, Research Task Area Manager, USAISR, TX; LTC Jamie Riesberg, MD, Special Operations Combat Medic (SOCM) Director, Special Warfare Medical Group (A); COL Sean Keenan, MD, Command Surgeon, Special Operations Command, Europe; LTC Andre Cap, MD, Research Task Area Manager, USAISR, TX

### **Combat Wound Infections in Prolonged Field Care: Lessons from History**

LTC Kevin S. Akers MD, US Army Institute of Surgical Research; LTC Stuart Tyner PhD, Walter Reed Army Institute of Research, Silver Spring, MD; Joseph C. Wenke, PhD, US Army Institute of Surgical Research

### **Interventions to Improve Sleep and Next-Day Performance at High Altitude**

2d Lt Taylor Roth, Medical Student, Class of 2017, Uniformed Services University of the Health Sciences, Bethesda, MD

### **A New Era: The Growth of Physiologic Objective Measurements to Quantify and Improve Training**

C. Hutchinson, DO, Capt. USA; A.J. LaPorta, MD, Col. (R), USA; T. Hoang, MD, Capt. USN; A. Moloff, DO, Col. (R), USA; L. Gaul, MD, US Ski Team; R. Franciose, MD, US Ski Team; D. Robinson MS4, LT. USA; B. Noyes, MS4, LT. USA; J. Savas, MD, VCU; M. Czeka-jlo, MD, VCU; R. Alson, MD, WFU; E. McCain, PhD, KCUMB, J. Marlin, KCUMB; P. Volpe, DO, MG(R) USA

### **Compatibility of Hextend with Transexamic Acid**

Dr Nicholas Studer, Flight Surgeon, US Army; Dr Donald Keen, Deputy Medical Director for Critical Care Flight Paramedic Program

### **Getting Beyond PTSD: Back to the Basics—Repurposing the Tools We Have to Provide Efficient, Timely Treatment to Eliminate the Traumatic Response to Recalling Events**

Carrie A. Elk, PhD, LMHC, CTE, Elk Institute for Psychological Health and Performance, Tampa FL

### **Predicting Blood Transfusion Using Automated Analysis of Vital Sign Input from All Available Sources**

Peter Hu, PhD, University of Maryland, Baltimore, MD; Catriona Miller, PhD, US Air Force School of Aerospace Medicine, Wright Patterson AFB, Ohio; Stacy Shackelford, MD, Joint Trauma System, Joint Base San Antonio, TX; Shiming Yang, PhD, University of Maryland, Baltimore MD; Charles L. Halcome, BS, NREMT-P, FP-C, ATP, US Air Force Center for Sustainment of Trauma and Readiness Skills, Baltimore MD; Lauren Hartsy, MA, US Air Force School of Aerospace Medicine, Wright Patterson AFB, Ohio; Amechi Anazodo, MBBS, University of Maryland, Baltimore MD; Raymond Fang, MD, US Air Force Center for Sustainment of Trauma and Readiness Skills, Baltimore, MD; Colin MacKenzie, MB ChB, University of Maryland, Baltimore MD

### **Optimization of Simulation and Moulage in Scenario-Based Combat Medical Training**

C. Petersen, USAF Pararescue, 103RQS; S. Rush, USAF Pararescue, 103RQS; I. Gallo, Hofstra University, Hempstead, NY; B. Dalere, USAF Pararescue, 103RQS; B. Staak, USAF Pararescue, 103RQS; W. Smith, US Army, Grand Teton National Park Search and Rescue, Jackson, WY; M. Litt, US Army; W. Kerr, NREMT-P, ATP; M. Chandler, US Army

### **Fasciotomy in an Austere Location: Two Case Reports**

SSG Eric Davis, NREMT; SGT Hubert Draper, NREMT; SGT Micheal Spates, NREMT; MAJ Brian Alexander, CCR Nurse; MAJ Leigh-Anne Slack, DO, Special Operations Resuscitation Team—Charlie, Special Operations Medical Detachment, 528th Sustainment Brigade (Special Operations) (Airborne), Fort Bragg, NC

### **Shear Shock Waves in the Brain: Observation and Characterization With High Frame-Rate Ultrasound**

David Espindola, PhD, Post-Doctorate Research Associate, Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill, North Carolina State University, Chapel Hill, NC; Stephen Lee, BS, Research Technician, Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill, North Carolina State University, Chapel Hill, NC; Gianmarco Pinton, PhD, Assistant Professor, Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill, North Carolina State University, Chapel Hill, NC

### **Expanding Military Trauma Research in Law Enforcement and Responder Populations**

Carolyn Elizabeth Cuevas, MS, NRP, Senior Lecturer, College of Health Affairs, University of Texas Rio Grande Valley, Brownsville, TX

### **Stellate Ganglion Block for Treatment of PTSD Symptoms in Active Duty Service Members: A Randomized Controlled Trial and Qualitative Study**

Kristine Rae Olmsted, MSPH, Epidemiologist, RTI International, Research Triangle Park, NC; Bradford B. Walters, MD, PhD, Chief Medical Officer, RTI International, Research Triangle Park, NC; Russ Vandermaas-Peeler, MS, Research Psychologist, RTI International, Research Triangle Park, NC; COL Sean Mulvaney, MD, Consortium for Health and Military Performance, Uniformed Services University of the Health Sciences, Bethesda, MD; COL James Lynch, MD, MS, Command Surgeon, Special Operations Command Africa, Stuttgart, Germany; COL Shawn F. Kane, MD, FAAFP, FACSM, Command Surgeon, US Army Special Operations Command, Fort Bragg, NC; LTC Eugene Kim, MD, Chief, Specialty Behavioral Health, Womack Army Medical Center, Fort Bragg, NC; MAJ Michael Bartoszek, MD, Chief, Interdisciplinary Pain Medicine Clinic, Womack Army Medical Center, Fort Bragg, NC; MAJ Brian McLean, MD, Chief, Interdisciplinary Pain Management Center, Tripler Army Medical Center, Honolulu, HI; MAJ Ali Turabi, MD, Chief, Interdisciplinary Pain Management Center, Landstuhl Regional Medical Center, Landstuhl, Germany; LTC (P) Marla R. Hemphill, MD, Chief, Department of Behavioral Health, Womack Army Medical Center, Fort Bragg, NC; Jessica Kelley Morgan, MS, Research Analyst, RTI International, Research Triangle Park, NC

### **Effect of High Deck Accelerations on Surgical Tasks**

Eric Pierce, Human Factors Engineer, Naval Surface Warfare Center Panama City Division, Panama City, FL; Jeff Kiser, Biomedical Engineer, Naval Surface Warfare Center Panama City Division, Panama City, FL; Anthony J. LaPorta, COL Ret, Professor of Surgery and Military Medicine, Rocky Vista School of Medicine, Parker, CO

### **Case Report: Mass-Casualty Lightning Strike at Ranger Training Camp**

2d Lt Shannon N. Thompson, USAF, Medical Student, Uniformed Services University of the Health Sciences, Bethesda, MD; Capt. Zachary W. Wilson, MD, USAF, EM Physician, Eglin AFB, FL; Major Christopher B. Cole PA-C, USA, MPAS, Officer-In-Charge Troop Medical Clinic #8, FL; CPT Andrew R. Kennedy, PA-C, USA, MPAS, 6th Ranger Training Battalion, FL

### **Special Forces Medics' Self-Assessed and Demonstrated Competency in Prolonged Field Care Skills: Implications for Mission Preparation and Sustainment Training**

Ramey L. Wilson, MD, MPH, Command Surgeon, 1st Special Forces Group (Airborne), Joint Base Lewis-McChord, WA; James G. Paimore, PA-C, MEDCOM Commander's Initiative Group, Falls Church, VA; Doug Powell, MD, Staff Intensivist, Womack Army Medical Center, Fort Bragg, NC

## **POSTER PRESENTATIONS**

### **1. Injuries from Modern Army Combatives Competition**

Alex Houser, DO, PGY2 Family Medicine Residency, Womack Army Medical Center, Fort Bragg, NC; Caitlyn Rerucha, MD, Staff Physician, Adjunct Faculty, Department of Family Medicine, Carl R. Darnall Army Medical Center, Fort Hood, TX; Tyler Raymond, DO, Flight Surgeon, 2-158th AHB, 16th CAB, Tacoma, WA; Benjamin Ingram, MD, Staff Physician, Department of Family/Sports Medicine, Keller Army Community Hospital, West Point, NY

### **2. Implementation and Evaluation of the Medical Proficiency Training (MPT) at Duke University Medical Center: The Anesthesiology and Regional Anesthesia Rotation with 18 Delta Medics**

Alicia Warlick, MD, Assistant Professor; Michael Shaughnessy, MD, Assistant Professor, Department of Anesthesiology, Division of Regional Anesthesia, Duke University Medical Center, Durham, NC

### **3. A Human Factors Design Approach for Development of a Novel Cricothyrotomy Assist Device**

Amit Shah, MD, Assistant Professor of Clinical Emergency Medicine, Georgetown University School of Medicine, Faculty Associate, National Center for Human Factors in Healthcare, Senior Attending Physician, Department of Emergency Medicine, MedStar Washington Hospital Center, Washington, DC; Chief Medical Officer, InnoVital Systems, Beltsville, MD; Curt Kothera, PhD, Visiting Associate Research Scientist, Aerospace Engineering Department, University of Maryland, College Park, MD; Senior Scientist and Program Manager, InnoVital Systems, Inc., Beltsville, MD; Natalie Abts, MS, Program Manager, Usability Services, National Center for Human Factors in Healthcare, MedStar Health, Washington, DC

### **4. RMP—A Novel Solution to Healthcare Disparities at Home and Abroad**

Andrew J. Brown, External Education Coordinator, Operational Medicine Unit, Diplomatic Security Service; Frank R. Dehnisch, Operational Medicine Instructor, Operational Medicine Unit, Diplomatic Security Service; Erik S. Glassman, Assistant Unit Chief, Operational Medicine Unit, Diplomatic Security Service

### **5. Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) Restores Carotid Blood Flow Faster Than Blood Resuscitation During Massive Hemorrhage in Swine**

Andriy Batchinsky, MD; Brendan Beely, CRT; Tim Park, MD; Slava Belenkiy, MD; William Baker; Corina Necsoiu, MD; Jay Aden, PhD; Leopoldo Cancio, MD, US Army Institute of Surgical Research

**6. Risk and Benefit Analysis of Abdominal Aortic and Junctional Tourniquet (AAJT) Used to Control Junctional Hemorrhage in Swine**

Bijan S. Kheirabadi, PhD; John F. Kragh Jr, MD; Michael A. Dubick, PhD, US Army Institute of Surgical Research, JBSA, Fort Sam Houston, TX

**7. Use of the Cardiohelp ECLS System Yields High Provider Satisfaction**

Brendan Beely, CRT, Respiratory Therapy Research Assistant, The Geneva Foundation, US Army Institute of Surgical Research, San Antonio, TX; Kathryn Negaard, RN, ECMO Program Coordinator, US Army Institute of Surgical Research, San Antonio, TX; Jeremy Pamplin, MD, Medical Director, US Army Institute of Surgical Research, San Antonio, TX; Kevin Chung, MD, Research Director (Interim), US Army Institute of Surgical Research, San Antonio, TX; Leopoldo Cancio, Task Area Manager, Burn Surgeon, US Army Institute of Surgical Research, San Antonio, TX; Andriy Batchinsky, MD, Principal Investigator, The Geneva Foundation, US Army Institute of Surgical Research, San Antonio, TX

**8. An Electronic Wound Mapping System**

C. Fenrich, BS; S. Shingleton, MS, RN, CCRN, CCNS; M.L. Serio-Melvin, MSN, RN, CNS-BC, CCRN; J. Salinas, PhD

**9. Virtual Critical Care Consultation Service as an Adjunct to Prolonged Field Care**

Capt Jeffrey DellaVolpe, USAF, Staff Intensivist, San Antonio Military Medical Center, San Antonio, TX; Maj Doug Powell, US Army, Staff Intensivist, Womack Army Medical Center, Fort Bragg, NC; LTC Jamie Riesberg, US Army, Director Special Operations Combat Medic Program, Special Warfare Medical Group, Fort Bragg, NC; Col Sean Keenan, US Army, SOCEUR Surgeon, Chair SOMA PFC Workgroup, Stuttgart, Germany; Maj William Vasios, US Army, SOCAFRICA, Stuttgart, Germany; SSG Paul Loos, LTC, US Army, Medical Instructor SFMS, Special Warfare Medical Group, Fort Bragg NC; Kevin Chung, Col (Ret), US Army, US Army Institute for Surgical Research; Chuck Lappan, LTC, Project Manager, OTSG Telemedicine Teleconsultation Programs; Jeremy Pamplin, US Army, US Army Institute for Surgical Research

**10. Point of Injury Telementoring and Encounter Documentation Over Secure Tactical Radio Networks**

Carl Manemeit; Gary Gilbert, PhD, PM Medical Intelligent Systems, US Army Medical Research and Materiel Command (USAMRMC) Telemedicine and Advanced Technologies Research Center (TATRC), Fort Detrick, MD

**11. Evaluation of Tactical Lighting, in a Low-Light Environment, and Their Effects on Contrast Sensitivity**

Charles R. Hutchinson, DO, CPT USA, Resident MACH, Ft. Benning, Columbus, GA; Antony J. Garzone, 2LT USA MS3, Rocky Vista University College of Osteopathic Medicine, Parker, CO; Alexander Bowers, 2LT USA MS3, Rocky Vista University College of Osteopathic Medicine, Parker, CO; Douglas Robinson, 2LT USA MS4, Rocky Vista University College of Osteopathic Medicine, Parker, CO; Anthony La Porta, COL Ret. USA MD, FACS, Professor of Surgery, College of Osteopathic Medicine, Rocky Vista University, Parker, CO; Robert

W. Enzenauer, MD, MPH BG (Retired), CO Army NG, Professor of Ophthalmology and Pediatrics, Chief of Ophthalmology, Children's Hospital Colorado; Chris Calvano, MD, PhD FACS, FASOPRS MAJ USAR MC, FS Department Medical Education, University of Central Florida, Orlando, FL

**12. Evaluation of Tactical Lighting, in a Low-Light Environment, and Their Effects on Vision Recovery as Measured by Visual Acuity**

Charles R. Hutchinson, DO, CPT USA, Resident MACH, Ft. Benning, Columbus, GA; Alexander Bowers, 2LT USA MS3, Rocky Vista University College of Osteopathic Medicine, Parker, CO; Antony J. Garzone, 2LT USA MS3, Rocky Vista University College of Osteopathic Medicine, Parker, CO; Douglas Robinson, 2LT USA MS4, Rocky Vista University College of Osteopathic Medicine, Parker, CO; Anthony La Porta, COL Ret. USA MD, FACS, Professor of Surgery, College of Osteopathic Medicine, Rocky Vista University, Parker, CO; Robert W. Enzenauer, MD, MPH BG (Retired), CO Army NG, Professor of Ophthalmology and Pediatrics, Chief of Ophthalmology, Children's Hospital Colorado; Chris Calvano, MD, PhD, FACS, FASOPRS MAJ USAR MC, FS Department Medical Education, University Central Florida, Orlando, FL

**14. Heat Injury Versus GSW to the Head**

CPT Jerome Barron, DO, PGY-2, Family Medicine Residency Program, Womack Army Medical Center, Ft. Bragg, NC; CPT Collin Hu, DO, PGY-3, Family Medicine Residency Program, Womack Army Medical Center, Ft. Bragg, NC

**15. Ultrasound Detection of Soft Tissue Abscesses Performed by Non-Physician US Army Medical Providers Naïve to Diagnostic Sonography**

CPT Michael LaDuke, PA-C EMPA DSc Candidate, US Army, Baylor University EMPA Program, Madigan Army Medical Center, JBLM, WA

**16. Combat Medics Can Safely Administer Parenteral Medications in the Emergency Department: The Results of a Quality Assurance Project**

CPT Steven Schauer, DO (USAISR)

**18. Performance Characteristics of Pneumatic Tourniquet/Compression Devices in a Hypobaric Environment**

Dario Rodriguez, Jr., CMSgt (Ret), MSc, RRT, Research Health Science Officer, USAF School of Aerospace Medicine, WPAFB, OH; Richard Branson, MSc, RRT, Professor of Surgery, University of Cincinnati, Cincinnati, OH; Thomas Blakeman, MSc, RRT, Instructor of Surgery, University of Cincinnati, Cincinnati, OH; Dr Michael Petro, Col, USAF, Director, CSTARS-Cincinnati, Cincinnati, OH; Dr Jay Johannigman, Col, USAFR, Director, Division of Trauma and Critical Care, University of Cincinnati, Cincinnati, OH

**19. Ultrasound Evaluation of Soft Tissue Foreign Bodies by Army Medics**

David L. Driskell, MPAS, PA-C, DScPA at Madigan Army Medical Center, WA (LTHET Baylor University)

**20. Gender Differences in Injury Risk Aboard High-Speed Craft**

Dr Cameron R. Bass, Associate Research Professor, Duke University, Durham, NC, Eric Pierce, MS, NSWC PCD, Panama City, FL; Allison Schmidt, MS, Duke University, Durham, NC; Hattie Cutcliffe, MS, Duke University, Durham, NC; Courtney Cox, Duke University, Durham, NC

#### **21. Maximizing Military Medical Skills Learning Using an Adaptive Simulation Trainer**

Dr Ka-Chun Siu, Associate Professor, University of Nebraska Medical Center (UNMC), Omaha, NE; Dr Bradley J. Best, Founder and Investigator, Adaptive Cognitive Systems, LLC, Bellingham, WA; Dr Frank E. Ritter, Professor, Penn State University, University Park, PA; Ms. Marsha Morien, Executive Director, Center for Advanced Surgical Technology, UNMC, Omaha, NE; Dr Dmitry Oleynikov, Professor and Director, Center for Advanced Surgical Technology, UNMC, Omaha, NE

#### **22. Evaluation and Development of THOR3 Human Performance Program for the 10th Special Forces Group (Airborne)**

Tracy L. Nelson, MPH, PhD, Professor, Health and Exercise Science, Colorado State University, Fort Collins, CO

#### **23. Next Generation Hemorrhage Control: Evaluation of Safety and Efficacy of a Novel, Fully Synthetic, and Bioresorbable Adhesive Compared to the Clinical Gold Standard Fibrin**

Dr Pramod Kadaba Srinivasan, Research Scientist, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany; Kerstin Pawlowsky, PhD Student, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany; Dr Babette Kögel, Senior Scientist, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany; Dr René Tolba, Director, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany

#### **24. Patient Physiological Monitoring Field Calorimic Assay Laboratory and the Integration of Smart Phone Technology of the Nett Warrior Program**

Robert R. Baumgardner, PhD, US Army Medical Research and Materiel Command—Telemedicine and Advanced Technology Research Center; Thomas R. Bigott, US Army Medical Research and Materiel Command—Telemedicine and Advanced Technology Research Center; Colin W. Graham, US Army Edgewood Chemical Biological Center; Sarah E. Katoski, US Army Edgewood Chemical Biological Center; Brian K. Casey, LTC, Communications-Electronics Research, Development and Engineering Center; Elizabeth A. Mann-Salinas, LTC, PhD, RN, US Army Institute of Surgical Research; Gary R. Gilbert, PhD, US Army Medical Research and Materiel Command—Telemedicine and Advanced Technology Research Center

#### **25. Clinical Use of the Hemostatic Hematrix® Active Patch in Hemorrhagic Shock Due to Severe Femoral Artery Bleeding**

Dr Uli R. Jahn, Medical Director, Department of Anesthesiology, Intensive Care, Emergency Medicine and Pain Therapy, Executive Emergency Physician, HELIOS Clinic Uelzen, Uelzen, Lower Saxonia, Germany

#### **27. Feasibility of Intra-Muscular (IM) Tranexamic Acid (TXA) in the Tactical Combat Setting: A Review of the Current Literature**

Erik N. Vu, MD, CCP, FRCPC, DAVMed, Medical Director, Abbotsford and Vancouver Police Departments ERT Medic Programs, Assistant Clinical Professor, Departments of Emergency and Critical Care Medicine, Faculty of Medicine, University of British Columbia, Vancouver, BC, Canada; Michael D. Shertz, MD, FACEP, DTM&H, Attending Staff Physician, St Vincent's Medical Center, Portland, OR; Assistant Clinical Professor, Department of Emergency Medicine, Oregon Health Sciences University, Medical Director Hillsboro Fire Department; Wilson Wan, MD, EMS Fellow, Department of Emergency Medicine, University of British Columbia, Vancouver, BC, Canada; Titus C. Yeung, MD, FRCPC, Clinical Assistant Professor, Critical Care and Emergency Medicine, University of British Columbia, Vancouver, BC, Canada; E. Reed Smith, MD, FACEP, Operational Medical Director, Arlington County Fire Department, Assistant Professor, Department of Emergency Medicine, the George Washington University; David W. Callaway, MD, MPA, FAAEM, Director, The Operational Medicine Institute, Associate Professor of Emergency Medicine, Carolinas Medical Center, Charlotte, NC; For the Committee for Tactical Emergency Casualty Care

#### **28. Protective Security Medicine Training Programs**

Frank R. Dehnisch, Operational Medicine Instructor, Operational Medicine Unit, Diplomatic Security Service; Andrew J. Brown, Operational Medicine Instructor, Operational Medicine Unit, Diplomatic Security Service; Edward H. Wyner, Operations and Logistics Specialist, Operational Medicine Unit, Diplomatic Security Service; James M. Howson, Unit Chief, Operational Medicine Unit, Diplomatic Security Service; Erik S. Glassman, Assistant Unit Chief, Operational Medicine Unit, Diplomatic Security Service

#### **29. Improving Infectious Gastroenteritis Treatment via Enterica™, a Novel Enterally-Administered, Non-Absorbable, Broad-Spectrum Enterotoxin Binding Polymer**

Humayra Ali, PhD; Krishna Tobón, PhD; Thomas Golobish, PhD; Vincent Capponi, MS; Andrew Scheirer; Tamaz Guliasvili, PhD; Thomas J. Bell, MS, PhD; Phillip Chan, MD, PhD, CytoSorbents Medical, Inc., Monmouth Junction, NJ

#### **30. The Effect of Concussion History and Sex on Vision and Sensory Performance in Special Operations Forces Personnel**

Jason P. Mihalik, PhD, CAT(C), ATC, Assistant Professor, University of North Carolina at Chapel Hill; Erin B. Wasserman, PhD, Postdoctoral Research Fellow, University of North Carolina at Chapel Hill; Robert C. Lynall, MS, ATC, Doctoral Candidate, University of North Carolina at Chapel Hill; LTC Stephen M. DeLellis, MPAS, PA-C, Chief, Medical Training, Office of the USASOC Surgeon; COL Shawn L. Kane, MD, FAAFP, FACSM, Command Surgeon, USASOC; COL Robert Lutz, MD, SOTF Surgeon

#### **31. The Utility of "MARCH PAWS" as a Checklist for Tactical Field Care and Tactical Evacuation**

John Kosequat, NREMT-P, USAF PJ; Dr Stephen Rush, Lt Col, USAF Pararescue Medical Director

**32. Development of a Mobile Platform for Assisting with Burn Resuscitation in a Deployed Setting**

Jose Salinas, Task Area Manager, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Maria L. Serio-Melvin, Clinical Project Manager, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Leopoldo C. Cancio, Task Area Manager, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Elizabeth A. Mann-Salinas, Task Area Manager, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Craig Fenrich, Biomedical Software Engineer, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Kevin K. Chung, Director of Research, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

**33. USplint: Novel Splint Technology Fills a SOF Gap in Extended Medical Care**

Kate Liddle, Partner, MakeITMarketUSA.com, LLC, Charlotte, NC; Matthew D. Pepe, MD, Orthopaedic Surgeon, Sports Medicine Specialist, Rothman Institute, Egg Harbor Township, NJ; Brandon Conover, PhD, CEO, Practical Scientific Solutions, Inc., Holly Springs, NC; SGM R Kyle Sims, BS, Special Forces Medical, USASOC, Fort Bragg NC

**34. Traditional Large-Volume Fluid Resuscitation Versus No Resuscitation in a Canine Model of Controlled Hemorrhagic Shock**

Lee Palmer, DVM, MS, DACVECC, NREMT, Medical Director UWSOC4 and K9 MEDIC; Linda Martin, DVM, MS, DACVECC, Associate Professor, Washington State University; Ellen Behrend, VMD, PhD, DACVIM, Professor, Auburn University College of Veterinary Medicine; James Wohl, DVM, DACVIM, DACVECC, Ombudsman, University of Connecticut; Robert J. Kempainen, DVM, PhD, Professor, Auburn University College of Veterinary Medicine

**35. A Descriptive Analysis of Special Operations Aviation CASEVAC in Operation Enduring Freedom from 2008 to 2015**

LTC Theodore Redman, MD, EMS Fellow, SAUSHEC, San Antonio, TX; CPT Kevin Mayberry, 3/160 Physician Assistant, Hunter Army Air Field, GA; MAJ Brock Benedict MD, 160th Regimental Surgeon, Ft. Campbell, KY; COL (Ret) Russ Kotwal, MD, Contractor, Institute of Surgical Research, Ft. Sam Houston, TX; Dr John Howard, PhD, Biostatistician, Institute of Surgical Research, Ft. Sam Houston, TX

**36. Analysis of Disease and Nonbattle Injury in US Military Personnel Deployed in Sub-Saharan Africa**

MAJ Julian Mapp, MC, EMS and Disaster Medicine Fellow, San Antonio Uniformed Services Health Education Consortium; MAJ Russell Fields, AN, Department of Emergency Medicine, San Antonio Military Medical Center; CPT Andrew Oh, MC, Emergency Medicine Residency, San Antonio Military Medical Center

**37. QuikClot Combat Gauze for Civilian Prehospital External Hemorrhage Control**

Mark E.A. Escott; Guy R. Gleisberg; Jordan L. Anderson; Kevin J. Crocker; Michael C. Aiken; Bradley T. Ward, Baylor College of Medicine/EMS Collaborative Research Group

**38. Simple Thoracostomy: Moving beyond Needle Decompression in Out-of-Hospital Traumatic Cardiac Arrest**

Mark E.A. Escott; Guy R. Gleisberg; Jordan L. Anderson; Kevin J. Crocker; Michael C. Aiken; Bradley T. Ward, Baylor College of Medicine/EMS Collaborative Research Group

**39. Covert Wireless Wearable Ultrasound System for Trauma Care in the Field**

Martin O. Culjat, PhD, Chief Innovation Officer, Farus, LLC, Vista, CA; Rahul S. Singh, PhD, CEO, Farus, LLC, Vista, CA; Andrzej P. Mierzwa, BS, Electronic Engineer, Farus, LLC, Vista, CA; Kristen T. Nguyen, BS, Biomedical Engineer, Farus, LLC, Vista, CA; Toshifumi Nakatani, PhD, Electrical Engineering, Senior Member of the Technical Staff, MaXentric Technologies, LLC; Paul Thomas Theilmann, PhD, Electrical Engineering, Lead Engineer Wireless Biomedical Systems, MaXentric Technologies, LLC

**40. Update on Pre-Hospital Hemorrhage Control Research for Improving Survival from Combat Wounds**

Michael A. Dubick PhD; Bijan S. Kheirabadi PhD; John F. Kragh Jr., MD, US Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

**41. The Application of Psychological Skills Training (PST) for SOF Medical Operators**

Michael Lauria, Critical Care-Flight Paramedic, MS-2, Dartmouth Hitchcock Medical Center, NH; Nick Antonino, MS-3, NYCOM, NY; Matthew Stark, MS-3 NYCOM, NY; Lt Col Stephen Rush, MD, USAF Pararescue, 103RQS, NY

**42. Rugged Ozone Sterilization System**

Daniel Taggart, Project Engineer, Ceramatec, Inc., Salt Lake City, UT; John Gordon, Project Manager, Ceramatec, Inc., Salt Lake City, UT

**43. Delivery of Efficacious Defibrillation Shocks From a Miniaturized Pocket-Sized Automated External Defibrillator for Far Forward Pre-Hospital Care**

Peter Gray, President & CEO, CardioThrive Inc., Walnut Creek, CA; Douglas Raymond, COO, CardioThrive Inc., Walnut Creek, CA; Shelley Savage, CFO, CardioThrive Inc., Walnut Creek, CA; Walter Savage, MD, CardioThrive Inc., Walnut Creek, CA; Paul Friedman, MD, Mayo Clinic, Rochester, MN; Sam Asirvatham, MD, Mayo Clinic, Rochester, MN; Charles Bruce, MD, Mayo Clinic, Rochester, MN

**44. Evaluation of the Efficacy of the ITClamp® for Hasty Compressible Hemorrhage Control Versus a Tourniquet during “Care under Fire”**

Roland Paquette, MPA-C; Ryan Bierle, MPA-C; Craig Cooley, MD, MPH, EMT-P, FACEP, FAAEM; Kevin King, MD, FACEP, FAAEM; Rosemarie Ramos, PhD, MPH, Department of Emergency Medicine, The University of Texas Health Science Center at San Antonio; David Wampler, PhD, LP, Emergency Health Sciences, School of Health Professions, University of Texas Health Science Center San Antonio; Joel Michalek, PhD, Department of Epidemiology and Biostatistics, University of Texas Health Science Center at San Antonio; COL Robert T. Gerhardt, MD, MPH, FACEP, Department of Emergency Medicine, Brooke Army Medical Center, Fort Sam Houston, TX

**45. Stop The Bleeding! One City's Experience with Tourniquet Use in the Prehospital Setting**

Theodore Redman, MD, EMS Fellow, SAUSHEC, San Antonio, TX; David Wampler, PhD, Office of Medical Director, UTHSCSA, San Antonio, TX; David Miramontes, MD, Office of Medical Director, UTHSCSA, San Antonio, TX; Elliot Ross, MD, EMS Fellow, SAUSHEC, San Antonio, TX; Julian Mapp, MD, EMS Fellow, SAUSHEC, San Antonio, TX; Terry Eaton, LP, Training Officer, San Antonio Fire Department, TX

**46. Ultra-Rapid, Non-Surgical, Brain-Selective Cooling in Humans That Is Accentuated During Shock**

Thomas Kreck, MD, NeuroSave, Inc., San Francisco, CA; Silvana Marasco, MD, Department of Surgery/Cardiothoracic Surgery, The Alfred Hospital, Melbourne, Victoria, Australia; David Daly, MD, Department of Anaesthesia and Perioperative Medicine, The Alfred Hospital, Melbourne, Victoria, Australia; Seth Rodgers, PhD, NeuroSave, Inc., San Francisco, CA

**47. Virtual Reality Simulation for Residents: A Trainee Experience in Damage Control Endovascular Skills**

William Teeter, MD, MS, University of Maryland, Baltimore, MD; Megan L. Brenner, MD, MS, University of Maryland, Baltimore, MD; Charles L. Halcome, BS, NREMT-P, FP-C, ATP, US Air Force Center for Sustainment of Trauma and Readiness Skills, Baltimore, MD; Melanie Hoehn, MD, University of Maryland, Baltimore, MD; Deborah Stein, MD, MPH, University of Maryland, Baltimore, MD; Thomas Scalea, MD, University of Maryland, Baltimore, MD

**48. Mountain Operations Research Collaboration Progress**

William W. Buck Dodson, MD, FACPM, Col ANG MC CFS, Faculty, Chief Research Monitor, Undersea Hyperbaric Medicine Instructor USAFSAM/FH Research Department, USAF School of Aerospace Medicine, 711th Human Performance Wing Wright-Patterson Air Force Base, Dayton, OH

**49. Undersea Hyperbaric Medicine Researched Hyperbaric Indications**

William W. Buck Dodson, MD, FACPM, Col ANG MC CFS Faculty, Chief Research Monitor, Undersea Hyperbaric Medicine Instructor USAFSAM/FH Research Department, USAF School of Aerospace Medicine, 711th Human Performance Wing Wright-Patterson Air Force Base, Dayton, OH

**50. Efficacy and Safety of the Novel Medical Adhesive, MAR VIVO-107, in a Chronic Liver Resection Model in Rabbits**

Kerstin Pawlowsky, PhD student, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany; Dr Pramod Kadaba Srinivasan, Research Scientist, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany; Dr Babette Koegel, Senior Scientist, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany; Dr René Tolba, Director, Institute for Laboratory Animal Science and Experimental Surgery, University Hospital, RWTH Aachen University, Aachen, Germany



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