

MEETING THE CHANGING THREAT
THROUGH MILITARY MEDICAL RESEARCH



+
MHSRS
2024

Breakout Sessions

Wednesday, 28 August



MHS Military Health System
health.mil

BREAKOUT SESSIONS

Wednesday, 28 August | 0800 – 1000

New Approach Methodologies and Novel In Vivo Models for the Development of Infectious Disease Countermeasures

Moderators: MAJ Blair C. R. Dancy, USA, LTC Charles A. DiTusa, USA, Rajini R. Mudhasani, Ph.D., Eric H. Nguyen, Ph.D.

LOCATION: Sun A

- 0800 – 0815 **Development of a Porcine Model of Systemic Inflammatory Response Syndrome and Sepsis Resulting from Extremity Injury and Associated Complications (MHSRS-24-11001)**
Presenter: Randy Stone, Ph.D.
- 0815 – 0830 **Extracorporeal Inoculation of Human Donor Blood with *Borrelia burgdorferi* Activates Cytokines but Not the Complement System (MHSRS-24-11036)**
Presenter: Andriy Batchinsky, M.D.
- 0830 – 0845 **Application of a Human-Based Organ-on-a-Chip Model of the Blood-Brain Barrier for the Development of Countermeasures Against Neuroinvasive Arboviruses (MHSRS-24-11555)**
Presenter: Niloufar Boghdeh, M.S.
- 0845 – 0900 **Update on Clinical and Algorithm Validation of a Novel Vibroacoustic Detection Device for Early Detection of SARS-CoV-2/COVID-19 (MHSRS-24-12345)**
Presenter: Marisol Resendiz, Ph.D.
- 0900 – 0915 **An Instrumented Neurovascular Unit for Non-Invasive Monitoring of Blood-Brain Barrier and Neural Function (MHSRS-24-13171)**
Presenter: Noah Goshi, Ph.D.
- 0915 – 0930 **The Humanized DRAGA Mouse as a Model for HIV Latency and Cure (MHSRS-24-12464)**
Presenter: Ahmad Faisal Karim, Ph.D.
- 0930 – 0945 **Dengue Virus-Induced Microvascular Leakage: Early Functional Changes from Time of Virus Contact (MHSRS-24-13272)**
Presenter: Dennis Grab, Ph.D.
- 0945 – 1000 **Novel Inhibitors of the Alphavirus nsP2 Protease Demonstrate Protection in an Organ-on-a-Chip Model of the Blood-Brain Barrier and in an In Vivo Model (MHSRS-24-12116)**
Presenter: Michael Barrera, Ph.D.

Technologies for the Treatment of Battlefield Hemorrhage and Management of Vascular Dysfunction

Moderators: Thomas H. Edwards, DVM, M.S., Amy E. Wingerd, B.A., RN

LOCATION: Coastal C

- 0800 – 0815 **Fabrication, Scaling and Stability Testing for a Biosynthetic Whole Blood Analogue (WBA) Suitable for In-field Resuscitation of Hemorrhagic Shock (MHSRS-24-12756)**
Presenter: Alan Doctor, M.D.
- 0815 – 0830 **Autoinjector-Based Delivery of Tranexamic Acid in a Swine Model of Uncontrolled Hemorrhage (MHSRS-24-11796)**
Presenter: LTC (Res.) Arik Eisenkraft, IDF
- 0830 – 0845 **Treatment of a Penetrating Arterial Injury with a Novel Silicon-Based Polymer Universal Combat Matrix in a Coagulopathic Porcine Model (MHSRS-24-12215)**
Presenter: CPT Lauren Heyda, USA

(Continued)

BREAKOUT SESSIONS

Wednesday, 28 August | 0800 – 1000

- 0845 – 0900** **Laboratory Evaluation of Hemostatic Pressure Dressings Under Simulated Extreme Cold Conditions** (MHSRS-24-11207)
Presenter: George Plasko, Ph.D.
- 0900 – 0915** **Early Mechanical Stabilization and Bleeding in Disruptions of the Pelvic Ring: Does Timing of Circumferential Compression Reduce Transfusion Volume and Mortality Risk?** (MHSRS-24-13003)
Presenter: Robert V. O'Toole, M.D.
- 0915 – 0930** **Standardized Test Platforms for Evaluation of Casualty Care Devices Using Human Analog Simulation and Under Extreme Environmental Conditions** (MHSRS-24-11378)
Presenter: Richard Bergs, M.S.
- 0930 – 0945** **Training of Emergency Medicine Residents on the Use of Extracorporeal Cardiopulmonary Resuscitation (E-CPR) in a Swine Sudden Cardiac Arrest Model** (MHSRS-24-12413)
Presenter: Jae Hyek Choi, Ph.D., DVSc
- 0945 – 1000** **Inorganic Nanomaterial-based Expandable Shape-Memory Hemostat for Treatment of Non-Compressible Hemorrhage** (MHSRS-24-12557)
Presenter: Saptarshi Biswas, M.S.

Novel Interventions to Address Posttraumatic Stress Disorder in Service Members and Veterans

Moderator: Michael J. Roy, M.D., MPH

LOCATION: Coastal A

- 0800 – 0815** **Clinical Differences in Chronic Symptoms and Cognitive Performance Secondary to Blast vs. Blunt Traumatic Brain Injury** (MHSRS-24-13087)
Presenter: Shawn Eagle, Ph.D.
- 0815 – 0830** **Clinical Relevance of Subthreshold PTSD versus Full Criteria PTSD Following Traumatic Brain Injury in U.S. Service Members and Veterans** (MHSRS-24-12313)
Presenter: Louis French, PsyD
- 0830 – 0845** **Service Dog Training Program Alters Serum miRNA Expression Profile In Service Members With Post Traumatic Stress Disorder and Traumatic Brain Injury** (MHSRS-24-13042)
Presenter: Piper Deleon, B.S.
- 0845 – 0900** **Massed Cognitive Processing Therapy for Posttraumatic Stress Disorder with Active Duty Personnel: Results of a Randomized Clinical Trial** (MHSRS-24-11608)
Presenter: Jennifer Wachen, Ph.D.
- 0900 – 0915** **RECONsolidation of Traumatic memories to ResOLve Posttraumatic Stress Disorder (RECONTROL): A Randomized Controlled Trial vs Prolonged Exposure (An MTBI2 Study)** (MHSRS-24-11121)
Presenter: Michael J. Roy, M.D., MPH
- 0915 – 0930** **Quantitative EEG Markers of Post-Traumatic Stress Disorder: Baseline Observations and Impact of the Reconsolidation of Traumatic Memories (RTM) Treatment Protocol** (MHSRS-24-12985)
Presenter: Jeffrey Lewine, Ph.D.
- 0930 – 0945** **A Pilot Study of Trauma-Sensitive Yoga and Breathe2Relax among Service Members in an Intensive Outpatient Program** (MHSRS-24-12333)
Presenter: Nancy Skopp, Ph.D.
- 0945 – 1000** **A Frequency-filtered Music Intervention for PTSD Treatment: Results from a Pilot Controlled Study** (MHSRS-24-12871)
Presenter: Jacek Kolacz, Ph.D.

BREAKOUT SESSIONS

Wednesday, 28 August | 0800 – 1000

Advancements in Prosthetic and Exoskeletal Technologies that Facilitate Return to Duty Following Neuromusculoskeletal Injuries

Moderators: W. Lee Childers, Ph.D., CP, Trevor Kingsbury, M.A.

LOCATION: Sun B

- 0800 – 0815 **Enhanced Functionality Using a Powered Upper Extremity Exoskeleton in Patients with Neuromuscular Injuries** (MHSRS-24-11157)
Presenter: Sandesh G. Bhat, Ph.D.
- 0815 – 0830 **Usability of the Intrepid Battlefield Exoskeleton During the Army Expeditionary Warrior Experiment** (MHSRS-24-12062)
Presenter: Sarah Pesquera, M.S.
- 0830 – 0845 **The Effect of Custom Dynamic Orthosis Use on Physical Function in Individuals with Traumatic Lower Limb Injury** (MHSRS-24-12891)
Presenter: Jason Wilken, PT, Ph.D.
- 0845 – 0900 **An Adaptable Transtibial Socket for Managing Socket Fit, Socket Comfort, and Pain During Military Specific Tasks** (MHSRS-24-12993)
Presenter: Molly Baumann, Ph.D.
- 0900 – 0915 **A Critical Comparison of Lower Limb Biomechanics of Users of Powered and Passive Prostheses During Ramp and Stair Ambulation** (MHSRS-24-12359)
Presenter: Aaron Young, Ph.D.
- 0915 – 0930 **Toward Evaluating Mobility Outcomes in the Real World After Limb Loss** (MHSRS-24-12665)
Presenter: Julian Acasio, M.S.
- 0930 – 0945 **Interaction between Contralateral Knee Pain and Low Back Pain After Unilateral Lower Limb Loss** (MHSRS-24-12962)
Presenter: Courtney Butowicz, Ph.D.
- 0945 – 1000 **The Suitcase Packing Activity: A Novel Outcome Measure for Individuals with Upper Extremity Amputations** (MHSRS-24-13094)
Presenter: Paige Paulus, Ph.D.(c)

Treating Refractory Hypoxemia on the Battlefield: What Does the Future Hold?

Moderator: Sandy J. Snyder, Ph.D.

LOCATION: Sun C

- 0800 – 0815 **Inhibition of CD38 to Mitigate Acute Lung Injury and Restore Respiratory Health** (MHSRS-24-11421)
Presenter: Divyaam Satija, B.S.
- 0815 – 0830 **RespirAid - An Intravenous Solution to Enhance Pulmonary Gas Exchange Kinetics and Increase Patient Resilience to Hypercapnia in Cases of Acute Respiratory Distress Syndrome** (MHSRS-24-10987)
Presenter: Lauren Costella
- 0830 – 0845 **Immediate Post-Injury Intravenous Autologous Bone-Marrow-Derived Mesenchymal Stromal Cells Delay Acute Respiratory Distress Syndrome, Reduce Its Severity or Prevent Its Occurrence in Swine** (MHSRS-24-11023)
Presenter: Andriy Batchinsky, M.D.
- 0845 – 0900 **Immediate Post-Injury Extracorporeal CO2 Removal Reduces Ventilator Requirements and Mitigates or Prevents Acute Respiratory Distress Syndrome in Swine** (MHSRS-24-11024)
Presenter: Andriy Batchinsky, M.D.

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BREAKOUT SESSIONS

Wednesday, 28 August | 0800 – 1000

- 0900 – 0915** **High Efficiency IntraVascular Membrane Oxygenating Catheter: Proof-of-Concept Testing Under Mixed Venous Conditions** (MHSRS-24-12849)
Presenter: Tobias Straube, M.D.
- 0915 – 0930** **Healing Lungs: DRIVE-ing Innovations in ARDS Supportive Care** (MHSRS-24-11654)
Presenter: Sofia Cheliout Da Silva, Ph.D.
- 0930 – 1000** **Panel Discussion with Q & A**
Presenter: Sandy Snyder, RN, Ph.D.

Current Challenges in DoD Aerospace Medicine

Moderators: John S. Crowley, M.D., MPH, Richard Arnold, Ph.D.

LOCATION: **Coastal 4**

Agenda

Presenter: John S. Crowley, M.D., MPH

- 0800 – 0815** **Combat-related Direct Injury Trends in U.S. Army Aviators During Operations Enduring and Iraqi Freedom: Historical Trends** (MHSRS-24-12119)
Presenter: Frederick Brozoski, M.S.
- 0815 – 0830** **Naval Aviation Aircrew Systems 2024 Aeromedical Priorities** (MHSRS-24-12618)
Presenters: Bethany Shivers, Ph.D., LCDR Adam Preston, USN
- 0830 – 0845** **The Medical College of Wisconsin Military Aircrew Neck and Back Pain Study: Influence of Flight-Related Neck Pain on Functional Capacity of F-35 Fighter Pilots** (MHSRS-24-11095)
Presenter: Rachel Cutlan, B.S.
- 0845 – 0900** **The USAFSAM Aeromedical Consult Service Medical Risk Assessment & Airworthiness Matrix (AMRAAM)** (MHSRS-24-13541)
Presenter: Ryan Mayes, Ph.D.
- 0900 – 0915** **International Screening for Coronary Artery Disease prior to Air & Space Flight** (MHSRS-24-11556)
Presenter: Col Eddie Davenport, USAF
- 0915 – 0930** **DoD HFACS Underrepresents Spatial Disorientation in Army Aviation Mishaps** (MHSRS-24-11589)
Presenter: Michelle Duffy, Ph.D.
- 0930 – 0945** **Aviation-Related Exposure to Rapid Pressure Fluctuations (PFLUX) at Altitude Triggers Traumatic Brain Injury in Rats** (MHSRS-24-12297)
Presenter: Lee Goldstein, M.D., Ph.D.
- 0945 – 1000** **The Lived Experience of Critical Care Air Transport (CCAT) Teams That Transported Afghan Refugee Children: A Qualitative Study** (MHSRS-24-12462)
Presenter: Col Renee Matos, USAF

BREAKOUT SESSIONS

Wednesday, 28 August | 0800 – 1000

Novel Treatments, Strategies and Technologies in Hearing and Balance Health

Moderators: Mei Sun, Ph.D., Amy Boudin-George, AuD, Stacey Harcum, MPH, M.S.

LOCATION: Coastal 9

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| 0800 – 0815 | Impact of Hearing Protection Devices on Speech Perception in Noise (MHSRS-24-13425)
Presenter: Nathaniel Greene, Ph.D. |
| 0815 – 0830 | Metrics for Comparison of Electromechanical and Human Subject Hearing Protection Evaluation Methods (MHSRS-24-13479)
Presenter: Theodore Argo, Ph.D. |
| 0830 – 0845 | Magnitude of Hearing Threshold Changes in Service Members and Veterans Over 5 Years by Baseline Hearing Ability and Self-reported Noise Exposure (MHSRS-24-13542)
Presenter: Kelly Reavis, Ph.D. |
| 0845 – 0900 | Assessment of Auditory Fitness-for-Duty in U.S. Service Members (MHSRS-24-13189)
Presenter: Douglas Brungart, Ph.D. |
| 0900 – 0915 | 3D Computational Modeling for Investigating Auditory Injury in Organ of Corti Under Blast Wave Transmission (MHSRS-24-10972)
Presenter: Yijie Jiang, Ph.D. |
| 0915 – 0930 | Examining the Use and Benefits of Low/Mild Gain Hearing Aids in Service Members with Normal Hearing Thresholds and Self-reported Hearing Difficulties (MHSRS-24-12063)
Presenter: Alyssa Davidson, Ph.D. |
| 0930 – 0945 | Protective Effects of Valproic Acid Against Noise-Induced Hearing Loss in Swine (MHSRS-24-12034)
Presenter: Ying Wang, M.D. |
| 0945 – 1000 | Discussion |

Ethical and Regulatory Considerations in DoD-Supported Research: Biosecurity, AI/ML Analytics, and DoD Collaboration

Moderator: Laura R. Brosch, RN, Ph.D.

LOCATION: Sun 4

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| 0800 – 0830 | Assessing Biosecurity Risks and Mitigation: Considerations for DoD Supported Research Involving Genomic Data (MHSRS-24-NAS105)
Presenters: Kim E. London, JD, MPH, Melissa Ginn, B.A. |
| 0830 – 0900 | Perspectives on the Use of AI/ML Analytics in the Conduct of Human Research (MHSRS-24-NAS101)
Presenter: Natalie Klein, Ph.D. |
| 0900 – 0930 | The Use of sIRB in DoD-conducted/supported Human Research: Option or Mandate? (MHSRS-24-NAS102)
Presenter: Kimberly Odam, M.S. |
| 0930 – 1000 | Strategies for Success in Conducting Multi-site Clinical Research in the MHS: A University Researcher Perspective (MHSRS-24-NAS103)
Presenter: Stacey Young-McCaughan, RN, Ph.D. |

BREAKOUT SESSIONS

Wednesday, 28 August | 1300 – 1500

Strategies for Mitigating the Development of Post-traumatic Wound Infections with Multi-drug Resistant Organisms across the Continuum of Care

Moderators: Schroeder M. Noble, Ph.D., COL Robert Cybulski, USA

LOCATION: Coastal A

- 1300 – 1315** **Detection of Major Wound Infection Pathogens and Antimicrobial Resistance Genotypes from Wound Swabs Using a Multiplexed PCR Test for BIOFIRE® FilmArray 2.0 and Torch Instruments (MHSRS-24-11239)**
Presenter: Jason Nielson, Ph.D.
- 1315 – 1330** **A Novel DNA Array Technology to Detect and Discriminate Polymicrobial Infection and Associated Antibiotic Resistance Genes: Current Technology Application in Urinary Tract Infection. Future Application for Portable Analysis of Wounds and Septicemia (MHSRS-24-11664)**
Presenter: Michael Hogan, Ph.D.
- 1330 – 1345** **Antecedent Gram-negative Bacilli Colonization on Admission Surveillance and Sepsis Following Battlefield Injury (MHSRS-24-12150)**
Presenter: David Tribble, Ph.D.
- 1345 – 1400** **Prolonged Field Care: Testing a Novel Drug Eluting Hydrogel Wound Dressing for the Care of Traumatic Blast Wounds in Far-Forward Environments (MHSRS-24-11802)**
Presenter: Christopher Hamad, M.D.
- 1400 – 1415** **Evaluation of a Novel Antimicrobial Coating on Implanted Kirschner Wires in Rats (MHSRS-24-12219)**
Presenter: Manuela Gaviria, M.D.
- 1415 – 1430** **Novel Ammonium Carboxylate Salts as Broad-spectrum Biodefense Antimicrobials for Wound, Skin, and Surface Decontamination (MHSRS-24-13126)**
Presenter: Thomas Rau, Ph.D.
- 1430 – 1445** **Nitric Oxide Topical Therapy to Treat and Prevent Infections in Battlefield (MHSRS-24-13090)**
Presenter: Gilly Regev, Ph.D.
- 1445 – 1500** **The Antimicrobial Peptide OMN6 as a Novel Therapy Against Multidrug-Resistant *Acinetobacter baumannii* (MHSRS-24-10867)**
Presenter: Niv Bachnoff, Ph.D.

Advances in Life Saving Interventions at Point of Injury and in Prolonged Care

Moderators: Kimberly B. Pope, Ph.D., Sylvain Cardin, Ph.D.

LOCATION: Coastal C

- 1300 – 1315** **Physical and Pharmacostability of Essential Medications in Cold and Ultra-Cold Environments: Interim Report (MHSRS-24-11170)**
Presenter: Jason McMullan, M.D.
- 1315 – 1330** **HMGB1 Activation Is Correlated with Acute Kidney Injury in a Swine Polytrauma Model (MHSRS-24-11398)**
Presenter: Zhangsheng Yang, Ph.D.
- 1330 – 1345** **Efficacy of Cilastatin Sodium for Prolonged Care in a Large Animal Crush Syndrome Model (MHSRS-24-11807)**
Presenter: Michael Hutchens, M.D.

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BREAKOUT SESSIONS

Wednesday, 28 August | 1300 – 1500

- 1345 – 1400** **Enabling Technologies for Remote Telesurgery** (MHSRS-24-12036)
Presenter: Nathan Bills, Ph.D.
- 1400 – 1415** **Reduction of Thromboinflammation by Phosphodiesterase 4 Inhibition in an ECMO Circuit Model with Human Blood** (MHSRS-24-12096)
Presenter: Andrew Meyer, M.D.
- 1415 – 1430** **Partial Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) vs Intermittent REBOA in Non-Compressible Torso Hemorrhage with Concomitant Traumatic Brain Injury** (MHSRS-24-12701)
Presenter: Elizabeth Wood, M.D.
- 1430 – 1445** **Adjunctive Metronidazole for Targeting the Core of the Bacterial Biofilm in a Pseudomonas aeruginosa Porcine Dermal Infection Model** (MHSRS-24-13206)
Presenter: Nicholas Ashton, Ph.D.
- 1445 – 1500** **A Global Clinical Research Consortium to Enable Biomarker-guided Solutions for Prognosis and Treatment of Severe Infectious Disease and Sepsis** (MHSRS-24-13251)
Presenter: Josh Chenoweth, Ph.D.

Mental and Behavioral Health Manifestations of Anger

Moderators: Maria A. Morgan, Ph.D., MPS, Marija S. Kelber, Ph.D.

LOCATION: Sun A

- 1300 – 1315** **Problematic Anger and Mental Health in Service Members and Veterans** (MHSRS-24-12113)
Presenter: Marija Kelber, Ph.D.
- 1315 – 1330** **Poor Mental Health, Work-related Stress, and Aggressive Behavior in the Workplace: Findings from a Rapid Response Surveillance Effort** (MHSRS-24-12309)
Presenter: Robyn M. Englert, MPH
- 1330 – 1345** **Aggression, Anger Expression, and Alcohol Use as Predictors for Intimate Partner Violence Perpetration** (MHSRS-24-13434)
Presenter: CPT George Mesias, USA
- 1345 – 1400** **Association of Angry and Aggressive Behaviors with Posttraumatic Stress Disorder and mild Traumatic Brain Injury in the Health Related Behaviors Survey** (MHSRS-24-12038)
Presenter: Daniel Berman, Ph.D.
- 1400 – 1415** **Emotional Dyscontrol in Veterans with Extended History of mild Traumatic Brain Injury and Multisensory Management and Processing Contributions: Work-in-Progress Report** (MHSRS-24-11335)
Presenter: Jeffrey Hebert, Ph.D.
- 1415 – 1430** **Streamlining Measurement of Problematic Anger: The Three-Item Dimensions of Anger Reactions Scale** (MHSRS-24-10955)
Presenter: Cynthia LeardMann, MPH
- 1430 – 1445** **Reducing Problematic Anger, Aggression, and Suicide Ideation with an Online Military Emotional Skills Training Program** (MHSRS-24-12542)
Presenter: COL William Killgore, USA
- 1445 – 1500** **Reducing Anger Is Not Enough: Interim Analysis of a Randomized Clinical Trial That Teaches the Adaptive Value of Emotions** (MHSRS-24-12230)
Presenter: Shannon Miles, Ph.D.

BREAKOUT SESSIONS

Wednesday, 28 August | 1300 – 1500

Design, Prevent, and Implement: Advancements in Osseointegration Technology and Outcomes

Moderators: Kenneth Furdella, Ph.D., Jason Ghannadian, M.S.

LOCATION: Sun B

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| 1300 – 1315 | Characterization of a Transtibial Amputation Model of Osseointegrated Implant Infection (MHSRS-24-11701)
Presenter: Bailey Fearing, Ph.D. |
| 1315 – 1330 | The Role of Preoperative Skeletal Alignment on Postoperative Lumbopelvic Biomechanics in Transfemoral Bone-Anchored Limb Users (MHSRS-24-11977)
Presenter: Brecca Gaffney, Ph.D. |
| 1330 – 1345 | Personalized Biomechanical Modeling for the Design and Manufacture of Osseointegrated Percutaneous Limb Implants (MHSRS-24-12597)
Presenter: David Dean, Ph.D. |
| 1345 – 1400 | Osseointegration: Utilization of a 3D FE Model to Quantify the Biomechanical Profile of OI Implants in Transfemoral Amputees Through Analysis of Stress and Strain Distribution (MHSRS-24-12151)
Presenter: Tiereny McGuire, Ph.D.(c) |
| 1400 – 1415 | Investigating the Impact of Porous Coating Extent and Bone Density on Mechanical Stresses for Patients with Bone-Anchored Limbs (MHSRS-24-12896)
Presenter: Dana Carpenter, Ph.D. |
| 1415 – 1430 | Transfemoral Osseointegrated Prosthesis Limb-Load Symmetry Training: Study Protocol and 1-Year Progress (MHSRS-24-11126)
Presenter: Cory Christiansen, Ph.D. |
| 1430 – 1445 | Sociodemographic Factors and Their Effects on Transfemoral Osseointegration Patient Outcomes (MHSRS-24-13296)
Presenter: Kara Churovich, MPH |
| 1445 – 1500 | Discussion |

Exertional Heat Stroke: What's New in Prevention, Management and Return to Duty

Moderator: Francis G. O'Connor, M.D., MPH

LOCATION: Sun C

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|-------------|---|
| 1300 – 1315 | Risk Factors for Exertional Heat Illness among U.S. Army Enlistees: Climate Indexes, Intrinsic Factors, and Their Interactions (MHSRS-24-11780)
Presenter: Josh B. Kazman, M.S. |
| 1315 – 1330 | Quantifying the Impact of Multi-Day Heat Exposure on Thermal-Work Strain During Rigorous Training (MHSRS-24-12770)
Presenter: Emma Atkinson, B.S. |
| 1330 – 1345 | Frequency of End-Organ Damage in Exertional Heat Stroke and Exertional Heat Injury at Ft. Moore (MHSRS-24-13151)
Presenter: Kari C. Goodwin, M.S. |

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BREAKOUT SESSIONS

Wednesday, 28 August | 1300 – 1500

- 1345 – 1400** **A Rapid Urinary Liver Fatty Acid-binding Protein (L-FABP) Detection Kit Enables Early Detection of Organ Damage After Heat Stress Under Field Conditions (MHSRS-24-11461)**
Presenter: Hiroyasu Goto, M.D.
- 1400 – 1415** **Enhancing Safety and Performance in High-Stakes Environments: Non-Invasive PPG-Based Detection of Heat Stress and Dehydration (MHSRS-24-12569)**
Presenter: John Jedziniak
- 1415 – 1430** **Using Higher than Expected Heart Rates to Improve Predictions of Exertional Heat Injuries During Military Training Exercises (MHSRS-24-12468)**
Presenter: James R. Williamson, Ph.D.
- 1430 – 1445** **Chain of Survival for a Severe Exertional Heat Stroke Casualty (MHSRS-24-13207)**
Presenter: David W. DeGroot, Ph.D.
- 1445 – 1500** **Preventing, Diagnosing and Managing Exertional Heat Illness in Warfighters: A 2024 Evidence-Based Clinical Practice Guideline (MHSRS-24-12033)**
Presenter: Francis G. O'Connor, M.D., MPH

Undersea Operational Research Panel

Moderator: Ben D. Lawson, Ph.D.

LOCATION: Coastal 4

- 1300 – 1315** **Evaluating Kv2.2 Channels in Rats as Therapeutic Targets Against Hyperbaric Oxygen Induced Toxicity (MHSRS-24-12380)**
Presenter: Miriam Weiss, Ph.D.
- 1315 – 1330** **Dose Response Impact of Carbon Dioxide on Human Glymphatic Function (MHSRS-24-13075)**
Presenter: Rachael D. Seidler, Ph.D.
- 1330 – 1345** **Wearable Device for Detection of Central Nervous System Oxygen Toxicity in Divers (MHSRS-24-12754)**
Presenter: Lucy Fitzgerald, Ph.D.
- 1345 – 1400** **Polar Guard: Incompressible Insulation for Cold Water Diving at Depth (MHSRS-24-12481)**
Presenter: Michael Vignos, Ph.D.
- 1400 – 1415** **Evidence-Based Management of Life-Threatening Box Jellyfish Stings (MHSRS-24-13174)**
Presenter: 2LT Suzanna Del Rio, USA
- 1415 – 1430** **Development of a Hyperbaric Neurocognitive Assessment System (HNAS) (MHSRS-24-12235)**
Presenters: Andrea Vincent, Ph.D., Justin Handy, Ph.D.
- 1430 – 1445** **E-Guard: Expediting Submarine Escape Time Calculations (MHSRS-24-10977)**
Presenter: Krystina Diaz, B.S., B.A.
- 1445 – 1500** **Associations Between Submarine Officer Personality and Operational Outcomes (MHSRS-24-11853)**
Presenter: David Clark, Ph.D.

BREAKOUT SESSIONS

Wednesday, 28 August | 1300 – 1500

4 Legged Warriors: Military Working Dogs at the Tip of the Spear

Moderator: Thomas H. Edwards, DVM, M.S.

LOCATION: Coastal 9

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| 1300 – 1315 | Using Military Working Dog Records to Assist with Exposure-informed Care (MHSRS-24-11653)
Presenter: Justin Bergeron, BVMS, MPH |
| 1315 – 1330 | Development of System for Tracking and Analyzing Military Working Dog Injuries in New Trauma Registry (MHSRS-24-13063)
Presenter: Kathryn Loftis, Ph.D. |
| 1330 – 1345 | Osteosarcoma in Military Working Dogs: Investigation of Occupational and Genetic Risk Factors (MHSRS-24-11374)
Presenter: MAJ Alicia Moreau, USA |
| 1345 – 1400 | Quantifying Occupational Noise Exposure in Working Dogs: Survey Results (MHSRS-24-11579)
Presenter: MAJ Jennifer Noetzel, USA |
| 1400 – 1415 | Distribution, Clinical Presentation, Diagnosis, and Pathologic Findings of Trypanosoma cruzi in Military Working Dogs: Sentinels for Zoonoses in Service Members (MHSRS-24-11642)
Presenter: MAJ Kelsey Fiddes, USA |
| 1415 – 1430 | Paws for Concern: Investigating Leishmaniasis, Bartonella, and Medical Conditions In Military Working Dogs Deployed to Iraq (MHSRS-24-12587)
Presenter: Stephen Davies, BVSc, Ph.D. |
| 1430 – 1445 | Advancements in TXA Administration for Canine Trauma Care (MHSRS-24-13239)
Presenter: COL Sean Hollonbeck, USA |
| 1445 – 1500 | Causes of Mortality in Military Working Dogs from Traumatic Injuries (MHSRS-24-11229)
Presenter: Thomas H. Edwards, DVM, M.S. |

An Overview of the DHA Tech Transfer Program and Processes

Moderator: Robert Bolluyt, B.S.

LOCATION: Sun 4

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| 1300 – 1315 | Introduction of Tech Transfer (T2) and DHA T2 Overview (MHSRS-24-NAS301)
Presenter: Robert Bolluyt, B.S. |
| 1315 – 1330 | What Qualifies as an Invention (Invention Disclosure)? (MHSRS-24-NAS302)
Presenter: Marlana, Chapin, JD |
| 1330 – 1345 | Intellectual Property and the Need for Patenting (MHSRS-24-NAS303)
Presenter: Marlana, Chapin, JD |
| 1345 – 1400 | What Is a CRADA and When/How to Create/Use Questions (MHSRS-24-NAS304)
Presenter: Robert Charles, LLM, MPH |
| 1400 – 1415 | The Licensing Process of IP and Patented Inventions (MHSRS-24-NAS305)
Presenter: Barry Datlof, MBA |
| 1415 – 1430 | The "What and Why of Royalties" Questions (MHSRS-24-NAS306)
Presenter: Paul Michaels, JD |
| 1430 – 1445 | The "Why" of Tech Transfer: Developing Medical Capabilities (Products) for the Military Questions (MHSRS-24-NAS307)
Presenter: Scott F. Walter, Ph.D. |
| 1445 – 1500 | Questions and Discussion |

BREAKOUT SESSIONS

Wednesday, 28 August | 1530 – 1730

Central Role of Dental Care in Military Readiness, Operational Deployment, In-Theater Care, Post-Injury Reconstruction, and Warfighter Rehabilitation

Moderators: Rodney D. Phoenix, DDS, M.S., COL Kevin Gillespie, USA

LOCATION: Sun A

- 1530 – 1545** **Dental Care as a Central Consideration in the Projection and Sustainment of Combat Power: The State of Military Dental Science (MHSRS-24-NA-07)**
Presenter: Rodney Phoenix, DDS, M.S.
- 1545 – 1600** **Claromer Peptoid Activity Against Four Oral Pathogens: A Potential Convenient Prophylactic and Therapeutic Dental Care Dosage Form (MHSRS-24-11063)**
Presenter: Gill Diamond, Ph.D.
- 1600 – 1615** **Physical and Biocompatibility Testing of a Novel Self-healing Dental Composite (MHSRS-24-11437)**
Presenter: Sabrina Snyder, Ph.D.
- 1615 – 1630** **Incorporating Additive Manufacturing in Field Dentistry to Meet the Demand of the Future Operational Deployment (MHSRS-24-11188)**
Presenter: CPT Ryan Kang, USA
- 1630 – 1645** **Advantages of Patient-specific and Semi-specific Guides and Osteosynthesis Plates in Fibula Free Flap Reconstruction of Facial War Injuries: A Comparative Analysis Identifying Potential Advantages (MHSRS-24-11826)**
Presenter: Lt Col Andreas Pabst, German Armed Forces
- 1645 – 1700** **The Effect of Disinfectant Gels on the Dental Implant Microleakage Microbial Profile (MHSRS-24-10874)**
Presenter: MAJ Ellen Sharma, USA
- 1700 – 1715** **Multicenter-based Development of Structural Treatment Algorithms and Clinical Recommendations utilizing Botulinum Toxin for Severe Bruxism and Temporomandibular Disorders in Warfighters (MHSRS-24-11828)**
Presenter: Lt Col Andreas Pabst, German Armed Forces
- 1715 – 1730** **Development of a Generative Adversarial Network for Generation of Clinically Realistic Dental Radiographs (MHSRS-24-11366)**
Presenter: LTC Brian Kirkwood, USA

Trauma Resuscitation and Critical Care on the Future Battlefield

Moderator: Caryn Stern, DrPH, MPH

LOCATION: Coastal A

- 1530 – 1545** **'Thank God for Jonathan Letterman': A History of Battlefield Critical Care (MHSRS-24-11693)**
Presenter: Alan Hawk, B.A.
- 1545 – 1600** **Train As You Fight: In-Field Validation of a Cadaver-Based Airway Course in a German Helicopter Emergency Medical Service. A Prospective, Observational Study (MHSRS-24-11429)**
Presenter: Benny Kölbel, M.D., MBA
- 1600 – 1615** **A Novel p38alpha MAPK Signal Modulator with a Unique Mechanism of Action and Anti-inflammatory, Endothelial-Barrier-Stabilizing and Lung-Protective Effects as Potential Therapy in Acute Respiratory Distress Syndrome (MHSRS-24-12241)**
Presenter: Jeffrey Hasday, M.D.

(Continued)

BREAKOUT SESSIONS

Wednesday, 28 August | 1530 – 1730

- 1615 – 1630** **Reassessing Prehospital Chest Decompression in Military Trauma: Outcomes Following Intervention** (MHSRS-24-12749)
Presenter: MAJ Cole D. Bendor, IDF
- 1630 – 1645** **Plasma Inclusive Resuscitation in Burn Patients Does Not Change Fibrinolytic Phenotypes** (MHSRS-24-11859)
Presenter: Shane K. Mathew, M.D.
- 1645 – 1700** **Development of a Curriculum and Virtual Coach for Learning Foundational Ultrasound Skills in a Mixed-Reality Simulator** (MHSRS-24-12390)
Presenter: Christopher Samouce, Ph.D.
- 1700 – 1715** **Expectant Casualty Care Training for Future Conflicts: A Qualitative Study** (MHSRS-24-11770)
Presenter: Sean Keenan, M.D.
- 1715 – 1730** **Next Generation Prediction of Transfusion Requirements in Combat Trauma: Leveraging Data and Expert Knowledge** (MHSRS-24-11829)
Presenter: Sankalp Tandle, MB, B.S.

Military Family Health and Readiness: Understanding the Interdependence of the Military Family System

Moderators: Hope McMaster, Ph.D., Elizabeth Hisle-Gorman, Ph.D.

LOCATION: Coastal 9

- 1530 – 1545** **The Importance of Healthcare Delivery: Birth Outcomes and Cumulative Incidence of Medical Complexity Among Young Children of U.S. Service Members** (MHSRS-24-11019)
Presenter: Ava Marie S. Conlin, DO, MPH
- 1545 – 1600** **Longitudinal Pediatric Symptom Trajectories and Parental Risk Factors for Psychological Distress in Children of Warfighters with Traumatic Brain Injury** (MHSRS-24-12379)
Presenter: Tracey A. Brickell, D.Psych.
- 1600 – 1615** **The Impact of Service Member Injury Type of Spouse and Child Mental Healthcare Need** (MHSRS-24-12784)
Presenter: Elizabeth Hisle-Gorman, Ph.D.
- 1615 – 1630** **Spouses of Service Members with PTSD: A Longitudinal Examination of Psychological Health Among Spouses in the Millennium Cohort Family Study** (MHSRS-24-11949)
Presenter: Hope McMaster, Ph.D.
- 1630 – 1645** **Health Disparities in Military Spouses by Sex and Sexuality: Findings from the Millennium Cohort Family Study** (MHSRS-24-11721)
Presenter: Travis Ray, Ph.D.
- 1645 – 1700** **A Qualitative Analysis of Family Building Desires and Barriers Among LGBTQ+ Military Service Members** (MHSRS-24-10849)
Presenter: Cynthia Shen, DO
- 1700 – 1715** **Causal Factors of Military and Veteran Family Food Insecurity** (MHSRS-24-12369)
Presenter: Shanna Smith, Ph.D.
- 1715 – 1730** **A Novel Intervention to Increase Service Member Enrollment in the Supplemental Nutritional Program for Women, Infants, and Children (WIC)** (MHSRS-24-12396)
Presenter: Dakota Davis, B.S.

BREAKOUT SESSIONS

Wednesday, 28 August | 1530 – 1730

Warfighter Operational Resilience: Next Generation Programs to Sustain Performance under Fire

Moderator: LTC Matthew L. LoPresti, USA

LOCATION: Sun B

Introduction

Presenter: LTC Matthew L. LoPresti, USA

- 1530 – 1545** **Efforts to Establish an Intervention Model for Front-Line Behavioral Health in Large Scale Combat Operations** (MHSRS-24-10851)
Presenter: Tim Hoyt, Ph.D.
- 1545 – 1600** **Death by a Thousand Cuts: PERSTEMPO and Operational Stress, Recovery, and Readiness in the U.S. Naval Surface Force** (MHSRS-24-11597)
Presenter: Peter G. Roma, Ph.D.
- 1600 – 1615** **Emotional State, Personality, and Psychophysiological Targets of Warfighter Operational Resilience** (MHSRS-24-12548)
Presenter: COL William Killgore, USA
- 1615 – 1630** **Cognitive Training to Increase Warfighter Resilience** (MHSRS-24-13095)
Presenter: Leanne Young, Ph.D.
- 1630 – 1645** **The Impact of Mental Strength Resilience Training (MSRT) on Performance in the Far-Forward Operational Environment** (MHSRS-24-11618)
Presenter: Amy Hildreth, M.D.
- 1645 – 1700** **Operational Resilience Training: a U.S.-Norwegian Course Preparing Ukrainian Soldiers to Address Combat Stress** (MHSRS-24-12367)
Presenter: CPT George Mesias, USA
- 1700 – 1715** **Trialing the Efficacy of the iCOVER Intervention in a Civilian Trauma Center Population** (MHSRS-24-11838)
Presenter: Emily Lowery-Gionta, Ph.D.
- 1715 – 1730** **Readiness and Resilience Training for Leaders: How Highly Stressed Service Members May Benefit Most** (MHSRS-24-12524)
Presenter: Leslie Hammer, Ph.D.

Implementation of Evidence-based Pain Management Practices in the MHS

Moderators: Christie Vu, Ph.D., CAPT Harold Gelfand, USN

LOCATION: Coastal C

- 1530 – 1545** **Desuvia (Sufentil) Early Evaluation of Pain “DEEP” Randomized Controlled Trial** (MHSRS-24-11309)
Presenter: Francis Guyette, M.D., MS, MPH
- 1545 – 1600** **Short-term Outcomes of Psychologically Informed Physical Therapy in Patients with Musculoskeletal Injuries Treated at a Navy Shore-based Medical Clinic** (MHSRS-24-11327)
Presenter: Hope Mowery, Ph.D.
- 1600 – 1615** **Clinical Deployment of a Myoelectric Pattern Recognition-Driven Virtual Reality Rehabilitation System for Phantom Limb Pain Management: Preliminary Results** (MHSRS-24-13071)
Presenter: Levi Hargrove, Ph.D.

(Continued)

BREAKOUT SESSIONS

Wednesday, 28 August | 1530 – 1730

- 1615 – 1630** **Retrospective Review of 60-day PNS Targeting Lumbar Medial Branches in Individuals with Back Pain from Spondylosis Without Radiculopathy (MHSRS-24-11262)**
Presenter: Steven Cohen, M.D.
- 1630 – 1645** **The Value of Replication in Studies of Intervention for Headache Attributable to Traumatic Brain Injury: Progression from RCT to a Multisite Replication Trial (MHSRS-24-11650)**
Presenter: Don McGeary, Ph.D.
- 1645 – 1700** **Provider Perceived Barriers to Accessing Comprehensive Pain Programs for Chronic Pain After TBI Inform Implementation Strategies: A NIDILRR and VA TBI Model System Collaborative Study (MHSRS-24-12287)**
Presenter: Jeanne Hoffman, Ph.D.
- 1700 – 1715** **Complementary, Integrative and Standard Rehabilitative Pain Therapies in a Military Population with Chronic Predominately Musculoskeletal Pain: A Pragmatic Clinical Trial Using a SMART Design (MHSRS-24-11582)**
Presenter: Diane Flynn, M.D., MPH
- 1715 – 1730** **Challenges of a Chronic Pain Pragmatic Trial in the Military Health System (MHSRS-24-12678)**
Presenter: CAPT (Ret) Jeffrey Goodie, USPHS

Ocular Optimization: Before and After Injury

Moderators: MAJ Nathan Davidson, USA, Mariia Viswanathan, M.D., Ph.D.

LOCATION: Sun C

- 1530 – 1545** **Epidemiology of Traumatic Ocular Injury Among US Service Members in Theater, 2001-2020 (MHSRS-24-12404)**
Presenter: Frances Silva, O.D., Ph.D.
- 1545 – 1600** **Metagenomics Based Threat Agnostic Diagnosis of Ocular Infection in Less Than 4 Hours (MHSRS-24-13307)**
Presenter: Espoir Kyubwa, M.D., Ph.D.
- 1600 – 1615** **Rapid Uptake of a Proprietary Cell-Penetrating Human HSP72 into Retinal Tissue After a Blast Injury Suppresses Neurodegeneration (MHSRS-24-12657)**
Presenter: Missag Parseghian, Ph.D.
- 1615 – 1630** **Eye Recovery Automation for Post Injury Dysfunctions (iRAPID) Study Methods of Treatment and Baseline and Outcome Assessment for mTBI Convergence Insufficiency (MHSRS-24-11660)**
Presenter: Chang Yaramothu, Ph.D.
- 1630 – 1645** **Proliferative Vitreoretinopathy Management in Combat Ocular Trauma - Is Surgery the Only Solution? (MHSRS-24-10892)**
Presenter: Lt Cdr Guy Hunter, Royal Navy, United Kingdom
- 1645 – 1700** **Anti-Apoptosis and Necrosis Effect of Necrostatin-1 in Retina Subjected to Laser Injury (MHSRS-24-12995)**
Presenter: Yuhuan Luo, M.D.
- 1700 – 1715** **Development of a Novel 3-D Printed Simulator for Practical Training of the Retrobulbar Block (MHSRS-24-10894)**
Presenter: CPT Timothy Lee, USA
- 1715 – 1730** **Evaluation of Optic Nerve Sheath Diameter in Post-Traumatic Optic Neuropathy Using AI Assisted Ultrasound (MHSRS-24-12808)**
Presenter: Akshaya Bhagavathula, PharmD, Ph.D.

BREAKOUT SESSIONS

Wednesday, 28 August | 1530 – 1730

Genetic Readiness of the Force: Genetics and Integrative Omics for Optimizing Warfighter Health and Performance

Moderator: Juvianee Estrada-Veras, M.D.

LOCATION: Coastal 4

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| 1530 – 1545 | Discrimination of Physical Fatigue State via Salivary Biomarkers (MHSRS-24-12916)
Presenter: Bryndan W. Lindsey, Ph.D. |
| 1545 – 1600 | Development of an Objective Genomic Biomarker for PTSD (MHSRS-24-13134)
Presenter: Anne L. Naclerio, M.D., MPH |
| 1600 – 1615 | Postmortem Genetic Testing: The Critical Importance of a Multidisciplinary Team (MHSRS-24-11663)
Presenter: Austin Pagani, MGC |
| 1615 – 1630 | Proteogenomic Characterization of Primary Invasive Breast Tumors from Young Women compared to Matched Tumors from Older Women (MHSRS-24-12729)
Presenter: Hai Hu, Ph.D. |
| 1630 – 1645 | Impact of the Tumor Microenvironment in Splenic Metastasis in High-Grade Serous Ovarian Cancer Revealed by Quantitative Proteomics (MHSRS-24-12140)
Presenter: Nicholas Bateman, Ph.D. |
| 1645 – 1700 | Multi-omics analyses Reveal Differential Expression of mRNA and miRNA related to Acute Mountain Sickness (MHSRS-24-12873)
Presenter: Mazen Istanbouli, M.S. |
| 1700 – 1715 | Sudden Cardiac Arrest Recurrence in Survivors from Ongoing GEMini Study (MHSRS-24-12552)
Presenter: Lydia Hellwig, Ph.D., M.S. |
| 1715 – 1730 | Impact Of Microgravity on Osteoblast Cells Treated by Osteoinductive Agents: A Multi-Omics Analysis (MHSRS-24-10878)
Presenter: Nabarun Chakraborty, M.S., MBA |

BREAKOUT SESSIONS

Wednesday, 28 August | 1530 – 1730

Global Health Engagement Research in Combatant Commands

Moderators: Danny Shiau, M.D., MPH, COL Matthew R. Scherer, USA

LOCATION: Sun 4

- 1530 – 1545** **Sustaining Readiness Through an Enduring Global Health Engagement: Lessons Learned Over the Past Two Years in Honduras (MHSRS-24-NA-09)**
Presenters: COL Eric Chin, USA, Jessica L.A. Jackson, M.A., MPH
- 1545 – 1600** **The Austere Environments Consortium for Enhanced Sepsis Outcomes (ACESO) Advances Global Health Engagement through Programmatic Focus on Host-country Field sites, Clinical Trial Development, Novel Product Testing and Outbreak Response Training (MHSRS-24-13304)**
Presenter: Patrick Blair, Ph.D.
- 1600 – 1615** **One Health Xenosurveillance to Inform Risk and Assess Drivers of Zoonotic and Vector-Borne Disease Spillover in Northern Ghana (MHSRS-24-13069)**
Presenter: Bernice Baako, MPhil
- 1615 – 1630** **Department of Defense Research Institutes as Forward Medical Diplomacy Platforms: AFRIMS Global Health Engagement Activities (MHSRS-24-10991)**
Presenter: LTC Erin Ball, USA
- 1630 – 1645** **Intelligent Software Solutions for Global Health Engagements (MHSRS-24-11621)**
Presenter: Joseph Cohn, Ph.D.
- 1645 – 1700** **A Novel Approach to Implementing Virtual Communities of Practice (VCoP) with International Partners for Building Capacity in Military Health Systems Globally (MHSRS-24-10973)**
Presenter: Jorge Miguel Sobral Martins, B.A.
- 1700 – 1715** **Supporting Partner-Nation Blood Access through Military-Civilian Trauma System Integration (MHSRS-24-11349)**
Presenter: Emad S. Madha, M.D.
- 1715 – 1730** **What is Missing from Global Health Engagement? Engagement After the Engagement! (MHSRS-24-12336)**
Presenter: Ramey Wilson, M.D.