EXPEDITIONARY MEDICINE

INNOVATIVE APPROACHES TO PREVENT, DIAGNOSE AND TREAT SEPSIS DURING PROLONGED FIELD CARE

MHSRS-19-00165 - Session 2 - #001
Presentation Author: Dr. Elizabeth Gadsby
Natalie Wisniewski, PhD¹, Scott Nichols, PhD², Mary Balaconis, PhD², Ryan Schweller, PhD², Elizabeth Gadsby, PhD³
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MHSRS-19-00643 - Session 2 - #002
An Analysis of the Effectiveness of High Level Disinfection for Surgical Instruments Used By DoD Austere Surgical Teams
Presentation Author: Col Mark Ervin
Mark D. Ervin, MD
59 Medical Wing, San Antonio, TX

MHSRS-19-00654 - Session 2 - #003
Hemoperfusion to Protect the Endothelium during Sepsis: Removal of Sepsis Mediators and Pathogens
Presentation Author: Dr. Keith McCrea
Keith McCrea, PhD¹, Benjamin Koch, MD², Jamin Spilok², Steven P. LaRosa, MD³, Robert Ward, NAE¹
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MHSRS-19-00859 - Session 2 - #004
Metabolite Panel to Diagnose Sepsis Days before the Standard Clinical Diagnosis: A Longitudinal Study in Burn Patients
Presentation Author: Mr. Nabarun Chakraborty
Nabarun Chakraborty¹, Ross Campbell², Aarti Gautam³, Seshamalini Srinivasan¹, Stacy Ann-Miller¹, Leanne Detwiler¹, Melissa McLawhorn⁴, Shawn Tejiram⁴, Lauren T. Moffatt⁴, Jeffrey W. Shupp⁴, Marti Jett³ and Rasha Hammamieh³
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MHSRS-19-01348 - Session 2 - #005
Metabolite Panel to Diagnose Sepsis Days before the Standard Clinical Diagnosis: A Longitudinal Study in Burn Patients
Presentation Author: Mr. Ross Campbell
Ross Campbell¹, Nabarun Chakraborty², Aarti Gautam³, Seshamalini Srinivasan², Ruoting Yang¹, Melissa McLawhorn⁴, Shawn Tejiram⁴, Laurent Moffatt⁴, Marti Jett³, Rasha Hammamieh³, Jeffrey Shupp⁴
Monoclonal Antibody-mediated Inhibition of Activated FXII Reduces Inflammation, Coagulopathy and Death in Primates Challenged with Staphylococcus Aureus

Presentation Author: Dr. Sven Olson
Sven Olson, MD, Florea Lupu, PhD, Ravi Keshari, Robert Silasi PhD, Girija Regmi, Chrstina Lupu PhD, Christina Lorenz, Michael Wallisch, Erik Tucker, PhD, David Gailani, MD, Andras Gruber, MD, Owen McCarty, MD, Joseph Shatzel, MD
1Oregon Health and Science University, Portland, OR; 2Oklahoma Medical Research Foundation, Oklahoma City, OK; 3Aronora Inc, Portland, OR; 4Vanderbilt University Medical Center, Nashville, TN

Portable, Handheld Device for Rapid Sepsis and Infection Diagnosis in the Field

Presentation Author: Dr. Alan Fine
Alan Fine, VMD, PhD, Madhuranga Rankaduwa, Paul Hollensen, Matthew Wright, Ben Bschaden, PEng, MSc, Madeline Baldissera, Lana Greene, Ghulam Jalani, PhD, Yulia Chaikin, PhD, Longyan Chen, PhD, Thomas Trappenberg, PhD, David Conrad, MD, PhD, Robert Liwski, MD, PhD
1Alentic Microscience, Halifax, Nova Scotia, Canada; 2Dalhousie Univ, Halifax, Nova Scotia, Canada

Evaluation of Sepsis Using Compensatory Reserve Measurement

Presentation Author: CPT Avishai Tsur
Benov Avi, MD, MHA, Brand Anat, MD, Rozenblat Tal, MD, Antebi Ben, PhD, Ben-Ari Anat, MD, Amir-Keret Rotem, MD, Nadler Roy, MD, Chen Jacob, MD, MHA, Chung Kevin K, MD, FCCM, FACP, Convertino Victor A, PhD, Paran Haim, MD, FACS
1Israel Defense Forces, Ramat Gan, Israel; 2U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

Improving Soldier Performance, Readiness and Care through Application of Mass Spectrometry Technologies

Presentation Author: Dr. Jon Jacobs
Jon Jacobs, PhD, Joshua Adkins, PhD, Weijun Qian, PhD, Brooke Deathridge, PhD, Vikhyat Bebarta, MD, Sandra Valtier, PhD, Marina Gritsenko, MS, Shaw Warren, MD
1Pacific Northwest National Laboratory, Richland, WA; 2University of Colorado, Denver, CO; 3Lackland AFB, TX; 4Massachusetts General Hospital, Boston, MA

Sepsis in Austere Environments: Derivation of Clinically Relevant Patient Subgroups From Locally Available Data

Presentation Author: Dr. Deborah Striegel
Deborah Striegel, PhD, Kevin L. Schully, PhD, Josh G. Chenoweth, PhD, Anissa Elayadi, MD, George Oduro, MD, Daniel Ansong, MD, CDR Andrew Letizia, USN, Anne Fox, MD, CAPT Charmagne Beckett, USN, CDR Benjamin Espinosa, USN, Danielle V. Clark, PhD
1Henry M. Jackson Foundation for the Advancement of Military Medicine, MD; 2Komfo Anokye Teaching Hospital, Kumasi, Ghana; 3Naval Medical Research Unit-3 Ghana Detachment, Accra, Ghana; 4Naval Medical Research Center-Frederick, Ft. Detrick, MD
Identifying Protein Expression Phenotypes in Sepsis Patients from Austere Settings Using Topological Data Analysis

Presentation Author: Dr. Joost Brandsma
Joost Brandsma, PhD, Kevin Schully, PhD, Deborah Striegel, PhD, Josh G. Chenoweth, PhD, Anissa Elayadi, PhD, Subramaniam Krishnan, PhD, Dennis Faix, MD, Anne Fox MD, CDR Andrew G. Letizia USN, Ephraim Tsalk, PhD MD, Christopher W. Woods, MD PhD, Danielle V. Clark, PhD.

1Henry M. Jackson Foundation, Bethesda, MD; 2Naval Medical Research, Phnom Penh, Cambodia; 3 Naval Medical Research, Accra, Ghana; 4Duke University, Durham, NC

Diagnosis of Sepsis Using the FcMBL ELISA

Presentation Author: Dr. Michael Super
Michael Super, PhD, Benjamin Seiler, MS, Mark Cartwright, PhD, Sami Rifai, BS, Vasanth Chandrasekhar, BS, Alexander Watters, PhD, Alain Bicart-See, MD, Lee Mangum, PhD, Eric Oswald, PhD, Kevin Akers, MD, Nathan Shapiro, MD, Donald Ingber, MD, PhD.

1Harvard University, Boston, MA; 2Boston Children’s Hospital and Harvard Medical School, Boston, MA; 3Centre Hospitalier Universitaire, Toulouse, France; 4Brooke Army Medical Center, Fort Sam, TX; 5Beth Israel Deaconess Medical Center and Harvard Medical School, Boston, MA

ACUTE LIFESAVING TRAUMA INTERVENTIONS

Seeing is Believing – Evaluation of Life Saving Surgical Procedures under Black Out Conditions

Presentation Author: CPT Daniel Lammers
Daniel Lammers, MD, Christopher Marenco, MD, Woo Do, MD, Kaitlin Morte, MD, Corey Debebar, Michael Derickson, MD, Jason Bingham, MD, Mohamad Imad Haque, MD, Matthew Martin, MD, Matthew Eckert, MD, Daniel Cuadrado, MD

Outcomes of Casualties without Airway Trauma Undergoing Prehospital Airway Interventions: A Department of Defense Trauma Registry Study

Presentation Author: MAJ Steven Schauer
Steven G Schauer, DO, MS, Jason F Naylor, PA-C, Joseph K Maddry, MD, Fred C Kobylarz, MSII, Michael D April, MD, DPhil, MSc.

1U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; 259th Medical Wing, JBSA Lackland, TX; 3Brooke Army Medical Center, JBSA Fort Sam Houston, TX; 4Madigan Army Medical Center, Joint Base Lewis McChord, WA; 5Army Medical Department Center and School, JBSA Fort Sam Houston, TX; 6Sidney Kimmel Medical College of Thomas Jefferson University, Philadelphia, PA

A Consensus-based Recommendation for Oxygenation Targets in Critically Injured Patients

Presentation Author: MAJ Steven Schauer
MAJ Steven G. Schauer, DO, MS, Erin Anderson, RN, LTC Cord Cunningham, MD, MPH, Jacqueline Jones, PhD, RN, COL Vikhyat S. Bebarta, MD, Adit A. Ginde, MD, MPH.

1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2University of Colorado School of Medicine, Aurora, CO; 3University of Colorado College of Nursing, Aurora, CO
An Analysis of the Pediatric Casualties Undergoing Massive Transfusion in Iraq and Afghanistan

Presentation Author: MAJ Steven Schauer

Steven G Schauer, DO, MS¹, ², Michael D April, MD, DPhil, MSc³, Abigail R Wheeler, BS¹, Hannah L Gale, MD³, Tyson E Becker, MD³, Guyon J Hill, MD⁴, Matthew A Borgman, MD³

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Incidence of Hyperoxia in Combat Wounded in Iraq and Afghanistan: A Potential Opportunity for Oxygen Conservation

Presentation Author: MAJ Steven Schauer

Steven G Schauer, DO, MS¹, ², Michael D April, MD, DPhil, MSc³, Jason F Naylor, PA-C⁴, Neekofi Mould-Millman⁵, Vikhyat S Bebarta, MD⁵, Tyson E Becker, MD⁵, Joseph K. Maddry, MD¹, ², Adit Ginde, MD⁵

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Optimal Initial Positioning of Chest Tubes To Prevent Retained Hemothorax Using A Novel Steerable Chest Tube with Extendable Infusion Canula

Presentation Author: Dr. John Fortune

John B. Fortune, MD, FACS¹, ², Serena Murphy, MD¹, Kimberley Tiller, RN, MPH²

¹Univ of Vermont Larner School of Medicine, Burlington, VT; ²Sim*Vivo, LLC, Essex, NY

Improving the Military- Civilian Taxonomy and Process to Determine Prehospital Injury Survivability

Presentation Author: COL Brian Eastridge

C. Lizette Villarreal, MA¹, Nicolas W. Medrano, MS¹, Jane H. Brice, MD², Greg Davis, MD³, Eric A. Elster, MD⁴, Thomas J. Esposito, MD⁵, James R. Ficke, MD⁶, John B. Holcomb, MD⁷, Joseph L. Hunt, MD⁸, Donald H. Jenkins, MD⁹, Sarah L. Lathrup, PhD⁸, Robert L. Mabry, MD¹⁰, Ellen Mackenzie, PhD⁸, Matthew Martin, MD¹¹, R. Todd Maxson, MD¹², Edward L. Mazuchowski, MD, PhD¹³, Leon E. Moores, MD¹⁴, Kurt B. Nolte, MD⁸, Monica J. Phillips, MSN, MBA¹, Michelle A. Price, PhD¹, Ronald M. Stewart, MD⁸, Alex B. Valadka, MD¹⁵, Brian J. Eastridge, MD⁹

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Hemodynamic Effects of Acute Over-ventilation in a Swine Hemorrhage Model

Presentation Author: Dr. Megan Blackburn

Megan Blackburn, PhD, Ian Hudson, DO, MPH, Cassandra Rodriguez, Kathy Ryan, PhD

U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX
Stimulating Mitochondrial Energetics Reverses Shock Syndromes
Presentation Author: Dr. Charles McCall

Emergency Department Intubation Success with Succinylcholine versus Rocuronium: A National Emergency Airway Registry Study
Presentation Author: Lt Col Joseph Maddry
MAJ Michael D April, MC, USA1, Allyson A Araña, PhD2, Daniel J. Pallin, MD4, Lt Col Joseph K Maddry, MC, USAF2, MAJ Steven G Schauer, MC, USA3, Andrea Fantagrossi, MPH4, Jessie Fernandez3, LTC Shane M Summers, MC, USA1, Col Mark A Antonacci, MC, USAF1, Calvin A Brown III, MD4, NEAR Investigators
1Brooke Army Medical Center; 2U.S. Air Force 59th MDW/ST En route Care Research Center; 3U.S. Army Institute of Surgical Research; 4Brigham and Women’s Hospital and Harvard Medical School Departs of Emer Medicine

The Arai Auto-injector Platform – Setting a New Standard of Care at the Point Of Need and in Prolonged Field Care
Presentation Author: Mr. Amir Genosar
Amir Genosar1, Arik Eisenkraft, MD1,2, Slawomir Sloniowski, PhD1, Jeff Steward1
1Aktivax, Inc, Broomfield, CO; 2Hebrew University of Jerusalem, Jerusalem, Israel

Compact Infusion Pump for the Delivery of Drugs, Fluids and Blood at the Point-of-Injury, and During En-route Care, Prolonged Field Care and Forward Surgical Care
Presentation Author: Dr. Stephane Bibian
Robert N. Schmidt, MS, MBA, JD
NeuroWave Systems Inc, Cleveland Heights, OH

Wound Trauma Aggravates Radiation-induced Brain Hemorrhage that is Mitigated by Ghrelin Therapy With Pegylated G-CSF
Presentation Author: Dr. Juliann Kiang
Juliann G. Kiang, PhD, Joan T. Smith, BS, Marsha N. Anderson, M. Victoria Umali, Connie Ho, Min Zhai, MD, Bin Lin, MS, Suping Jiang, PhD
Armed Forces Radiobiology Research Institute, Bethesda, MD

Creating Intravenous Oxygen
Presentation Author: Dr. Brian Polizzotti
Brian Polizzotti, PhD1,2, Yifeng Peng, PhD1,2, Alexis Cole, BS1, Tien Nguyen, BS1, John Kheir, MD1,2
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Ounces Make Pounds, Pounds Make Pain - An Assessment of the Medic Aid Bag
Presentation Author: Ms. Nguvan Uhaa
Nguvan Uhaa, LPN1, Michael D April, MD, DPhil, MSc2, Jason F Naylor, PA-C3, Robert A Delorenzo, MD, MSM, MSCI1, Steven G Schauer, DO, MS1
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MHSRS-19-01249 - Poster Session 2 - #028
Training Simulator for Mechanical Circulatory Support for Extra Corporeal Membrane Oxygenation in Adult Patients
Presentation Author: Dr. Pramod Chembrammel
Pramod Chembrammel, PhD, Iti Mehta, Anusha Muralidharan, Thenkurussi Kesavadas
University of Illinois at Urbana–Champaign, Urbana, IL

MHSRS-19-01288 - Poster Session 2 - #029
Successful Transplants of Whole Functioning Mouse Hearts After 24-hour Subzero Storage Using Biomimetic Ice-interactive Polymers
Presentation Author: Dr. Xiaoxi Wei
Xiaoxi Wei, PhD1, Mark Kline, PhD1, Andrea Callegari, PhD1, Adam Childs, MSc1, Byoung Chol Oh, PhD, DVM2, Gerald Brandacher, MD2
1X-Therma Inc, Richmond, CA; 2Johns Hopkins Univ School of Medicine, Baltimore, MD

MHSRS-19-01470 - Poster Session 2 - #030
Chest Decompression for Chest Injuries: What Can Be Learned From Fluctuating Trends in the Past Decade?
Presentation Author: CPT Avishai Tsur
Roy Nadler, MD, Avishai M Tsur, MD, Sami Gendler, MD, Avi Benov, MD, Elon Glassberg, MD, Jacob Chen, MD
Surgeon General’s Headquarters, Israel Defense Forces, Ramat Gan, Israel

MHSRS-19-01474 - Poster Session 2 - #031
Time Trends in Rate and Quality of Prehospital Documentation in the Israel Defense Forces Trauma Registry, 2010-2018
Presentation Author: CPT Avishai Tsur
Avishai Michael Tsur, MD, Roy Nadler, MD, Diana Levy, BA, Avi Benov, MD, Elon Glassberg, MD, Jacob Chen, MD
Surgeon General’s Headquarters, Israel Defense Forces, Ramat Gan, Israel

MHSRS-19-01483 - Poster Session 2 - #032
The Use of Different Types of Supraglottic Airway Devices by Medics on a Manikin Under Tactical Conditions: A Proof of Concept Trial
Presentation Author: CDR Christoph Jaenig
CDR Christoph Jaenig, MD1, LCL Arnulf Willms, MD1, MAJ Thomas Hummel, MD2, Manfred Berres, PhD, Prof3, COL Willi Schmidbauer, MD1, Tim Piepho, MD, PD4
1Bundeswehr Central Hospital, Koblenz, Germany; 2Medical Coy, Airborne Regiment 31, Seedorf, Germany; 3Medical School of the Johannes Gutenberg University, Mainz, Germany; 4Brothers of Mercy Hospital, Trier, Germany

MHSRS-19-01590 - Poster Session 2 - #033
A Descriptive Study of U.S. Special Operations Command Fatalities, 2001-2018
Presentation Author: Dr. Russ Kotwal
Russ S. Kotwal, MD, MPH, Edward L. Mazuchowski, MD, PhD, Caryn A. Stern, DrPH, MPH, Harold R. Montgomery, NREMT, Jud C. Janak, PhD, Jeffrey T. Howard, PhD, Frank K. Butler, MD, John B. Holcomb, MD, Brian J. Eastridge, MD, Jennifer M. Gurney, MD, Stacy A. Shackelford, MD

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MHSRS-19-01597 - Poster Session 2 - #034
Injury Severity Validation with Bronchoalveolar Lavage Cell Analysis: Expression of HMGB1 and TLR4 after Smoke Inhalation Injury and Burns Treated with Extra Corporeal Life Support
Presentation Author: Dr. Andriy Batchinsky
Isabella Garcia, Patrick Willis, Ji Lee, John Jones, Teryn Roberts, Dan Wendorff, Brendan Beely, George Harea, Kyle Sieck, Andriy Batchinsky, Jae Choi

The Geneva Foundation, Tacoma WA; Autonomous Reanimation and Evacuation Program, San Antonio, TX; U.S. Army Institute of Surgical Research, JBSA-Ft. Sam Houston, TX

MHSRS-19-01605 - Poster Session 2 - #035
Local Expression Of HMGB1, TLR4, AQP5 and TGFβ1 in ARDS Due to Smoke Inhalation and Burns in Swine Treated with Minimally Invasive Extracorporeal Life Support
Presentation Author: Dr. Andriy Batchinsky
Jae Choi, Teryn Roberts, John Jones, Corina Necsoiu, Daniel Wendorff, Bryan Jordan, Kyle Sieck, Brendan Beely, Leopoldo Cancio, Andriy Batchinsky

The Geneva Foundation, Tacoma WA; Autonomous Reanimation and Evacuation Program, San Antonio, TX; U.S. Army Institute of Surgical Research, JBSA-Ft. Sam Houston, TX

MHSRS-19-01606 - Poster Session 2 - #036
Systemic Expression Of Damage Associate Molecul Pattern in ARDS Due to Smoke Inhalation and Burns in Swine Treated with Extracorporeal Life Support
Presentation Author: Dr. Andriy Batchinsky
Jae Choi, Teryn Roberts, John Jones, Corina Necsoiu, Daniel Wendorff, Bryan Jordan, Kyle Sieck, Brendan Beely, Leopoldo Cancio, Andriy Batchinsky

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MHSRS-19-01612 - Poster Session 2 - #037
Effects Of Humerus Intraosseous Administration Of Epinephrine In A Normovolemic And Hypovolemic Cardiac Arrest Model
Presentation Author: Col Arthur Johnson
Arthur Don Johnson, PhD
Fort Sam Houston, San Antonio, TX

MHSRS-19-01625 - Poster Session 2 - #038
Investigation Of Intraosseous, Endotracheal, And Intravenous Administration Of Epinephrine In A Hypovolemic, Cardiac Arrest Swine Model
Presentation Author: Prof. Voicu Popescu
Arthur Don Johnson, PhD
Fort Sam Houston, San Antonio, TX
MHSRS-19-01661 - Poster Session 2 - #039
Predicting Need for Trauma Center Admission Emergency Intubation: Comparison of Field Glasgow Coma Scale with In-flight Patient Vital Signs
Presentation Author: Dr. Peter Hu
Peter Hu, PhD1, Shiming Yang, PhD1, Chienyu Lin, PhDC, Samuel Galvagno, MD1, Douglass Floccare, MD2, Christopher Winans, BS2, Catriona Miller, PhD3, Colin F. Mackenzie, MD1, Peter Rock, MD1
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MHSRS-19-01693 - Poster Session 2 - #040
Prehospital Continuous Vital Signs Data Analysis Outperforms Lactate for the Prediction of Lifesaving Interventions in Patients with Traumatic Shock
Presentation Author: Dr. Peter Hu
Samuel M. Galvagno, MD1, Howard Hu, BS1, Yao Li, PhD1, Douglass Floccare, MD2, Peter Rock, MD1, Shiming Yang, PhD1, Robert Sikorski, MD1, Catriona Miller, PhD3, Joseph DuBose, MD1, Colin F. MacKenzie, MD1, Justin Richards, MD1, Micheal Mazzeffi, PhD1, Thomas Scalea, MD1, Peter Hu, PhD1
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MHSRS-19-01879 - Poster Session 2 - #041
Introducing Tattoos to Advanced Trauma Life Support: A Process Improvement Initiative
Presentation Author: Dr. Luis Llerena
Luis E Llerena, MD, FACS1; Andre Nelson, CHSOS1; Johairis Ayala-Falcon, BS, CHSOS1; Michael Brannick, PhD1; Lauren Dyer1; Elizabeth Weissbrod, MA, CMI2
1University of South Florida, Tampa, FL; 2Uniformed Services University, Bethesda, MD

MHSRS-19-02169 - Poster Session 2 - #042
See-What-I-do: Increasing Mentor and Trainee Sense of Co-presence in Trauma Surgeries with the Star Platform
Presentation Author: CDR Thomas Douglas
CDR Thomas Douglas1, Chengyuan Lin2, Edgar Rojas-Muñoz2, Maria Eugenia Cabrera2, Natalia Sanchez-Tamayo2, Daniel Andersen2, Voicu Popescu2, Juan Antonio Barragan Noguera3, Ben Zarzaur3, Pat Murphy3, Kathryn Anderson3, LT Clare Griffis1, Juan Wachs2
1Naval Medical Center Portsmouth, Portsmouth, VA; 2Purdue University, West Lafayette, IN; 3Indiana University School of Medicine, Indianapolis, IN

MHSRS-19-02403 - Poster Session 2 - #043
A Porcine Model of Combined Burn and Traumatic Brain Injury
Presentation Author: Capt Marguerite Spruce
Marguerite Spruce, MD1,2, Carl Beyer, MD1,2, Connor Caples, MD1,2, J Kevin Grayson, DVM1, Frederick Meyers, MD1, Tina Palmieri, MD2, Ian Brown, MD, PhD2
1David Grant Medical Center Clinical Investigation Facility, Travis Air Force Base, Fairfield, CA; 2University of California Davis, Sacramento, CA

MHSRS-19-02626 - Poster Session 2 - #044
Novel Endotracheal Tube Design Utilizing Novel Architectured Materials and Feedback Sensors
Presentation Author: Mr. David Berard
David Berard, BS1, Isaac Trevino, BS1, Darnell Campbell, BS2, Yusheng Feng, PhD1,2, Robert De Lorenzo, MD2,3, David Restrepo, PhD1, R. Lyle Hood, PhD1,3
ACUTE LUNG INJURY IN TRAUMA AND CRITICAL ILLNESS

MHSRS-19-00115 - Poster Session 2 - #045
Ventilator-induced Lung Injury: A Unifying Hypothesis
Presentation Author: Mr. Gary Nieman
Gary F. Nieman, BA1, Louis A. Gatto, PhD2, Josh Satalin, BS1, Hassan Al-Khalisy, MD1, Sarah Baker, MA1, Penny Andrews, RN3, Nader Habashi, MD3
1SUNY Upstate Medical University, Syracuse, NY; 2SUNY Cortland College, Cortland, NY; 3University of Maryland School of Medicine, Baltimore, MD

MHSRS-19-00278 - Poster Session 2 - #046
Understanding the Time Controlled Adaptive Ventilation Protocol for Acute Lung Injury
Presentation Author: Mr. Gary Nieman
Gary F. Nieman, BA1, Louis A. Gatto, PhD2, Josh Satalin, BS1, Hassan Al-Khalisy, MD1, Sarah Baker, MS1, Penny Andrews, RN3, Nader Habashi, MD3
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MHSRS-19-00803 - Poster Session 2 - #047
Metabolic and Bioenergetic Maladaptation in Non-resolving Lung Fibrosis
Presentation Author: Dr. Jaroslaw Zmijewski
JW Zmijewski, PhD, S Rangarajan, MD, NB Bone, PhD, AA Zmijewska, MS, E Becker, PhD, K Bernard, PhD, RB Mannon, MD, V Darley-Usmar, PhD, VJ Thannickal, MD
University of Alabama at Birmingham, Birmingham, AL

MHSRS-19-00923 - Poster Session 2 - #048
Addressing Post Intensive Care Syndrome
Presentation Author: Dr. Samuel Brown
Samuel M. Brown, MD, MS1,2, Somnath Bose, MD3, Valerie Banner-Goodspeed, MPH3, Sarah Beesley, MD, MS1, Victor D. Dinglas, MPH4, Ramona O. Hopkins, PhD1,2,5, James C. Jackson, PsyD6, Mustafa Mir-Kasimov, MD2, Dale M. Needham, MD, PhD4, Carla M. Sevin, MD6
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MHSRS-19-00973 - Poster Session 2 - #049
Effects of Acinar Interdependence in a Computational Model of the Acutely Injured Lung
Presentation Author: Dr. David Kaczka
Jacob Hermann, PhD1, Merryn H. Tawhai, PhD2, Jason H.T. Bates, PhD3, David W. Kaczka, MD, PhD4
1Boston University, Boston, MA; 2Victoria University of Auckland, Auckland, New Zealand; 3University of Vermont, Burlington, VT; 4University of Iowa, Iowa City, IA

MHSRS-19-01043 - Poster Session 2 - #050
Lung Sealing and Hemostasis without Compression: Evaluation of Visco-liquid Polyhedral Oligomeric
**Silsesquioxane in a Swine Model**
Presentation Author: Dr. Drew Hildebrandt
Drew Hildebrandt, PhD¹, Michelle Tucci, PhD¹, Joseph Lichtenhan, PhD², Robert O'Brien, PhD¹, Hamed Benghuzzi, PhD¹
¹University of Mississippi Medical Center, Jackson, MS; ²Hybrid Plastics, Hattiesburg, MS

**MHSRS-19-01236 - Poster Session 2 - #051**
**Heparin-free ECLS: Developing New Material Solutions for Next Generation Extracorporeal Life Support**
Presentation Author: Dr. Teryn Roberts
Teryn R. Roberts, PhD¹,², Hitesh Handa, PhD³, Andriy I. Batchinsky, MD¹,²
¹The Geneva Foundation, Tacoma, WA; ²Autonomous Reanimation and Evacuation Program, San Antonio, TX; ³University of Georgia, Athens, GA

**MHSRS-19-01251 - Poster Session 2 - #052**
**Inhalation of a RNA Biodrug Targeting Extracellular Histones Protects from Acute Lung Injury**
Presentation Author: Dr. Francis Miller
Francis J. Miller, MD¹,²; Beilei Lei, MD, PhD²; Kamie Snow²; Robert M. Tighe, MD²; Paloma H. Giangrande, PhD³
¹VA Affairs Medical Center, Durham, NC; ²Duke University, Durham, NC; ³Univ of Iowa, Iowa City, IA

**MHSRS-19-01264 - Poster Session 2 - #053**
**Tissue Resident Alveolar Macrophages Have a Distinct Metabolism Compared to Recruited Monocyte Derived Macrophages and Do Not Undergo Glycolytic Reprogramming During Activation**
Presentation Author: Dr. Gokhan Mutlu
Gokhan M. Mutlu, MD, Robert B. Hamanaka, PhD, Kaitlyn A. Sun, Angelo Y. Meliton, MD, Lucas Kimmig, MD, Erin M. O’Leary, Yufeng Tian, Parker S. Woods, PhD
The University of Chicago, Chicago, Illinois

**MHSRS-19-01293 - Poster Session 2 - #054**
**An in-vitro Model of the Alveolar-capillary Barrier for Screening Potential Therapeutics for Acute Respiratory Distress Syndrome**
Presentation Author: Ms. Lucero Alvarado
Lucero Alvarado, BS¹,²,³; Luis A. Rodriguez II, MS¹,²; Arezoo Mohammadiipur, DVM, PhD¹,²; Robin M. Kamucheka, BS¹; Leopoldo C. Cancio¹; Ben Antebi, PhD¹,³
¹U.S. Army Institute of Surgical Research, San Antonio TX; ²Oak Ridge Institute for Science and Education, Oak Ridge, TN; ³The University of Texas at San Antonio, San Antonio TX

**MHSRS-19-01390 - Poster Session 2 - #055**
**Developing MG53 as a Novel Protein Therapeutic for Acute Lung Injury**
Presentation Author: Dr. Jianjie Ma
Bryan A. Whitson¹, Xinyu Zhou¹, Gregory Beilman², Jung-Lye Kim¹, Sylvester M. Black¹, Tao Tan¹,³, Jianjie Ma¹,³
¹Ohio State University, Columbus, OH; ²University of Minnesota, Minneapolis, MN; ³TRIM-edicine, Inc, Columbus, OH

**MHSRS-19-01779 - Poster Session 2 - #056**
**Mysterious Presentation of Pediatric Respiratory Failure and Multilobar Atelectasis**
Presentation Author: 2LT Gerrit Davis
MAJ Grigory Charny, MD, MS, FAAEM, 2LT Gerrit Davis, 2LT Casey Lockett
Uniformed Services University of the Health Sciences, Bethesda, MD
MHSRS-19-01837 - Poster Session 2 - #057
Nanoparticle-facilitated Inhalational Delivery of Antisense Erythropoietin Receptor cDNA Mitigates Murine Acute Lung Injury
Presentation Author: Dr. Connie Hsia
Khoa Cao, Yu-An Zhang, Orson W. Moe, Connie C.W. Hsia
University of Texas Southwestern Medical Center, Dallas, TX

MHSRS-19-01847 - Poster Session 2 - #058
Reflectance and Spectralim Imaging in the Upper Airways
Presentation Author: Dr. Gianluca Turcatel
Gianluca Turcatel, PhD1,2, Pu Wang, MS2, Wen Shi, MS2, Cosimo Arnesano, PhD2, Scott Fraser, PhD2, Francesco Cutrale, PhD2, David Warburton, MD1,2
1Children's Hospital Los Angeles, Los Angeles, CA; 2University of Southern California, Los Angeles, CA

MHSRS-19-01895 - Poster Session 2 - #059
4MDM is a Potential Small Molecule Therapeutic Agent for Acute Lung Injury that Modulates the Enzyme Kinetic Mechanism of Pro-gly-pro Hydrolysis by the Leukotriene A4 Hydrolase Enzyme
Presentation Author: Dr. Mikell Paige
Kyung Hyeon Lee, PhD1, Marie Burdick, MS2, Zhimin Zhang, MS2, Amanda Shim2, Fiona Bradshaw2, Schroeder Noble, PhD3, Y. Michael Shim, MD2, Mikell Paige, PhD1
1George Mason University, Manassas, VA; 2University of Virginia, Charlottesville, VA; 3Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-01926 - Poster Session 2 - #060
Handheld Ultrasound Training and Use for Sepsis in an Austere Environment
Presentation Author: CAPT Dennis Faix
Dennis Faix1, Amitha Fitkariwala2, Som Tin2, Song Sokhun2
1U.S. Navy Medical Research Unit Two; 2AC Investment Company

MHSRS-19-02301 - Poster Session 2 - #061
Injury and Biomarkers from Pigs Following Isolated Open-field Blast Exposure Depend on Ballistic Protection Level
Presentation Author: Lt Col Nicolas Prat
Nicolas J Prat, MD, PhD1, Johanna Boutillier, PhD2, Heuy-Ching Wang, PhD3, Florent Montespan1, Sebastien Demezzo2, William Menini1, Whitney A Greene, PhD3, Joel Mosnier1, Ammon W Brown, DVM, PhD3, Andrew P Cap, MD, PhD3, Pascal Magnan, PhD2
1French Armed Forces Biomedical Research Institute, Bretigny/Orge, France; 2French-German Research Institute of Saint-Louis, Saint-Louis, France; 3U.S.A. Institute of Surgical Research, JBSA Fort Sam Houston, TX

MHSRS-19-02504 - Poster Session 2 - #062
Heme Released After Trauma Increases Susceptibility to Bacterial Pneumonia
Presentation Author: Ms. Ghee Rye Lee
Ghee Rye Lee, MMSc1,2, David Gallo, BS1,2, James Lederer, PhD2,3, Shazhad Shaefi, MD, MPH1,2, Carl J. Hauser, MD1,2 and Leo E. Otterbein, PhD1,2
1Beth Israel Deaconess Medical Center, Boston, MA; 2Harvard Medical School, Boston, MA; 3Brigham and Women's Hospital, Boston, MA

MHSRS-19-02612 - Poster Session 2 - #063
Damp-mediated Innate Immune Failure and Pneumonia after Trauma: The Harvard-Longwood Campus
Advances in Burn Wound Management During Prolonged Care

Mitigating Burn Injury Severity and Infection by Using a Novel Dressing That Targets Oxidative Stress Pathways

Presentation Author: Dr. Jahnabi Roy
Jahnabi Roy, PhD¹, Cortes Williams, III, PhD², Christine J. Kowalczewski, PhD¹, Luis A. Martinez, PhD², Robert J. Christy, PhD¹, John W. Simecek, PhD²
¹U.S. Army Institute of Surgical Research, JBSA Ft Sam Houston, San Antonio, TX; ²Naval Medical Research Unit San Antonio, JBSA Ft Sam Houston, San Antonio, TX

A Plasma-alginate Composite Gel Provides Improved Mechanical Support for Stem Cell Growth and Delivery

Presentation Author: Dr. Nicholas Clay
Nicholas Edwin Clay, PhD, Carissa Villanueva, BS, Nicole Wrice, MS, Andrew C. Kowalczewski, BS, Shahnugusundaram Natesan, PhD, Robert J. Christy, PhD
U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

Non-contact Tissue Viability Assessment

Presentation Author: Mr. Michele Pierro
Michele L. Pierro, PhD¹, Gordon B. Hirschman¹, Saurkhya Deshmukh¹, Kyle Quinn, PhD²
¹Vivonic, Incorporated, Bedford, MA; ²University of Arkansas, Fayetteville, AR

Myeloid-derived Suppressor Cells and the Immnoinflammatory Response to Burn Injury

Presentation Author: Dr. Martin Schwacha
Martin G. Schwacha, PhD, Shannon R. Scroggins, MS, Susannah E. Nicholson, MD, Meenakshi Rani, PhD
University of Texas Health Science Center, San Antonio, TX

Hypercoagulation and Hypermetabolism in Severely Burned Adults

Presentation Author: Dr. Wenjun Martini
Wenjun Martini¹, John Holcomb², Yong-Ming Yu³, Steven Wolf⁴, Leopoldo Cancio¹, Anthony Pusateri¹, Michael Dubick¹
¹U.S. Army Institute of Surgical Research, Ft Sam Houston, TX; ²University of Texas Health Science Center at Houston, TX; ³Massachusetts General Hospital and Harvard Medical School, Boston, MA; ⁴Shriners’ Burn Hospital for Children, Galveston, TX

Cerium Nitrate Stabilizes Burn Eschars and Reduces Circulating Damage-associated Molecular Pattern
Molecules in a Rat Scald Burn Model
Presentation Author: Dr. Liwu Qian
Li-Wu Qian, Shankar J. Evani, Ping Chen, Kenneth S. Brandenburg, Alan J. Weaver, Johnathan J. Abercrombie, Eliza A. Sebastian, Andrea B. Fourcaudot, and Kai P. Leung
U.S. Army Institute of Surgical Research, JBSA-Fort Sam Houston, San Antonio, TX

MHSRS-19-00819 - Poster Session 2 - #070
Improved Blood Flow Assessment in Evaluating Burn Wounds Using Multimodal Wide-field Optical Imaging
Presentation Author: Dr. Ben Lertsakdadet
Ben Lertsakdadet, PhD¹, Gordon T. Kennedy, PhD¹, Randolph Stone II, PhD², Andrew C. Kowalczewski², Robert J. Christy, PhD², Anthony J. Durkin, PhD¹, Bernard Choi, PhD¹
¹University of California Irvine, CA; ²U.S. Army Institute of Surgical Research, Fort Sam, Houston, TX

MHSRS-19-00971 - Poster Session 2 - #071
Fluorescence Biomodulation for the Management of Burn Injuries: Acting at a Cellular Level to Control Inflammation and Improve Healing
Presentation Author: Dr. Lise Hebert
Lise Hebert, PhD¹, Stephane Fauverghe, MD¹, Luc Teot, MD²
¹Klox Technologies Inc, Laval, Quebec, Canada; ²Lapeyronie University Hospital, Montpellier, France

MHSRS-19-01034 - Poster Session 2 - #072
Breed Differences in a Porcine Burn Progression Model
Presentation Author: Dr. Christine Kowalczewski
Christine J. Kowalczewski, PhD, Andrew C. Kowalczewski, BS, Lucy Shaffer, BS, David A. Larson, MS, Logan Leatherman, MS, John Wall, BS, Michelle Holik, BS, Hannah Dillon, BS, Robert J. Christy, PhD
U.S. Army Institute of Surgical Research, JBSA Ft Sam Houston, San Antonio, TX

MHSRS-19-01144 - Poster Session 2 - #073
Assessing Polarization-sensitive Optical Coherence Tomography as a Tool to Volumetrically Map Collagen Structure in Partial Thickness Burns
Presentation Author: Dr. Nestor Uribe-Patarroyo
Néstor Uribe-Patarroyo¹, Taylor Cannon¹,², Pelham Keahey¹, Martin Villiger¹, and Brett E. Bouma¹,²
¹Massachusetts General Hospital, Boston, MA; ²Massachusetts Institute of Technology, Cambridge, MA

MHSRS-19-01278 - Poster Session 2 - #074
Fibronectin-derived Peptides cP12 and cNP8 Enhance PDGF-BB-stimulated Human Dermal Fibroblast Migration in-vitro and Granulation Tissue Formation in-vivo
Presentation Author: Dr. Richard Clark
Atulya Prasad, PhD, Fubao Lin, PhD
NeoMatrix Therapeutics, Inc, Stony Brook, NY

MHSRS-19-01285 - Poster Session 2 - #075
Metabolomic Profiling of Burn Wounds Following Treatment with Different Skin Substitutes
Presentation Author: Dr. Hilmar Kjartansson
Hilmar Kjartansson¹, Baldur T. Baldursson¹, Skuli Magnusson¹, Hulda S. Jónasdóttir², Ingibjörg LK Hafliðadóttir², John C Lantis II³, Óttar Rolfsson³, G. Fertram Sigurjónsson¹
¹Kerecis, Iceland; ²University of Iceland, Iceland; ³Mount Sinai St. Luke’s and West Hospitals, NY
In Situ Skin Regeneration Through Induction of Skin Allograft Chimerism by Mobilizing Host Endogenous Stem Cells
Presentation Author: Mr. Ali Ahmadi
Ali R. Ahmadi, Russell N. Wesson, James Burdick, Andrew Cameron, Zhaoli Sun
Johns Hopkins School of Medicine, Baltimore, MD

Using Pyoverdine for Rapid and Early Detection of Pseudomonas Aeruginosa in Burn Wounds
Presentation Author: Dr. Gregory Fernandes
Gregory Fernandes, PhD¹, Angel Cueva², Oanh Pham¹, Aissata Diaby¹, Kendra P. Rumbaugh, PhD²
¹Texas Tech University, Lubbock, TX; ²Texas Tech University Health Sciences Center, Lubbock, TX

The Regulatory Environment for Tissue-engineered Products for the Treatment of Burns in the U.S.
Presentation Author: Ms. Kimberly Belsky
Kimberly Belsky, MS¹, Mary Lokuta, PhD², Janice Smiell, MD¹
¹Mallinckrodt Pharmaceuticals, Bedminster, NJ; ²Stratatech, a Mallinckrodt Company, Madison, WI

Burncare: Virtual Tablet Training to Enhance Burn Injury Care and Treatment
Presentation Author: Dr. Austin Baird
Austin Baird, PhD¹, Marcia Clover¹, Matt McDaniel¹, MAJ Michael Rowland, MD², LTC (ret) Maria Serio-Melvin, MSN, RN², Bradly Wilson¹
¹Applied Research Associates, Inc, Raleigh, NC; ²U.S. Army Institute of Surgical Research, San Antonio, TX

SP16 Drug, Phase II Ready for Treatment of Sepsis or Burn Wounds
Presentation Author: Dr. Cohava Gelber
Dana Austin, Michael Shim, Michael Paige

Ultra-wide Band RF Quantitative Diagnostics and Imaging of Burn Injuries
Presentation Author: Dr. Vladimir Makarenko

Skin Function is Compromised with Biofilm Ceramidases
Presentation Author: Dr. Mithun Sinha
Mithun Sinha, PhD¹, Nandini Ghosh, MS¹,2, Dayanjan S Wijesinghe, PhD,3, Shomita Steiner, PhD¹, Kanhaiya Singh, PhD¹, Savita Khanna, PhD¹, Gayle Gordillo, MD¹, Sashwati Roy, PhD¹, Chandan K Sen, PhD¹
¹Indiana University School of Medicine, Indianapolis, IN; ²The Ohio State University, Columbus, OH; ³Virginia Commonwealth University, Richmond, VA

Spatial Frequency Domain Imaging for Assessment of Burn Wound Debridement in a Porcine Model
Presentation Author: Dr. Gordon Kennedy
Randolph Stone II², Andrew C. Kowalczewski², Jeffrey H. Chen¹, Rebecca Rowland¹, Adrien Ponticorvo¹, Robert J Christy², Anthony J Durkin¹,2
¹Univ of California, Irvine, CA; ²U.S. Army Inst of Surgical Research, San Antonio, TX
MHSRS-19-02319 - Poster Session 2 - #084
Treatment of Full-thickness Wounds with Microfragmented Adipose Tissue and Plasma-based Hydrogels
Presentation Author: Dr. Shanmugasundaram Natesan
Shanmugasundaram Natesan, PhD, Randolph Stone II, David Larson, John Wall, Robert Christy

MHSRS-19-02348 - Poster Session 2 - #085
Development of Nitric Oxide Releasing Bio-active Wound Dressing for Combat Burn Wound Infection Treatment
Presentation Author: Dr. Shanmugasundaram Natesan
Jitendra Pant1, Lori Estes1, Robert Christy2, Hitesh Handa1, Shanmugasundaram Natesan2
1Univ of Georgia, Athens; 2U.S. Army Inst of Surgical Research, JBSA Fort Sam Houston, TX

MHSRS-19-02350 - Poster Session 2 - #086
Reduction in Donor Skin Requirements for Full Thickness Burns After Fish Skin Treatment
Presentation Author: Dr. Randolph Stone
Randolph Stone II, PhD1, David Larson, MS1, John Wall, BS1, Skuli Magnusson, BS2, Hilmar Kjartansson, MD2, Shanmugasundaram Natesan, PhD1, Robert J. Christy, PhD1
1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2Kerecis, Reykjavik, Iceland

MHSRS-19-02573 - Poster Session 2 - #087
Single-cell Sequencing Analysis of Interaction between Pathogen and CD8-positive T Cells In Burn Patients With Sepsis
Presentation Author: Ms. Chengxiao Chen

MHSRS-19-02595 - Poster Session 2 - #088
Antimicrobial Efficacy Testing of a Novel Composite Dressing
Presentation Author: Dr. Mina Izadjoo
Hosan Kim, PhD, Vanessa Marcel, MS, Mina Izadjoo, PhD
Integrated Pharma Services, Frederick, MD

MHSRS-19-02603 - Poster Session 2 - #089
A Robust Next Generation Technology for Full Thickness Skin Grafts
Presentation Author: Dr. Mina Izadjoo
Mina Izadjoo, PhD1, Bob Maguire, MS2
1Integrated Pharma Services, Frederick, MD; 2BioLab Sciences, Scottsdale, Arizona

MHSRS-19-02617 - Poster Session 2 - #090
Microneedle Arrays for Burn Wound Healing
Presentation Author: Mr. Jacob Quint
Jacob Quint, BS, Fariba Aghabaglou, MS, Ali Tamayol, PhD
University of Nebraska-Lincoln, Lincoln, NE

ADVANCES IN PROLONGED CARE

MHSRS-19-00060 - Poster Session 2 - #091
How to Properly Carry Your Cross: Combat Resuscitation Organ Support System
Presentation Author: Dr. Andriy Batchinsky
Andriy Batchinsky MD, George Harea, BS, Dan Wendorff, BS, Brendan Beely, BS, RRT, Isabella Garcia BS, Patrick Willis BS, Kyle Sieck BS, Teryn Roberts PhD, Jae Choi, PhD, DvSC

1The Geneva Foundation, Tacoma, WA; 2Autonomous Reanimation and Evacuation Program, San Antonio, TX

MHSRS-19-00222 - Poster Session 2 - #092
Large Animal Models of Combined Traumatic Brain Injury and Hemorrhagic Shock: A Systematic Review and New Directions
Presentation Author: Dr. Andrew Mayer
Andrew R. Mayer, Andrew B. Dodd, Meghan S. Vermillion, David D. Stephenson, Irshad H. Chaudry, Denis E. Bragin, Andrew P. Gigliotti, Rebecca J. Dodd, Benjamin C. Wasserott, Priyank Shukla, Rachel Kinsler, Sheila M. Alonzo, Julie G. Rannou-Latella

1The Mind Research Network & Lovelace Biomedical and Environmental Research Institute, Albuquerque, NM; 2Univ of New Mexico School of Medicine, Albuquerque, NM; 3Univ of Alabama at Birmingham, Birmingham, AL; 4U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL

MHSRS-19-00289 - Poster Session 2 - #093
Enhancing the Damage Control Skills of Far Forward Providers Using Augmented Reality: A Technical Integration and Demonstration Study
Presentation Author: COL Tyler Harris
COL Tyler E. Harris, MC, MAJ William N. VasisIos III, SP, Geoffrey Miller, MS, EMT-P, Jerry Heneghan, MBA, COL Kenneth Nelson, MC, James C. Gaudaen, MA, SFC Christopher J Perry, LTC Stephen DeLellis, MSC, Young S. Choi, MD, Mark W. Bowyer, MD

1Womack Army Medical Center, Fort Bragg NC; 2U.S. Army Special Operations Command, Fort Bragg, NC; 3U.S. Army Medical Research and Development Command, Fort Detrick, MD; 4Eastern Virginia Medical School, Norfolk, VA; 5BioMojo, LLC, Morrisville, NC; 6Uniformed Services University, Bethesda, MD

MHSRS-19-00403 - Poster Session 2 - #094
Antimicrobial and Hemostatic Activities Of Cotton-based Dressings Designed to Address Prolonged Field Care Applications
Presentation Author: Dr. Judson Edwards
J. Vincent Edwards, Nicolette Prevost, Sunghyun Nam, Elena Graves, Dorne Yager, Joseph Dacorta, Michael Reynolds, Brian Condon

1Southern Regional Research Center, New Orleans, LA; 2Virginia Commonwealth University, Richmond, VA; 3H&H Medical Corp, Williamsburg, VA

MHSRS-19-00427 - Poster Session 2 - #095
An Objective Model To Facilitate Designation of Military-Civilian Partnership Hospitals for Sustainment of Military Trauma Readiness
Presentation Author: MAJ Andrew Hall
Andrew Hall, MD, Iram Qureshi, MPH, Stacy Shackelford, MD, Jacob Glaser, MD, Eileen Bulger, MD, Thomas Scalea, MD, Jennifer Gurney, MD

196th MDG, Eglin AFB, FL; 2Naval Medical Research Unit San Antonio, San Antonio, TX; 3Defense Center of Excellence for Trauma, San Antonio, TX; 4University of Washington, Seattle, WA; 5University of Maryland, Baltimore, MD

MHSRS-19-00578 - Poster Session 2 - #096
Synchronous Activation of Pro-inflammatory and Anti-inflammatory Responses in Civilian Trauma Patients
Presentation Author: Dr. Zhangsheng Yang
Zhangsheng Yang, Leopoldo C. Cancio, Michael A. Dubick, Thomas J. Walters, Yansong Li
U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

**MHSRS-19-00854 - Poster Session 2 - #097**
**Plasma Lactate and its Clearance Relates to the Mortality Following Severity of Blast Exposure and Hemorrhagic Shock in Rats**
Presentation Author: Dr. Pushpa Sharma
Biswajit Saha, MD, Geetaram Sahu, PhD
Uniformed Services University of the Health Sciences, Bethesda, MD

**MHSRS-19-00913 - Poster Session 2 - #098**
**Evaluation of the Utility of a Point-of-Care Hematology Device to Triage Radiation Casualties Following Exposure to Mixed Field (5.5 Neutron to Gamma Ray) and Gamma Only Radiation Exposure**
Presentation Author: Dr. William Blakely
William Blakely¹, David Bolduc¹, Alan Fine², Diane Agay³, Jean-Claude Mestries³, Michel Drouet³, Francis Hérodin³
¹Uniformed Services University of the Health Sciences, Bethesda, MD; ²Alentic Microscience Inc, Halifax, Nova Scotia; ³Institut de Recherche Biomédicale des Armées, Brétigny sur Orge, France

**MHSRS-19-00989 - Poster Session 2 - #099**
**Preliminary Analysis of Military Working Dog Injuries In Theater Between 2001 and 2018**
Presentation Author: Dr. Laura Scott
Laura L. F. Scott, PhD, MPH, MS¹, Kerry E. Gonyeau, BS², Emily H. Howard, BS³, LTC Jacque Parker, DVM, MS⁴, Kelly Hall, DVM, MS⁵, LTC Thomas H. Edwards, DVM, MS¹
¹U.S. Army Inst of Surgical Research, JBSA–Fort Sam Houston, TX; ²Texas Tech Univ, Lubbock, TX; ³Texas A&M Univ, College Station, TX; ⁴Office of the Army Surgeon General, JBSA–Fort Sam Houston, TX; ⁵Veterinary Committee on Trauma, Minneapolis, MN

**MHSRS-19-01001 - Poster Session 2 - #100**
**Adipocyte Lipolysis is Necessary for Acute Stress-induced Insulin Resistance**
Presentation Author: Dr. Thurl Harris
Thurl E. Harris, PhD, Vidisha Raje, PhD, Susanna R. Keller, MD, Alex Kadl, MD
University of Virginia, Charlottesville, VA

**MHSRS-19-01332 - Poster Session 2 - #101**
**Modeling Mass Casualty Patients after a Nuclear Detonation: Opportunities to Prepare for Logistic Challenge Beyond Initial Surge**
Presentation Author: Col William Skinner

**MHSRS-19-01345 - Poster Session 2 - #102**
**Efficacy of Four Hemostatic Strategies for Prolonged Field Care in a Swine (Sus Scrofa) Model of Hemorrhagic Injury**
Presentation Author: LCDR Grace Landers
LCDR Grace Landers, MD, LCDR Paul Roszko, MD, LT Cassandra Townsend, DO, CAPT Jose Henao, MD, CDR Micah Gaspary, MD, LT Ryan Kachur, MD, Ramesh Natarajan MD, Amanda Osit, MS, LT Brian Thorne, MD, Ana Manzan, Michael Boboc
Naval Medical Center Portsmouth, Portsmouth, VA
Development of an Advanced Respiratory Rate Algorithm and Deployment in a Field Medic Utilized Fingertip Oximeter
Presentation Author: Dr. Marcus Kramer
Marcus Kramer, PhD, Walter W Holbein, PhD, Jim Durnin, PhD
Nonin Medical, Inc, Plymouth, MN

In-situ Acoustic-radiation-force 3D Printer for Non-invasive Internal Bleeding Control
Presentation Author: Dr. Li Li
Li Li, Jia Liu, Fouad Attiou, Hemanth K. Gutti, Guillermo J. Tearney
Massachusetts General Hospital, Boston, MA

Wound Healing Prediction in Critical Limb Ischemia via Continuous Tissue Oxygen Measurements
Presentation Author: Ms. Natalie Wisniewski
Natalie Wisniewski, PhD¹, Kerstin Rebrin, MD, PhD², Stephen Chad Kanick, PhD¹
¹Profusa, South San Francisco, CA; ²Profusa, Indianapolis, IN

Early Initiation of Thromboprophylaxis in Operative Spine Trauma Does Not Increase the Risk of Bleeding Complications
Presentation Author: Dr. Christopher Gonzales
Adil Lokhandwala, MD, Kamil Hanna, MD, Mohammad Hamidi, MD, Lourdes Castanon, MD, Narong Kulvatunyou, MD, Michael Ditillo, DO, Andrew Tang, MD, Lynn Gries, MD, Bellal Joseph, MD
University of Arizona, Tucson, Arizona

Evaluating an Ultra-portable Operating Room Paradigm to Improve Surgical Safety in the Field
Presentation Author: Dr. Debbie Teodorescu
Debbie L. Teodorescu, MD, MEng, AM¹,², Stephen Okajima, MS², Mike Teodorescu, DBA¹,², CAPT Robert J. Smalley, MD, MHAP²,³, Sashidhar Jonnalagedda, MS²,⁴, Daniel Brown, DBA²,⁵, CAPT Asad Moten, MD⁶
¹Massachusetts Institute of Technology, Cambridge, MA; ²SurgiBox Inc, Boston, MA; ³Portsmouth Naval Medical Center, Portsmouth, VA; ⁴EssentialTech, Lausanne, Switzerland; ⁵Harvard Business School, Boston, MA; ⁶Walter Reed Army Medical Center, Bethesda, MD

Intraoperative Optical Coherence Tomography Imaging of Trauma – Technology Development and Demonstration of Peripheral Nerve Imaging in Non-human Primates
Presentation Author: Dr. Mohsen Erfanzadeh
Mohsen Erfanzadeh, PhD, Marek Hansdorfer, MD, Kasey Kwong, MS, Ahhyun Stephanie Nam, PhD, Mark A. Randolph, MAS, Robert W. Redmond, PhD, Benjamin J. Vakoc, PhD
Massachusetts General Hospital, Boston, MA

Powering Expeditionary Surgical Equipment from Mine-resistant Ambush-protected All-terrain Vehicles
Presentation Author: CPT Erick Thronson
Erick Thronson, BSN, RN¹, Daniel Brillhart, MD², Julie Rizzo, MD³
MHSRS-19-02423 - Poster Session 2 - #110
Review of Evidence-based Nutrition Related Strategies and Research Gaps to Address While Treating Patients with Spinal Cord Injuries
Presentation Author: MAJ Joetta Khan
Joetta M. Khan, PhD, RDN¹, Lara M. Mayoral, RDN¹, Veena K. Rajpal, MS, RDN, CNSC¹, Angie M. Ison, MS, RDN², Asma S. Bukhari, PhD, RDN¹
¹Walter Reed National Military Medical Center, Bethesda, MD; ²Weed Community Hospital, Ft. Irwin, CA

MHSRS-19-02579 - Poster Session 2 - #111
Integrated Pressure Sensing/optical Coherence Tomography Probe for Localized Dynamic Airway Compliance Measurement
Presentation Author: Mr. Yusi Miao
Yusi Miao, Joseph Jing, David Mukai, Jangwoen Lee, Mayer Saidian, Tanya Burney, Sari Mahon, Matthew Brenner, Zhongping Chen
University of California, Irvine, CA

MHSRS-19-02619 - Poster Session 2 - #112
Anticipating Death: The Utilization of the Revised Trauma Score to Predict Mortality in the Combat Zone
Presentation Author: CPT Daniel Lammers
Daniel Lammers, MD, Christopher Marenco, MD, Kaitlin Morte, MD, Jamilou Cho, MD, Jason Bingham, MD, Matthew Eckert, MD

CARING FOR TRAUMATIC SOFT TISSUE AND ORTHOPEDIC INJURY IN AUSTERE ENVIRONMENTS

MHSRS-19-00020 - Poster Session 2 - #113
Placement of Antibiotic Powder In Wounds in the Emergency Room
Presentation Author: Ms. Abigail Wheeler
Abigail Wheeler, BS¹; Joseph Wenke, PhD¹; Steven Schauer, DO, MS¹,²,³; Michael April, MD, DPhil, MSc³; Animesh Agarwal, MD⁴; Borris Zelle, MD⁴; Robert De Lorenzo, MD, MSCI⁴
¹U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; ²59th Medical Wing, JBSA Lackland, TX; ³Brooke Army Medical Center, JBSA Fort Sam Houston, TX; ⁴University of Texas Health Sciences Center, San Antonio, TX

MHSRS-19-00827 - Poster Session 2 - #114
A Strategy to Identify Putative Prognostic Biomarkers of Pathological Scarring in Traumatic Skin Wounds
Presentation Author: Dr. Sridevi Nagaraja
Sridevi Nagaraja, PhD¹,², Lin Chen, MD, PhD³, Luisa A. DiPietro, DDS, PhD³, Jaques Reifman, PhD¹, Alexander Y. Mitrophanov, PhD¹,²
¹U.S. Army Medical Research and Development Command, Fort Detrick, MD; ²The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, MD; ³University of Illinois at Chicago, Chicago, IL
**MHSRS-19-00885 - Poster Session 2 - #115**

**Comparison of Devices for Acute Compartment Syndrome under Real World Conditions**

Presentation Author: Dr. Ed Harvey

Edward J Harvey, MD, MSc, Geraldine Merle, PhD, Mohamad Nizar Kezzo, BEng, Chrouk Kasem, BEng, Faisal Al-Kabrait, BEng, George Xareas, PhD, Vahid Tayari, PhD

1Montreal General Hospital, Montreal, Quebec; 2NXTSens Inc, Montreal, Quebec

**MHSRS-19-01025 - Poster Session 2 - #116**

**Optical Clearing Techniques for Imaging Composite Tissues**

Presentation Author: Dr. Huseyin Karagoz

Huseyin Karagoz, MD, PhD, Kate L. Singletary, Fatih Zor, MD, Lysette A. Mutkus, Kristina Stumpf, Frank C. Marini, PhD, Vijay S. Gorantla, MD, PhD

Wake Forest Institute for Regenerative Medicine, Winston Salem, NC

**MHSRS-19-01152 - Poster Session 2 - #117**

**Synthetic Bioresorbable Wound Matrix Promotes Healthy Neotissue Formation and Wound Closure**

Presentation Author: Dr. Jed Johnson

Jed Johnson, PhD, Elsa Englund, MD, Jason Chakroff, Natalia Higuita-Castro, PhD,

1RenovoDerm, Hilliard, OH; 2The Ohio State University, Columbus, OH

**MHSRS-19-01153 - Poster Session 2 - #118**

**Wound Healing for The Modern-day Warfighter Using Novel Autologous Therapy for Complete Regeneration of Functional Skin and Bone in Multicomponent Traumatic Injuries**

Presentation Author: Dr. Ivy Estabrooke

Ivy V. Estabrooke, PhD, Nikolai A. Sopko, MD, PhD, Denver Lough, MD, PhD, Ryan Mathis, MD, Caroline Garrett, DVM, Nick Baetz, PhD, Pratima Labroo, PhD, Stephen Milner, MD, Anand Kumar, MD, Michael A. Marano, MD, Gerhard S. Mundinger, MD, David J. Smith, MD, Joanna L. Partridge, MD, Kirk A. Churukian, Mark S. Granick, MD, FACS

1PolarityTE, Inc, Salt Lake City, UT; 2UH Cleveland Medical Center, Westlake, OH; 3Saint Barnabas Medical Center Burn Center, Livingston, NJ; 4Louisiana State University Health Sciences Center, New Orleans, LA; 5Children’s Hospital of New Orleans, New Orleans, LA; 6Tampa General Hospital, Tampa, FL; 7Barnabas Health Rutgers Robert Wood Johnson Medical School, New Brunswick, NJ; 8Kirk Churukian Plastic Surgery Clinic, San Jose, CA; 9Rutgers New Jersey Medical School, Newark, NJ

**MHSRS-19-01193 - Poster Session 2 - #119**

**Blinded, Prospective, Randomized Clinical Trial on 170 Acute Wounds Shows Significantly Faster Healing Rate with Intact Fish Skin Compared to Human Amniotic Membrane**

Presentation Author: Dr. Hilmar Kjartansson

Hilmar Kjartansson, MD, Kristin Petursdottir, MD, Olafur B. Davidsson, MSc Stat, Lee Rogers, DPM, John C Lantis II, MD, FACS

1Kerecis Limited, Reykjavik, Iceland; 2University Hospital of Iceland, Reykjavik, Iceland; 3University of Iceland, Reykjavik, Iceland; 4Western University of Health Sciences, Pomona, CA; 5Mount Sinai St. Luke’s and West Hospitals, New York, NY

**MHSRS-19-01275 - Poster Session 2 - #120**

**Biodegradable Tissue Adhesives with Antibacterial Properties for Addressing Soft Tissue and Maxillofacial Trauma**

Presentation Author: Dr. Abraham Joy
MHSRS-19-01409 - Poster Session 2 - #121
Capillary Suction Device- A Novel Approach to Provide the Benefits of Negative Pressure Wound Therapy to Veterans at a Fractional Cost
Presentation Author: Dr. Ranjit Chatterjee
T.M. Riddle, BS², M. K. Poskarbiewicz, RVT², G. F. Babcock, PhD²,³
¹Dristi LLC, Cincinnati, OH; ²University of Cincinnati, OH; ³Shriners- Hospitals for Children, Cincinnati, OH

MHSRS-19-01513 - Poster Session 2 - #122
Quality Of Life after Open Abdominal Treatment: Long-term Results of Vacuum-assisted Wound Closure and Mesh-mediated Fascial Traction
Presentation Author: Dr. Sebastian Schaaf
Arnulf Willms, MD, Prof. Robert Schwab, MD
German Armed Forces Central Hospital Koblenz, Koblenz, Germany

MHSRS-19-01731 - Poster Session 2 - #123
Extended Tourniquet Use is Associated with Increased Traumatic Heterotopic Ossification Formation in a Combat Applicable Model of Blast Associated Lower Limb Trauma
Presentation Author: LCDR Philip Spreadborough
LCDR PJ Spreadborough¹,²,⁵, R Haskins¹,⁴, J Mares¹,⁴, K Loveless¹,⁴, B Levi³, CDR MJ Bradley¹,⁵, CAPT EA Elster⁵, TA Davis⁵
¹Naval Medical Research Center, Silver Spring, MD; ²Royal Centre for Defence Medicine, Birmingham, UK; ³University of Michigan, Ann Arbor, MI; ⁴The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, MD; ⁵Uniformed Services University of the Health Sciences, Bethesda, MD

MHSRS-19-01849 - Poster Session 2 - #124
A Novel Off-the-shelf Therapy for Full-thickness Skin Regeneration in an Ischemic Rabbit Ear Model
Presentation Author: Dr. Jialun Li
Jialun Li, MD, Tony Chieh-Ting Huang, MD, MSc, Chunfeng Zhao, MD, Steven L. Moran, MD
Mayo Clinic, Rochester, MN

MHSRS-19-01891 - Poster Session 2 - #125
Ex Vivo Normothermic Perfusion Preserves the Viability of Amputated Limbs for up to Fifty Hours
Presentation Author: Dr. Carlos Ordenana
Carlos Ordenana, MD, Majid Rezaei, DDS, Sayf Said, MD, Vahe Fahradyan, MD, Edoardo Dalla Pozza, MD, Brian Figueroa, MD, Lynn Orfahli, BA, Mike Annunziata, BS, Maria Madajka, PhD, Francis Papay, MD, Antonio Rampazzo, MD, PhD, Bahar Bassiri Gharb, MD, PhD

MHSRS-19-01955 - Poster Session 2 - #126
Dermisphere™: An Advanced Dermal Regeneration Scaffold to Heal Full and Partial Thickness Skin Loss Wounds
Presentation Author: Dr. Yulia Sapir-Lekhovitser
Yulia Sapir-Lekhovitser¹, Jason Spector²
¹FesariusTherapeutics Inc, Brooklyn, NY; ²Weill Cornell Medicine, New York, NY
MHSRS-19-02005 - Poster Session 2 - #127
Novel Delivery System Of TGFβ-1 Utilizing Fabricated Scaffold for Bone Regeneration of Compromised Wounds in a Swine Model (Sus Scrofa)
Presentation Author: Dr. Jaclyn Yracheta
J Yracheta1,2, M Sippel1,2, B Parida1, M M Salas1, B Antebi1, E K Weitzel1, J Chen3, T Swenson3, A Almarza3, J Taboas3
159th Medical Wing, JBSA Lackland AFB, TX; 2University of Texas Health Sciences Center at San Antonio, San Antonio, TX; 3University of Pittsburgh School of Medicine, Pittsburgh, PA

MHSRS-19-02018 - Poster Session 2 - #128
Resorption Kinetics of 3D Printed, Resorbable, Poly (propylene Fumarate) Bone Tissue Engineered Implants
Presentation Author: Dr. David Dean
David Dean, PhD1, Jan Lammel Lindemann, MD, PhD1,2, Alex Kleinfeln3, Duncan MacKenzie1, Matthew L. Becker, PhD3
1The Ohio State University, Columbus, OH; 2Escuela de Ingenieria y Ciencias, Tecnologico de Monterrey, NL, Mexico; 3The University of Akron, Akron, OH

MHSRS-19-02202 - Poster Session 2 - #129
Fabrication of Stiffness Matched, 3D Printed, and Regenerative Nitinol Skeletal Fixation Plates
Presentation Author: Dr. David Dean
David Dean, PhD1, Ahmadreza Jahadakbar2, Agnieszka Chmielewska1,3, Mohammad Elahinia, PhD2
1The Ohio State University, Columbus, OH; 2The University of Toledo, Toledo, OH; 3Warsaw University of Technology, Warsaw, Poland

MHSRS-19-02203 - Poster Session 2 - #130
Hydrogel Scaffolds for the Targeted, Controlled Regeneration of Osteochondral Injuries
Presentation Author: Dr. Lindsay Woodard
Lindsay Woodard, PhD, Lauren Costella, Mallory Gasbarre, Brie Janet, Christopher Tison, PhD
Luna Innovations Incorporated, Charlottesville, VA

MHSRS-19-02209 - Poster Session 2 - #131
Non-invasive Diagnostic Device for Compartment Syndrome Detection
Presentation Author: Mr. Steven Hansen
Steven Hansen, ATC, MSc, Paul Hansen, BSE, MBA
Odin Technologies, Chicago, IL

MHSRS-19-02360 - Poster Session 2 - #132
Loading a First-in-class Antibiofilm Compound Into Polyurethane Foam for Negative Pressure Wound Therapy
Presentation Author: Dr. Dustin Williams
Kaden Rawson1,2, Paul Sebahar, PhD2,3, Ryan Looper, PhD2,3, Paul Pasquina, MD4,5, Brad Isaacson, PhD, MBA, MSF2,4,6, Dustin Williams, PhD1,2,3,4
1Department of Veterans Affairs, Salt Lake City, UT; 2University of Utah, Salt Lake City, UT; 3Curza Global, LLC, Salt Lake City, UT; 4Uniformed Services University, Bethesda, MD; 5Walter Reed National Military Medical Center, Bethesda, MD; 6The Geneva Foundation, Tacoma, WA

MHSRS-19-02659 - Poster Session 2 - #133
Evaluating the Impact of Perfusate Composition on Viability of Abdominal Wall Allografts Following Ex
Vivo Preservation
Presentation Author: Ms. Sara Salehi
Kenny Tran, MSc, Vanessa Guarnizo MSc, Gerald Brandacher, Joseph Lopez, Warren L. Grayson
Johns Hopkins University, Baltimore, MD

BLOOD AND BLOOD PRODUCTS

MHSRS-19-00046 - Poster Session 2 - #134
CLEC-2 and GPVI Receptor Expression as an Indicator of Platelet Product Potency for Repairing Damaged Endothelium
Presentation Author: CPT Jacquelyn Messenger
Jacquelyn Messenger, MS\textsuperscript{1,2}, Grantham Peltier, MS\textsuperscript{1}, James Bynum, PhD\textsuperscript{1}, Andrew Cap, MD, PhD\textsuperscript{1}
\textsuperscript{1}U.S. Army Institute of Surgical Research, Joint Base San Antonio-Fort Sam Houston, TX; \textsuperscript{2}University of Texas-San Antonio, San Antonio, TX

MHSRS-19-00155 - Poster Session 2 - #135
V25 Emergency Whole Blood Transfusion Program: A Proof of Concept for the Marine Infantry
Presentation Author: LCDR Russell Wier

MHSRS-19-00187 - Poster Session 2 - #136
Valkyrie Emergency Fresh Whole Blood Transfusion Training for Fleet Marine Force Corpsmen in the Ground Combat Element
Presentation Author: LCDR Russell Wier

MHSRS-19-00201 - Poster Session 2 - #137
Nanotrap\textsuperscript{®} Particles for Improved Biomarker Discovery via Mass Spectrometry: A Case Study on Novel Antimicrobial Peptide Discovery
Presentation Author: Dr. Megan Devine
Megan Devine, PhD\textsuperscript{1}, Paul Russo, PhD\textsuperscript{2}, Barney Bishop, PhD\textsuperscript{3}, Ben Lepene\textsuperscript{1}
\textsuperscript{1}Ceres Nanosciences, Manassas, VA; \textsuperscript{2}Center for Applied Proteomics and Molecular Medicine, Manassas, VA; \textsuperscript{3}George Mason University, Manassas, VA

MHSRS-19-00242 - Poster Session 2 - #138
Novel Manufacturing Method for Producing Apohemoglobin and its Biophysical Properties
Presentation Author: Mr. Ivan Pires
Ivan S. Pires, Mr\textsuperscript{1}, Donald A. Belcher, MS\textsuperscript{1}, Richard Hickey, Mr\textsuperscript{1}, Colbert Miller, MS\textsuperscript{1}, Abraham K. Badu-Tawiah, PhD\textsuperscript{1}, Jin Hyen Baek, PhD\textsuperscript{2}, Paul W. Buehler, PhD\textsuperscript{2}, Andre F. Palmer, PhD\textsuperscript{1}
\textsuperscript{1}The Ohio State University, Columbus, OH; \textsuperscript{2}Food and Drug Administration, Silver Spring, MD

MHSRS-19-00252 - Poster Session 2 - #139
Mixtures of Tense and Relaxed State Polymerized Human Hemoglobin Regulate Oxygen Affinity and Tissue Construct Oxygenation
Presentation Author: Mr. Donlad Belcher
Donald A. Belcher, MS\textsuperscript{1}, Uddyalok Banerjee, PhD\textsuperscript{1}, Christopher M. Baehr, BS\textsuperscript{1}, Kristopher E. Richardson, PhD\textsuperscript{1}, Pedro Cabrales, PhD\textsuperscript{2}, François Berthiaume, PhD\textsuperscript{3}, Andre F. Palmer, PhD\textsuperscript{1}
\textsuperscript{1}The Ohio State University, Columbus, OH; \textsuperscript{2}University of California San Diego, La Jolla, CA; \textsuperscript{3}Rutgers University, Piscataway, NJ
MHSRS-19-00297 - Poster Session 2 - #140
The Quaternary State of Polymerized Human Hemoglobin Regulates Oxygenation of Breast Cancer Solid Tumors: A Theoretical and Experimental Study
Presentation Author: Mr. Donald Belcher
Donald A. Belcher, MS¹, Julia A. Ju, MS², Jin Hyen Baek, PhD³, Ayla Yalamoglu, PhD³, Paul W. Buehler, PhD³, Daniele M. Gilkes, PhD², Andre F. Palmer, PhD¹
¹The Ohio State University, Columbus, OH; ²The Johns Hopkins University, Baltimore, MD; ³U.S. Food and Drug Administration, Silver Spring, MD

MHSRS-19-00316 - Poster Session 2 - #141
Bench-scale Production of Glutaraldehyde Polymerized Bovine Hemoglobin as a Red Blood Cell Substitute
Presentation Author: Dr. Crystal Bolden-Rush
Crystal Bolden-Rush, PhD, Xiangming Gu, MS, Andre Francis Palmer, PhD
The Ohio State University, Columbus, OH

MHSRS-19-00327 - Poster Session 2 - #142
In-vitro Compatibility of Canine and Human Blood – A Pilot Study
Presentation Author: LTC Thomas Edwards
Thomas Edwards, DVM, MS¹, Nathan Wienandt, DVM¹, Rebecca Baxter, DVM², Erin Long Mays, DVM³, Sean Gay¹, Andrew Cap, MD, PhD¹
¹U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; ²U.S. Army Special Operations Command, Fort Bragg, NC; ³Veterinary Specialty Services, Manchester, MO

MHSRS-19-00352 - Poster Session 2 - #143
Aphohemoglobin Quantification via Dicyanohemin Incorporation
Presentation Author: Mr. Ivan Pires
Ivan S. Pires, Mr, Donald A. Belcher, MS, Andre F. Palmer, PhD
The Ohio State University, Columbus, OH

MHSRS-19-00408 - Poster Session 2 - #144
Donor Age Alters Onset of the Red Blood Cell Storage Lesion
Presentation Author: Dr. Kasiemobi Pulliam
Kasiemobi E Pulliam, Bernadin Joseph, Rebecca M Schuster, Amy T Makley, Michael D Goodman, Timothy A Pritts
University of Cincinnati, Cincinnati, OH

MHSRS-19-00457 - Poster Session 2 - #145
A Modified Storage Solution Decreases Red Blood Cell Storage Lesion Formation and Inflammatory Response to Resuscitation Following Hemorrhagic Shock
Presentation Author: Dr. Kasiemobi Pulliam
University of Cincinnati, Cincinnati, OH

MHSRS-19-00532 - Poster Session 2 - #146
Adenosine Regulation of CAMP in Platelets
Presentation Author: Dr. Daniel Darlington
Daniel N. Darlington, PhD¹², Bunyen Teng, PhD¹, Xiaowu Wu, MD¹², Andrew P. Cap, MD, PhD¹²
The Fall in Platelet Energy Stores is Linked to Platelet Dysfunction after Severe Trauma

MHSRS-19-00541 - Poster Session 2 - #147

Presentation Author: Mr. Jeffrey Keesee
Jeffrey D. Keesee, BS¹, Daniel N. Darlington, PhD¹², Parjeeda Nair, PhD¹, Josue Garcia-Marcano¹, Brittany Wright-Al Dossari, BS¹, Xiaowu Wu, MD¹², Andrew P. Cap, MD, PhD¹²
¹U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; ²University of Texas Health Science Center, San Antonio, TX

Bradykinin Receptor Antagonist Mitigates Vascular Permeability in Rats with Polytrauma and Hemorrhagic Shock

MHSRS-19-00543 - Poster Session 2 - #148

Presentation Author: Dr. Xiaowu Wu
Xiaowu Wu, MD ², Daniel N. Darlington, PhD¹², Josue Garcia-Marcano¹, Bin Liu, BS¹, Jeffrey D. Keesee, BS¹, and Andrew P. Cap, MD, PhD¹²
¹U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; ²UT Health San Antonio, San Antonio, TX

Evaluation of Mitochondrial Function of the Liver in Rats with Polytrauma and Hemorrhagic Shock

MHSRS-19-00553 - Poster Session 2 - #149

Presentation Author: Dr. Xiaowu Wu
Christi L. Salgado, BS¹, Xiaowu Wu, MD¹², Daniel N. Darlington, PhD¹², James Bynum, PhD¹, Andrew P. Cap, MD, PhD¹²
¹U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; ²Department of Surgery, University of Texas Health Science Center, San Antonio, TX

Glycolysis is Critical for Normal Platelet Function

MHSRS-19-00557 - Poster Session 2 - #150

Presentation Author: Dr. Daniel Darlington
Daniel N. Darlington, PhD¹², Jeffrey D. Keesee, BS¹ Parjeeda Nair, PhD¹ Josue Garcia-Marcano¹, Brittany Wright-Al Dossari, BS¹, Xiaowu Wu, MD¹², Andrew P. Cap, MD, PhD¹²
¹U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; ²University of Texas Health Science System, San Antonio TX

Severe Trauma in Rats Leads to Platelet Dysfunction and an Elevation in Guanylate Cyclase Activity

MHSRS-19-00562 - Poster Session 2 - #151

Presentation Author: Dr. Daniel Darlington
Daniel N. Darlington, PhD¹², Xiaowu Wu, MD¹², Andrew P. Cap, MD, PhD¹²
¹U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; ²University of Texas Health Science System, San Antonio TX

Field-expedient Thawing of Fresh Frozen Plasma

MHSRS-19-00593 - Poster Session 2 - #152

Presentation Author: Dr. Michael Meledeo
Michael Adam Meledeo, PhD¹, Grantham Peltier, MS¹, Colby McIntosh, BS¹, Ashley S. Taylor, BA¹, James Bynum, PhD¹, Jason Corley, MS², Andrew Cap, MD, PhD¹
¹U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; ²Army Blood Program, Fort Sam Houston, TX
Cold-stored Platelets Have Better Preserved Contractile Function in Comparison to Room Temperature-stored Platelets over 21 Days
Presentation Author: Ms. Prajeeda Nair
Prajeeeda Nair, PhD, Michael Meledeo, PhD, Xiaowu Wu, MD, Christi Salgado, BS, Jeffrey Keesee, BS, Brittney Wright-Aldossari, BS, Bin Liu, BS, Daniel Darlington, PhD, Andrew Cap, MD, PhD
U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

Give the Surgeon a Chance: Increased Length of Survival and Rate of Transfer to the Operating Room after Resuscitation with Whole Blood
Presentation Author: LCDR Douglas Pokorny
Douglas M. Pokorny, DO1,2, Philip M. Edmundson, MD1, Maxwell A. Braverman, DO1, David M. Bittenbinder, MD1, Christian S. McEvoy, MD2, Mallory R. Wampler, MD1, Ashley C. McGinity, MD1, Leslie J. Greebon, MD1, Michael Shiels, RN1, Rachelle Babbitt Jonas, RN1, Brian J. Eastridge, MD1, Susannah E. Nicholson, MD1, Ronald M. Stewart, MD1, Donald H. Jenkins, MD1
1The University of Texas Health Science Center at San Antonio, TX; 2U.S. Navy

Systolic Blood Pressure Outweighs Heart Rate in the Utilization of Shock Index as a Triage Tool and Potential Need for Life Saving Interventions
Presentation Author: LCDR Douglas Pokorny
Douglas M. Pokorny, DO1,2, Mallory R. Wampler, MD1, John D. Myers, Christian S. McEvoy, MD1, Caroline S. Zhu, Brian J. Eastridge, MD1, Susanna E. Nicholson, MD1, Ronald M. Stewart, MD1, Donald H. Jenkins, MD1
1University of Texas Health Science Center at San Antonio, San Antonio, TX; 2U.S. Navy

Antimicrobial Blue Light for Safe Storage of Platelets
Presentation Author: Mr. Min Lu
Min Lu, TianHong Dai, SiSi Hu, Qi Zhang, Li Wang, Brijesh Bhayana, and Mei X. Wu
Massachusetts General Hospital, Boston, MA

Therapeutic Potential of H12-ADP-liposomes, as a Synthetic Platelet Substitute, for Post Cardiopulmonary Bypass Coagulopathy
Presentation Author: Mr. Osamu Ishida
Osamu Ishida, MD, PhD, Kosuke Hagisawa, MD, PhD, Nozomu Yamanaka, PhD, Koji Tsutsumi, MD, PhD, Manabu Kinoshita, MD, PhD
National Defense Medical College, Tokorozawa, Japan

Effects of Whole Blood Leukoreduction on Platelet Function and Hemostatic Parameters
Presentation Author: Dr. Mackenzie Morris
Mackenzie C. Morris, MD1, Rose Veile, BS1, Lou Ann Friend, RVT1, David Oh, MD2, Timothy A. Pritts, MD, PhD1, Warren C. Dorlac, MD2, Phillip C. Spinella, MD4, Michael D. Goodman, MD1
1University of Cincinnati College of Medicine, Cincinnati, OH; 2Hoxworth Blood Center, Cincinnati, OH; 3University of Colorado and UC Health, Ft. Collins, CO; 4Washington Univ School of Medicine, St. Louis, MO
MHSRS-19-01126 - Poster Session 2 - #159
Effects of Platelet Concentration on Cold Storage Parameters
Presentation Author: Mr. Umang Sharma
Umang Sharma, Kristin Reddoch-Cardenas, Colby McIntosh, Carolina Cantu, Andrew Cap
U.S. Army Institute of Surgical Research, JBSA-Fort Sam Houston, TX

MHSRS-19-01211 - Poster Session 2 - #160
Physical and Procoagulant Properties of Stableplate RX® Canine
Presentation Author: Mr. Braden Ishler
Braden C. Ishler, Keith A. Moskowitz, Anne S. Hale
1Cellphire, Inc, Rockville, MD; 2BodeVet Inc, Rockville, MD

MHSRS-19-01217 - Poster Session 2 - #161
Clinical Significance of Direct Antiglobulin Test-positive Pathogen Reduction Technology-treated Red Blood Cells
Presentation Author: Dr. Susan Yonemura
Susan Yonemura, PhD, Suzann Doane, BS, Susanne Marschner, PhD
Terumo BCT, Lakewood, CO

MHSRS-19-01234 - Poster Session 2 - #162
GCPlus – A Xeno-free Supplement for Cell Expansion
Presentation Author: Dr. Anand Srinivasan
Anand Srinivasan, PhD1,2, Jennifer Wehmeyer, PhD1, Corrine Avila1, Elizabeth Serrano1, Samir Lakashne, PhD1,
Anthony Trinh, PhD1, Zeke Butler, MS1, Colby McIntosh, MS2, Michael A. Meledeo, PhD2, James Bynum, PhD2,
COL Andrew P. Cap, MD, PhD2, Ward Carter, BS1, Elizabeth Waltman, MBA1, Becky Cap, MBA1, Scott Jones, PhD1
1BioBridge Global, San Antonio, TX; 2U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

MHSRS-19-01350 - Poster Session 2 - #163
Hemoclear, The Game Changer in Transfusion and Bleeding Management by a Novel Gravity Driven Low-cost Easy-to-operate Red Blood Cells Recuperation Device
Presentation Author: Dr. Arno Nierich
Arno Nierich, MD, PhD1,2, Vincent Franssen, MS1, John Badloe, MD, PhD1, Sabine Scherphof, MS2, Sjef van der Leur, MD, PhD2, Bruce Spiess, MD, PhD3
1Hemoclear BV, Zwolle, Netherlands; 2Isala Clinics, Zwolle, Netherlands; 3University of Florida, Gainesville, FL

MHSRS-19-01449 - Poster Session 2 - #164
Engineered Specific T Cells: A Platform to Modulate Adverse Immune Responses
Presentation Author: Dr. David Scott
David W. Scott, PhD, Edward Mitre
Uniformed Services University of the Health Sciences

MHSRS-19-01463 - Poster Session 2 - #165
Cognitive and Physical Performance is Well Preserved Following a Blood Donation, a Randomized Clinical Trial
Presentation Author: CPT Avishai Tsur
Roy Nadler, MD1, Avishai Michael Tsur, MD1, Gadi Lending, BA1, Ran Yanovitch, PhD2, Diana Levy, BA1, Eilat Shinar, MD3, Avi Benov, MD1, Elon Glassberg, MD1, Jacob Chen, MD1
1Israel Defense Forces, Ramat Gan, Israel; 2The Israel Defense Forces Medical Corps, Tel Hashomer, Ramat Gan, Israel; 3Magen David Adom National Blood Services, Ramat Gan, Israel
MHSRS-19-01466 - Poster Session 2 - #166
Freeze Dried Plasma for the Resuscitation of Traumatized Pediatric Patients
Presentation Author: CPT Avishai Tsur
Roy Nadler, MD, Yael Mozer-Glassberg, MD, Barbara Gaines, MD, Elon Glassberg, MD, Jacob Chen, MD
1Israel Defense Forces, Ramat Gan, Israel; 2Tel Aviv University, Tel Aviv, Israel; 3University of Pittsburgh School of Medicine, Pittsburgh, PA

MHSRS-19-01467 - Poster Session 2 - #167
Back to the Future: Whole Blood is Here to Stay
Presentation Author: CPT Avishai Tsur
Roy Nadler, MD, Avishai M Tsur, MD, Eilat Shinar, MD, Jacob Chen, MD
Israel Defense Forces Medical Corps, Tel Hashomer, Ramat Gan, Israel

MHSRS-19-01481 - Poster Session 2 - #168
A Methodology for Estimating Combat Theater Blood Products
Presentation Author: Mr. James Zouris
Tracy Negus, LTC Andrew Olson
1Naval Health Research Center, San Diego, CA; 2Leidos, San Diego, CA

MHSRS-19-01515 - Poster Session 2 - #169
Performance of Concurrent Blood Drives with Walking Blood Bank Prescreening: The Army Blood Program Approach to Whole Blood at the Point Of Injury
Presentation Author: Lt Col Melanie Sloan
LTC Melanie Sloan, Linda Ellerbe, MAJ James Burke, MAJ Gerard Famby, LTC Jason Corley, LTC Matthew Swingholm
1Fort Bragg Blood Donor Center, Fort Bragg, NC; 2U.S. Army Blood Program Office, Joint Base San Antonio–Fort Sam Houston, TX

MHSRS-19-01548 - Poster Session 2 - #170
72-hour Survival in a Rat Hemorrhagic Shock Model with VIR-HBOC Versus Crystalloid
Presentation Author: Dr. William Light
W. Richard Light, PhD, Kim D. Vandegriff, PhD, William Light, Andres Benitez, PhD, Joseph Tucker, PhD, Ashok Malavalli, MA, William H. Nugent, PhD, Bjorn K. Song, PhD
1VirTech Bio, Natick, MA; 2Song Biotechnologies, Baltimore, MD

MHSRS-19-01589 - Poster Session 2 - #171
Bacterial Redox Activity Contributes to Sepsis Induced Coagulopathy
Presentation Author: Dr. Patrick Ketter
Patrick Ketter, PhD, Andrew Cap
U.S. Army Institute of Surgical Research, JBSA-Fort Sam Houston, TX

MHSRS-19-01622 - Poster Session 2 - #172
Update and Final Report of Phase 1 Safety Study on a New Generation Freeze-dried Plasma Product
Presentation Author: Dr. Jose Cancelas
Jose A. Cancelas, Neeta Rugg, Shawnagay Nestheide, Melissa King, Michele Snyder, Joan C. Pehta, Victor W. Macdonald, Manoj K. Valiyaveettil, Andrew J. Atkinson
1University of Cincinnati College of Medicine, Cincinnati, OH; 2Westat Inc, Rockville, MD; 3Vascular Solutions, LLC, Minneapolis, MN; 4U.S. Army Medical Materiel Development Activity, Fort Detrick, MD
MHSRS-19-01692 - Poster Session 2 - #173
Messenger RNA Delivery to Blood Products for Musculoskeletal Regenerative Medicine
Presentation Author: Mr. William Murphy

MHSRS-19-01712 - Poster Session 2 - #174
Similar Hemostatic Responses to Hypovolemia in Hemorrhage and LBNP Reveals a Hyperfibrinolytic Subset of Baboons
Presentation Author: Ms. Maryanne Herzig
Maryanne Herzig, PhD1, Morten Zaar, PhD1, Robbie Montgomery, MS1, Bijaya Parida, PhD1, Chiselda Fedyk, MS1, Carmen Hinojosa-Laborde, PhD1, Robert Shade, PhD2, Heather Pidcoke, MD, PhD1, Victor Convertino, PhD1, Andrew Cap, MD, PhD1
1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2Biomedical Research Institute, San Antonio, TX

MHSRS-19-01727 - Poster Session 2 - #175
Cold-stored Platelets are not Pro-inflammatory in an in-vitro Mixed Lymphocyte Reaction
Presentation Author: Ms. Maryanne Herzig
Maryanne Herzig, PhD, Kristin Reddoch-Cardenas, PhD, Umang Sharma, MS, Carolina Cantu, MS, James Bynum, PhD, Andrew Cap, PhD
U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

MHSRS-19-01784 - Poster Session 2 - #176
Portable Iron Screening System for Point-of-Care Iron Status Determination
Presentation Author: Dr. Mary Arugula
Erica Pinchon, MS, Dustin Haithcock, BS, Ketan Bhatt, PhD, Prabhakar Pandian, PhD, Kapil Pant, PhD
CFD Research Corporation, Huntsville, AL

MHSRS-19-01873 - Poster Session 2 - #177
Plasmon-enhanced Pathogen Inactivation in Blood Products: Selectivity Without Targeting
Presentation Author: Mr. Bjoern Reinhard
Björn M. Reinhard1, Mina Nazari1, Min Xi1, Mark Aronson1, Oliver Mcrae1, Mi K. Hong1, Suryaram Gummuluru2, Allyson E. Sgro1, James C. Bird1, Lawrence D. Ziegler1, Christopher Gillespie3, Kathleen Souza4, NhunNguyen4, Robert M. Smith4, Edward Silva4, Ayako Miura5, Shyamsunder Erramilli1
1Boston University, Boston, MA; 2Boston University School of Medicine, Boston, MA; 3Immunogen, Waltham, MA; 4MilliporeSigma, Bedford, MA; 5Takeda Pharmaceuticals, Cambridge, MA

MHSRS-19-01916 - Poster Session 2 - #178
Rapid and Low-cost Whole Blood Coagulation Sensing Using a Smartphone
Presentation Author: Mr. Masaki Hosoda
Masaki Hosoda1, Diane M Tshikudi1, Seemantini K Nadkarni1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Boston, MA

MHSRS-19-02020 - Poster Session 2 - #179
Validation of 10-day Cold Stored Platelets Collected in PAS Solution as an Available Blood Product for Trauma
Presentation Author: MAJ William Ceballos
William Ceballos, MS
MHSRS-19-02022 - Poster Session 2 - #180
A Field-deployable Dielectric Coagulometer for Rapid Hemostatic Assessment in Remote Damage Control Resuscitation
Presentation Author: Dr. Michael Suster
Michael A. Suster, PhD, Debnath Maji, Ujjal Sekhon, Pedram Mohseni, PhD, Anirban Sen Gupta, PhD
Case Western Reserve University, Cleveland, OH

MHSRS-19-02065 - Poster Session 2 - #181
Preclinical Comparison of Current Resuscitation Fluids
Presentation Author: Dr. Bjorn Song
William H. Nugent, PhD1, Forest Sheppard, MD2, Bjorn K. Song, PhD1
1Song Biotechnologies, Baltimore, MD; 2Maine Medical Center, Portland, ME

MHSRS-19-02313 - Poster Session 2 - #182
Storage Age of Packed Red Blood Cells Alters Coagulability
Presentation Author: Dr. Kasiemobi Pulliam
Kasiemobi E Pulliam, Bernadin Joseph, Rosalie A Veile, Rebecca M Schuster, Amy T Makley, Timothy A Pritts, Michael D Goodman
University of Cincinnati, Cincinnati, OH

MHSRS-19-02331 - Poster Session 2 - #183
Safety Evolution of High Molecular Weight Polymerized Hemoglobin
Presentation Author: Dr. Cynthia Muller
Cynthia R. Muller, PhD1, Alexander T. Williams, BS1, Allyn M. Eaker1, Crystal Bolden-Rush, PhD2, Andre F. Palmer, PhD2, Pedro Cabrales, PhD1
1University of California, San Diego, CA; 2The Ohio State University, Columbus, OH

MHSRS-19-02382 - Poster Session 2 - #184
Production of Universal Plasma: Removal of Anti-A/anti-B Antibodies from Donor Plasma
Presentation Author: Mr. Wilbur Malloy
Capt Karla Workman, MS, MLS(ASCP)SBB1, LTC(Ret) Wilbur W. Malloy, MA, MLS(ASCP)SBB2, LCDR Sabrina Ivory3, MAJ Ronald Henriquez3
1Joint Base Elmendorf-Richardson Hospital, Anchorage, AK; 2U.S. Army Medical Research and Development Command, Ft Detrick, MD; 3Walter Reed National Military Medical Cntr, Bethesda, MD

MHSRS-19-02439 - Poster Session 2 - #185
Histopathological Assessment of Extended Criteria Donor Kidneys Preserved in Perfluorocarbon Oxygen Therapeutic Solutions
Presentation Author: Dr. Travis Parsons
Narendra Battula, Jiepei Zhu, Sean Zhu, Viki Kim, Bruce Spiess, Chris Giordano, Ali Zarrinpar, Kenneth Andreoni, Travis Parsons
University of Florida, Gainesville, FL

MHSRS-19-02494 - Poster Session 2 - #186
Coagulation Factor Replacement does not Explain Benefits of Plasma-based Resuscitation after Injury
Presentation Author: Dr. Joshua Sumislawski
Joshua Sumislawski, MD1; Arthur Colvis, BS1; Gregory Stettler, MD1; Ernest Moore, MD1; Lucy Kornblith, MD2; Amanda Conroy, RN2; Rachael Callcut, MD, MSPH2; Christopher Silliman, MD, PhD1; Angela Sauaia, MD, PhD1; Mitchell Cohen, MD1
Blood Purification by Systemic Hemoadsorption Preferentially Augments Early Adaptive Reparative Responses in Muscle and Bone Wounds in an Open Fracture Model with Muscle Injury
Presentations Author: Dr. Todd McKinley
Todd McKinley, MD, George Kolettis, MD, Kayla Delaney, MS, Jie Xie, MD, Fletcher A. White, Roman M. Natoli
Indiana University School of Medicine

Assessing Blood Coagulation by Real-time Measurement of Viscosity Using Optical Coherence Elastography
Presentations Author: Mr. Jason Chen
Jason J. Chen, Jiang Zhu, PhD, Zhongping Chen, PhD
University of California – Irvine, Irvine, CA

Increased Oxygenation during Chronic Anemia with Pegylated Earthworm Hemoglobin
Presentations Author: Mr. Carlos Munoz
Carlos Munoz, MS1, Krianthan Govender, PhD1, Andre Palmer, PhD2, Pedro Cabrales, PhD1
1University of California San Diego, La Jolla, CA; 2The Ohio State University, Columbus, OH

HEMORRHAGE CONTROL AND RESUSCITATION

Fresh Frozen Plasma Attenuates Lung Injury in a Novel Model of Prolonged Hypotensive Resuscitation
Presentations Author: Dr. Amanda Chipman
Amanda Chipman, MD1, Feng Wu, PhD1, Yue Zhou, PhD2, Shibani Pati, MD, PhD2, Rosemary Kozar, MD, PhD1
1Univ of MD School of Medicine, Baltimore, MD; 2Univ of CA San Francisco, San Francisco, CA

Activation of the Complement Complex 5b-9 in Response to Physiologic Decompensation in a Pure Hemorrhage Model of Shock in Non-human Primates
Presentations Author: Dr. Madelaine Paredes
R. Madelaine Paredes, PhD, Viviana Moreno, BS, Dallas Brown, MS, Mary Salas, MS, CDR Jacob Glaser, MD

Comparison of Partial to Complete Aortic Balloon Occlusion on Survival and Indices of Shock in a Swine Model of Uncontrolled Splenic Hemorrhage with Delayed Resuscitation
Presentations Author: Dr. Michael Dubick
Michael A Dubick, PhD1, Amy Polykrratis, BS1, M Dale Prince, BS1, Rodolfo De Guzman1, David W Schechtman, MD1, Cpl Amber N Voelker, Bijan S Kheirabadi, PhD1, David S Kauvar, MD2
1U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; 2Brooke Army Medical Center, JBSA Fort Sam Houston, TX

Localization of Arterial Bleeds Using Wave Intensity Analysis
Presentations Author: Dr. Prem Venugopal
Ethinyl Estradiol-3-sulfate Administration Following Severe Blood Loss Even in The Absence of Fluid Resuscitation Produces Salutary Effects on Cardiac Function: Restoration of Cell Survival Signaling, Downregulation of Apoptosis and Autophagy
Presentation Author: Dr. Irshad Chaudry
Shaolong Yang, MD, Shunhua Hu, MD, William J. Hubbard, PhD, Irshad H. Chaudry, PhD

The Effects of Partial and Full Aortic Occlusion on Hemodynamic Stability in a Porcine Model of Hemorrhagic Shock
Presentation Author: Mr. William Baker
William Baker¹, Corina Nesciou, MD¹, Bryan Jordan, BSN¹, James J Moon, MD², Andriy I. Batchinsky, MD¹, Lee Cancia, MD¹
¹U.S. Army Institute of Surgical Research, San Antonio, TX; ²Air Force Office of Scientific Research International Office, Arlington, VA

Hypocalcemia in Military Casualties from Point-Of-Injury to Role 2 Surgical Teams in Afghanistan
Presentation Author: LTC Linda Benavides
Linda C. Benavides, MD¹, Stacy A. Shackelford, MD², Jennifer M. Gurney, MD², Edward F. Burke, CRNA³, Michael A. Remley, NREMT-P², Andrew P. Cap, MD, PhD⁴
¹67th Forward Surgical Team, Rhine Ordnance Barracks, Germany; ²Joint Trauma System, JBSA-Fort Sam Houston, TX; ³8th Forward Resuscitative Surgical Team, Fort Shafter, HI; ⁴U.S. Army Institute of Surgical Research, JBSA-Fort Sam Houston, TX

Applying Knowledge Translation Best Practices to Model and Optimize The Joint Trauma System Research Translation Life Cycle Process
Presentation Author: Ms. Lynn Hallard
Aaron Sawyer, PhD¹, Subhamoy Pal, PhD¹, Richard Caldwell, MSN, MBA¹, CDR Jacob J. Glaser, MD, FACS², Elizabeth Mann-Salinas, PhD, RN, FCCM²
¹Defense Health Agency Contract Support, Falls Church, VA; ²Trauma System, San Antonio, TX

Synthesis of Polymerized Human Hemoglobin as a Red Blood Cell Substitute
Presentation Author: Ms. Savannah Moses
Clayton Cuddington, BS¹, Savannah Moses, MS¹, Alex Williams, BS², Pedro Cabrales, PhD², Andre Palmer, PhD¹
¹The Ohio State University, Columbus, OH; ²University of California San Diego, La Jolla, CA

Efficacy Assessment of Topical Non-absorbable and Absorbable Hemostatic Devices on Swine Extremity Wounds with Arterial and Venous Injuries
Presentation Author: Ms. Irasema Terrazas
Irasema B Terrazas, MS, Bijan S Kheirabadi, PhD, Nahir Miranda, MS, Michael A Dubick, PhD
MHSRS-19-00380 - Session 2 - #200
Real-time Oxygenation and Force Sensing Toolkit for Optimal Tourniquet Application: Development of a “Smart” Emergency Tourniquet
Presentation Author: Dr. John Quan Nguyen
John Quan Nguyen¹, Avery Goss¹, Juan Pedro Cascales¹, Emmanouil Rousakis¹, Eric Goralnick², Craig Goolsby³, Conor L. Evans¹
¹Massachusetts General Hospital, Charlestown, MA; ²Brigham and Women’s Hospital, Boston, MA; ³Uniformed Services University of the Health Sciences, Bethesda, MD

MHSRS-19-00381 - Session 2 - #201
A Single Analgesic Dose of a NSAID Causes Organ Failure on Rabbits Following Hemorrhagic Shock and Hypotensive Resuscitation
Presentation Author: Mr. Rodolfo De Guzman
Rodolfo De Guzman, BA, Bijan S Kheirabadi, PhD, Nahir Miranda, MS, Irasema B Terrazas, MS, Amber N Voelker, MS, Ammon W Brown, DVM, PhD, Michael A Dubick, PhD
U.S. Army Institute of Surgical Research, Ft. Sam Houston, TX

MHSRS-19-00437 - Session 2 - #202
Self-propelling Fibrinogen Particles for Hemorrhage Control on the Battlefield
Presentation Author: Dr. Henry Peng
Henry Peng, PhD¹, Christian Kastrup, PhD², Massimo Cau, MSc², Daphne Walford, BSc¹, James Baylis, PhD², Hugh Semple, PhD³, Andrew Beckett, MD⁴
¹Defence Research and Development Canada, Toronto, Ontario, Canada; ²University of British Columbia, Vancouver, British Columbia, Canada; ³Defence Research and Development Canada, Alberta, Canada; ⁴McGill University, Ottawa, Canada

MHSRS-19-00459 - Session 2 - #203
Effect of Perfluorocarbon Emulsion Infusion on Coagulator Factors in Normal and Hemorrhagic Shock Sheep
Presentation Author: Dr. Jiepei Zhu
J. Travis Parsons, PhD¹, Erika J. Martin, MS², Donald F. Brophy, Pharm D², Bruce D. Spiess, MD¹
¹University of Florida, Gainesville, FL; ²Virginia Commonwealth University, Richmond, VA

MHSRS-19-00476 - Session 2 - #204
Management of Hemorrhage from Craniofacial Injuries and Penetrating Neck Injury in TCCC With The iTClamp Mechanical Wound Closure Device
Presentation Author: CDR Dana Onifer
Dana Onifer, MD, FAAFP¹, Jessica McKee, MSc²
¹U.S. Naval War College, Newport, RI; ²University of Calgary, Calgary, Canada

MHSRS-19-00490 - Session 2 - #205
Rapid Intramuscular Administration of TXA Results in Equivalent Total Drug Exposure and Reversal of Hyperfibrinolysis in a Swine Controlled Hemorrhage Model
Presentation Author: Capt Marguerite Spruce
Marguerite Spruce, MD¹,², Carl Beyer, MD¹,², Connor Caples, MD¹,², Erik DeSoucy, DO¹,², Harris Kashtan, MD¹,², Guillaume Hoareau, DVM, PhD¹, J. Kevin Grayson, DVM, PhD¹, M. Austin Johnson, MD, PhD¹,²
¹David Grant Medical Center Clinical Investigation Facility, Travis Air Force Base, Fairfield, CA; ²University of California Davis, Sacramento, CA
MHSRS-19-00501 - Session 2 - #206
Resuscitation of Fibrinogen Concentrate and FFP on Coagulation in Pigs with Traumatic Hemorrhage
Presentation Author: Dr. Wenjun Martini
Wenjun Martini, Andrew Cap, Michael Dubick
U.S. Army Institute of Surgical Research, Ft Sam Houston, TX

MHSRS-19-00517 - Session 2 - #207
Tissue Properties during Tourniquet Application: Mechanical Assessment Informing Design of Trainers
Presentation Author: Mr. Alexander Hooke
Alexander Hooke, MA, Susan Hallbeck, PhD, Erik Prytz, PhD, Carl-Oscar Jonson, PhD, Bethany Lowndes, PhD
1Mayo Clinic, Rochester, MN; 2Linköping University, Linköping, Sweden; 3University of Nebraska Medical Center, Omaha, NE

MHSRS-19-00638 - Session 2 - #208
Efficacy of Minimally Invasive Alternatives to Open Preperitoneal Packing in a Swine Model of Lethal Pelvic Fracture-associated Hemorrhage in the Forward Surgical Setting
Presentation Author: CPT Woo Do
Woo Do, MD, Dominic Forte, MD, Rowan Sheldon, MD, Jessica Weiss, MD, Morgan Barron, MD, Kyle Sokol, MD, George Black, MD, Sara Hegge, DVM, MPH, Matthew Eckert, MD, FACS, Matthew Martin, MD, FACS
Madigan Army Medical Center, Tacoma, WA

MHSRS-19-00666 - Session 2 - #209
Life Threatening Hemorrhage Whole Blood Volume Replacement Utilizing the W.A.T.C.H.E.R. Method
Presentation Author: LCDR Douglas Pokorny
Douglas M. Pokorny, DO; Philip M. Edmundson, MD; Maxwell A. Braverman, DO; David M. Bittenbinder, MD; Christian S. McEvoy, MD; Mallory R. Wampler, MD; Ashley C. McGinity, MD; Leslie J. Greebon, MD; Michael Shiels, RN; Rachelle Babbitt Jonas, RN; Brian J. Eatridge, MD; Susannah E. Nicholson, MD; Ronald M. Stewart, MD; Donald H. Jenkins, MD
1The University of Texas Health Science Center at San Antonio, San Antonio, TX; 2U.S. Navy

MHSRS-19-00702 - Session 2 - #210
Tracking DO2 with Compensatory Reserve during Whole Blood Resuscitation in Baboons
Presentation Author: Dr. Victor Convertino
Natalie J. Koons, BS, Betty Nguyen, BS, Mithun R. Suresh, MD, Carmen Hinojosa-Laborde, PhD, Victor A. Convertino, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

MHSRS-19-00713 - Session 2 - #211
Resuscitative Endovascular Balloon Occlusion of the Aorta—Can Nurses and Corpsmen Perform This Skill for Life-saving En Route Care? A Pilot Study
Presentation Author: Dr. Carmen Spalding
Matthew Bradley, MD, Carl Goforth, PhD, Alisha Hawrylack, RT9R0 (VI); David T. Coenen, Susan Driscoll-Bannister, BSN, Victor Jourdain, MD, Felipe Grimaldo MD, James Stone, MD/PHD
1Naval Medical Research Center, Silver Spring, MD; 2University of Virginia, Charlottesville, VA; 3Naval Medical Center San Diego, San Diego, CA

MHSRS-19-00737 - Session 2 - #212
Resuscitative Endovascular Balloon Occlusion of the Aorta Induced Myocardial Injury is Mitigated by
Endovascular Variable Aortic Control
Presentation Author: Capt Carl Beyer
Carl A Beyer, MD, Guillaume L Hoareau, DVM, PhD, Emily M Tibbits, MD, Anders J Davidson, MD, MAS, Erik S DeSoucy, DO, Meryl A Simon, MD, J Kevin Grayson, DVM, PhD, Lucas P Neff, MD, Timothy K Williams, M.D., M Austin Johnson, MD, PhD
1David Grant USAF Medical Center, Travis Air Force Base, CA; 2University of California Davis Medical Center, Sacramento, CA; 3Wake Forest Baptist Medical Center, Winston-Salem, NC

MHSRS-19-00770 - Session 2 - #213
Polyethylene Glycol-conjugated Earthworm Hemoglobin as a Novel Red Blood Cell Substitute
Presentation Author: Mr. Christopher Gilbert
Christopher J. Gilbert, Chintan Savla, Andre F. Palmer
The Ohio State University, Columbus, OH

MHSRS-19-00831 - Session 2 - #214
Muscle Blood Flow and Oxygen Tension Relationships in Normovolemic and Hemorrhaged Rats
Presentation Author: Dr. Ivo Torres Filho
Ivo Torres Filho, MD, PhD, David Barraza, MS, Charnae E. Williams, BS, Kim Hildreth, MS, Michael A. Dubick, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

MHSRS-19-00835 - Session 2 - #215
Semi-automated Evaluation of Microvascular Permeability in Normovolemic and Hemorrhaged Rats
Presentation Author: Dr. Ivo Torres Filho
Ivo Torres Filho, MD, PhD, David Barraza, MS, Charnae E. Williams, BS, Kim Hildreth, MS, Michael A. Dubick, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

MHSRS-19-00842 - Session 2 - #216
Tissue Hemodynamics Monitored by Noninvasive Diffuse Optical Spectroscopy in Swine during Hemorrhage, Blood Transfusion, and REBOA
Presentation Author: Mr. Jesse Lam
Jesse H. Lam, MS, Thomas D. O'Sullivan, PhD, Jae H. Choi, PhD, DVSc, Matthew Brenner, MD, Leopoldo C. Cancio, MD, Andriy I. Batchinsky, MD, Bruce J. Tromberg, PhD
1University of California Irvine, Irvine, CA; 2University of Notre Dame, Notre Dame, IN; 3U.S. Army Institute of Surgical Research, JBSA FT Sam Houston, TX

MHSRS-19-00903 - Session 2 - #217
Tissue Inflammatory Markers and Oxidative Stress in Swine Subjected to a 40% TBSA Burn Injury
Presentation Author: Mr. Theo Thomas
Theo Thomas, BS, David M. Burmeister, PhD, Johnny L. Barr, MS, Belinda I. Gomez, PhD, Michael A. Dubick, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

MHSRS-19-00918 - Session 2 - #218
Complement-coagulation Partnership in Trauma Patients
Presentation Author: Dr. Yansong Li
Yansong Li, Anthony E. Pusateri, Crystal D. Hill-Pryor, Thomas J. Walters, Leopoldo C. Cancio, Michael A. Dubick, Andrew P. Cap, Jurandir J DalleLucca
1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2U.S. Army Medical Research and Development Command, Ft. Detrick, MD; 3Defense Threat Reduction Agency, Ft. Belvoir, VA
MHSRS-19-00944 - Session 2 - #219
Recombinant Factor Xllla and ACTH (1-24) As Adjuncts during Prolonged Hypotensive Resuscitation in Swine (Sus Scrofa Domesticus): Optimizing Outcomes for the Prolonged Field Care Environment
Presentation Author: Dr. Vanessa Chaplin
Vanessa Chaplin, PhD, Gerardo Rodriguez, BS, Gilbert Pratt III, MS, Jacob Glaser, MD, Neal McNeal, PhD
Naval Medical Research Unit San Antonio, JBSA-Fort Sam Houston, TX

MHSRS-19-00996 - Session 2 - #220
Evaluation of Prolonged Permissive Hypotension: Results from a Six Hour Hemorrhage Protocol in Swine
Presentation Author: MAJ Emily Hathaway
Emily N Hathaway, MD, MAJ, MC, USA, Clifford G Morgan, PhD, Leslie E Neidert, PhD, Leasha J Schaub, MS, Jacob J Glaser, MD, FACS, CDR, MC, USN
1Brooke Army Medical Center, JBSA-Ft. Sam Houston, TX; 2Naval Medical Research Unit San Antonio, JBSA-Ft. Sam Houston, TX

MHSRS-19-01070 - Session 2 - #222
A New Hemostat that Functions with Novel Mechanisms and does not Require Manual Pressure
Presentation Author: Ms. Piyush Modak
Piyush Modak, MS, Willis Hammond, PhD, Michael Jaffe, PhD, Malavika Nadig, MS, Richard Russo, MBA
Endomedix, Inc, Montclair, NJ

MHSRS-19-01118 - Session 2 - #223
A Fresh Perspective on Non-compressible Arterial Junctional Hemorrhage: Evaluation of Visco-liquid Hemostats in a Swine Model
Presentation Author: Dr. Joseph Lichtenhan
Drew Hildebrandt, PhD, Michelle Tucci, PhD, Joseph Lichtenhan, PhD, Hamad Benghuzzi, PhD
1University of Mississippi Medical Center, Jackson, MS; 2Hybrid Plastics, Hattiesburg, MS

MHSRS-19-01173 - Session 2 - #224
Comparison of Standard Left Anterolateral Thoracotomy vs. Modified Bilateral “Clamshell” Thoracotomy by Emergency Physicians
Presentation Author: CAPT Ryan Newberry
Ryan Newberry, DO, MPH, Derek Brown, MD MPH, Thomas Mitchell, MD, Jennifer Achay, NREMT, Stephen Rahm, NRP, Brit Long, MD, Tyson Becker, MD, Joseph Maddry, MD, Gareth Grier, FRCP, FFAEM, Gareth Davies, FRCP, FFAEM
1U.S. Army Institute of Surgical Research, San Antonio, TX; 2U.S. Air Force En Route Care Research Center, San Antonio TX; 3UT Health San Antonio, Fort Sam Houston, TX; 4San Antonio Military Medical Center, Fort Sam Houston, TX; 5Centre for Emergency Health Sciences, Spring Branch, TX; 6Royal London Hospital, Whitechapel, London E1 1BB, United Kingdom

MHSRS-19-01263 - Session 2 - #225
A Novel Use of the NOD SCID Mouse to Evaluate the Hemostatic Efficacy Thrombosomes
Presentation Author: Dr. Anne Hale
Anne S. Hale DVM, Rafael Jorda, G. Micheal Fitzpatrick PhD
1BodeVet, Inc, Rockville MD; 2Cellphire, Inc, Rockville MD
Efficacy of An FDA-approved C1 Complement Inhibitor in a Pre/early Hospital Model of Traumatic Hemorrhage in Swine
Presentation Author: Dr. Alexander Penn
Alexander Penn, PhD, Orlando Hernandez, BS, Antonio Sanchez, BS, Michael Falabella, Jack Hutcheson, PhD
U.S. Air Force, 59th Medical Wing, San Antonio, TX

Effects of Splenectomy in a Pre/early Hospital Model of Traumatic Hemorrhage In Swine
Presentation Author: Dr. Alexander Penn
Alexander Penn, PhD, Orlando Hernandez, BS, Antonio Sanchez, BS, Michael Falabella, Jack Hutcheson, PhD
U.S. Air Force, 59th Medical Wing, San Antonio, TX

The Future is Here: Implementation of Novel Remote Damage Control Resuscitation Techniques
Presentation Author: CPT Avishai Tsur
Roy Nadler, MD, Avishai Michael Tsur, MD, Elon Glassberg, MD, Jacob Chen, MD
Surgeon General’s Headquarters, Israel Defense Forces, Ramat Gan, Israel

Tourniquet Application Rates and Outcomes Following a Military-wide Intervention
Presentation Author: CPT Avishai Tsur
Avishai Michael Tsur, MD¹, Roy Nadler, MD¹, Maya Siman-Tov, PhD², Irina Radomislensky², Kobi Peleg, PhD³, Avi Benov, MD¹, Elon Glassberg, MD¹, Jacob Chen, MD¹
¹Surgeon General’s Headquarters, Israel Defense Forces, Ramat Gan, Israel; ²Sheba Medical Center, Tel-Hashomer, Ramat Gan, Israel

Prehospital Pediatric Use of Tranexamic Acid
Presentation Author: CPT Avishai Tsur
Avishai Michael Tsur, MD¹, Roy Nadler, MD¹, Avi Benov, MD¹, Elon Glassberg, MD¹, Yael Mozer-Glassberg, MD², Barbara Gaines, MD³, Jacob Chen, MD¹
¹Surgeon General’s Headquarters, Israel Defense Forces, Ramat Gan, Israel; ²Tel Aviv University, Tel Aviv, Israel; ³University of Pittsburgh School of Medicine, Pittsburgh, PA

Noninvasive Detection of Early Blood Loss Utilizing a Pocketsize, Near-infrared Spectroscopy Device
Presentation Author: Mr. George Philipopoulos
George Philipopoulos, BS¹, Cesar Figueroa, MD², Robert Warren, PhD¹, Kathryn Osann, PhD³, Cristobal Barrios, MD², Bruce Tromberg, PhD¹⁴, Matthew Brenner, MD¹
¹Beckman Laser Institute, Irvine, CA; ²University of California Irvine Medical Center, Orange, CA; ³University of California Irvine Chao Family Comprehensive Cancer Center, Orange, CA; ⁴National Institute of Biomedical Imaging and Bioengineering, Bethesda, MD

Wearable Real-time Pre-hospital Coagulopathy Meter for use in Combat Casualty Care and Prolonged Field Care
Presentation Author: Dr. Scott Ferguson
Gastroesophageal Resuscitative Occlusion of the Aorta
Presentation Author: Mr. Brendan McCracken
Brendan McCracken, BS, Mohamad Hakam Tiba, MD, MS, Jeffrey Plott, PhD, Carmen Colmenero, BS, Danielle Leander, BS, Anne Marie Weitzel, BS, Brandon Cummings, BS, Albert Shih, PhD, Stewart Wang, MD, Jonathan Eliason, MD, Kevin Ward, MD
University of Michigan, Ann Arbor, MI

Mitigating Ischemia Reperfusion Injury Using a New Generation PH-Reboa: Controlled Hypotension to Lower Body
Presentation Author: Dr. Corina Necsoiu
Corina Necsoiu, MD, Bryan Jordan, MS, James Moon, MD, Jae Choi, PhD, Mark Espinoza, BS, Andriy Batchinsky, Leopoldo Cancio, MD
1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2Geneva Foundation, Tacoma, WA

Effect of Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) on Coagulation Function in a Severe Swine Hepatic Hemorrhage Model
Presentation Author: CPL Amber Voelker
CPL Amber Voelker, LTC David S. Kauvar, MD, Rodolfo de Guzman, Amy Polykratis, M Dale Prince, Bijan S. Kheirabadi, PhD, Michael A Dubick, PhD
1U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; 2San Antonio Military Medical Center, JBSA Fort Sam Houston, TX; 3Uniformed Services University, Bethesda, MD

Self-compressible Hemostatic Wound Dressing
Presentation Author: Dr. Kris Rangan
Krishnaswamy K. Rangan, Tirumalai S. Sudarshan
Materials Modification Inc, Fairfax, VA

Stability of Coagulation Factors in Freeze-dried Plasma
Presentation Author: Mrs. Elissa Flaumenhaft
Elissa Flaumenhaft, MS, Terry Khat, Nate Johnson, Susanne Marschner, PhD
Terumo BCT, Lakewood, CO

Development of Chitosan Hemostatic Device to Control and Prevent Post-operative Hemorrhage in Transurethral Prostatic Procedures
Presentation Author: Dr. Hua Xie
James M. Jones, Jack Lazar, Meihua Zhu, Lisa Buckley, Jason Hedges, Mattie Jones, Cole Gannett, Ervelyn Winata, Simon J. McCarthy
1Oregon Health and Science University, Portland, OR; 2TriCol Biomedical Inc, Portland, OR

Female Platelets Have Increased Functional Activity Compared to Male Platelets: Implications in Transfusion Practice and Treatment of Trauma-induced Coagulopathy in Combat
Presentation Author: Dr. Julia Coleman
MHSRS-19-02008 - Session 2 - #240
PT/INR is a Strong Biomarker of Injury Severity but does not Indicate Critical Coagulation Factor Deficiency
Presentation Author: Dr. Julia Coleman
Julia R Coleman, MD, MPH, Ernest E Moore, MD, MD, Saulius Butenas, PhD, Alexander Olson, BS, Mitchell J Cohen, MD, Arsen Ghasabyan, MPH, James Chandler, Angela Sauaia, MD, PhD, Anirban Banerjee, PhD, Christopher Silliman, MD, PhD, Erik Peltz DO
1University of Colorado-Denver, Aurora, CO; 2Ernest E Moore Shock Trauma Center at Denver Health, Denver, CO; Vitalant Research Institute-Denver, Denver, CO

MHSRS-19-02011 - Session 2 - #241
Comparison of Fresh-made vs Lyophilized Synthoplate as a Field-deployable Platelet Surrogate Technology for Hemorrhage Control
Presentation Author: Dr. Michael Bruckman
Michael Bruckman, PhD, Norman Luc, Lauren Cruz, Aditya Girish, Kara Hageman, Emily Gahagan, DaShawn Hickman, PhD, Ujjal Sekhon, Anirban Sen Gupta, PhD
1Case Western Reserve University, Cleveland, OH; 2Haima Therapeutics LLC, Cleveland, OH

MHSRS-19-02030 - Session 2 - #242
Stability of Freeze-dried Plasma after 1 Year of Storage
Presentation Author: Mrs. Elissa Flaumenhaft
Elissa Flaumenhaft, MS, Terry Khat, Nate Johnson, Susanne Marschner, PhD
Terumo BCT, Lakewood, CO

MHSRS-19-02035 - Session 2 - #243
Trauma-associated Glycocalyx Damage and Angiopoietin Dysregulation: Is There a Link?
Presentation Author: Dr. Rindi Uhlich
Rindi Uhlich, MD, Lei Zheng, MS, Parker Hu, MD, Jan Jansen, MBBS, Jeffrey Kerby, MD, PhD, Jillian Richter, PhD
University of Alabama at Birmingham, Birmingham, AL

MHSRS-19-02063 - Session 2 - #244
Effects of Quikclot Combat Gauze and Celox Rapid in Hemorrhage Control
Presentation Author: Col Arthur Johnson
Arthur Don Johnson, PhD
U.S. Army Graduate Program, Fort Sam Houston, San Antonio, Texas

MHSRS-19-02097 - Session 2 - #245
Evaluation of Crystalloid, Whole Blood, and Pegylated Carboxyhemoglobin-based Oxygen Carrier in a Rat Model of Severe Hemorrhagic Shock
Presentation Author: Dr. Bjorn Song
Antonio Macko, PhD, Forest R. Sheppard, MD, William H. Nugent, PhD, Ronald Jubin, PhD, Abe Abuchowski, PhD, Bjorn K. Song, PhD
1Song Biotechnologies, Baltimore, MD; 2Maine Medical Center, Portland, ME; 3Prolong Pharmaceuticals, South Plainfield, NJ
MHSRS-19-02192 - Session 2 - #246
Pressurized Metered Dose Inhalers as First Responder-tools During Mass Casualty Scenarios
Presentation Author: Dr. Thies Schroeder
David Irwin, PhD\textsuperscript{1}, David Pak\textsuperscript{1}, Scott Ferguson\textsuperscript{1}, Thies Schroeder\textsuperscript{2}
\textsuperscript{1}University of Colorado Denver Medical Center, Aurora, CO; \textsuperscript{2}University of Mainz, Mainz, Germany

MHSRS-19-02208 - Session 2 - #247
Microvascular Compensatory Response to Hypovolemic Shock: Peripheral Versus Critical Organ Oxygenation
Presentation Author: Dr. William Nugent
William H. Nugent, PhD, Aleksander Golub, PhD, Bjorn K. Song, PhD
Song Biotechnologies LLC, Baltimore, MD

MHSRS-19-02288 - Session 2 - #248
Fluoroscopy-free Reboa Zone 1 Aortic Cannulation in Perfused Human Cadavers: How Often Do We Miss?
Presentation Author: Ms. Kathryn Jespersen
Kathryn Jespersen, BS, Paul Aylward, MD, Alexey Kamenskiy, PhD, Jason MacTaggart, MD
University of Nebraska Medical Center, Omaha, NE

MHSRS-19-02484 - Session 2 - #249
Therapeutic Cardiac Arrest as an Adjunct to REBOA in an Animal Model of Hemorrhage
Presentation Author: Ms. Viviana Moreno
Viviana Moreno BS\textsuperscript{1}, Mary Salas MS\textsuperscript{1}, Amber Mallory, PhD\textsuperscript{2}, CDR Jacob J. Glaser, MD\textsuperscript{1}
\textsuperscript{1}Naval Medical Research Unit San Antonio, JBSA-Fort Sam Houston, TX; \textsuperscript{2}Combat Casualty Care and Operational Medicine Research Directorate, JBSA-Fort Sam Houston, TX

MHSRS-19-02501 - Session 2 - #250
Polyhb Maintains Cardiac Function after Extreme Anemia
Presentation Author: Mr. Alexander Williams
Alexander T. Williams, BS\textsuperscript{1}, Cynthia R. Muller PhD\textsuperscript{1}, Allyn M. Eaker\textsuperscript{1}, Crystal Bolden-Rush, PhD\textsuperscript{2}, Andre F. Palmer, PhD\textsuperscript{2}, Pedro Cabrales PhD\textsuperscript{1}
\textsuperscript{1}California, San Diego. La Jolla, CA; \textsuperscript{2}Ohio State University, Columbus, OH

MHSRS-19-02535 - Session 2 - #251
It’s Okay to Move Your Lips When You Read: A Randomized Trial of Low-bandwidth Mentoring Versus Reading the Manufacturer Instructions Regarding Tourniquet Application
Presentation Author: Ms. Jessica Mckee
Major Andrew Kirkpatrick, FRCSC\textsuperscript{1,2}, Ian McKee\textsuperscript{3}, Ryan Shelton\textsuperscript{4}, Anthonly LaPorta, MD\textsuperscript{5}, Joshua Calvano\textsuperscript{5}, Paul McBeth, FRCSC\textsuperscript{1}, Lawrence Gillman, FRCSC\textsuperscript{6}, Robert Barrett, PhD\textsuperscript{7}, Juan Wachs, PhD\textsuperscript{8,9}, Jessica L McKee, MSc\textsuperscript{1}
\textsuperscript{1}Foothills Medical Centre, Calgary, Alberta, Canada; \textsuperscript{2}Canadian Forces Medical Services, Ottawa, ON, Canada; \textsuperscript{3}Edmonton Fire Department, Edmonton, Alberta, Canada; \textsuperscript{4}South Metro Fire Rescue, Denver, CO; \textsuperscript{5}Rocky Vista School of Medicine, Parker, CO; \textsuperscript{6}University of Manitoba, Winnipeg, Manitoba; \textsuperscript{7}Robert Barrett Professional Research and Consulting, Calgary, AB, Canada; \textsuperscript{8}Indiana School of Medicine, Indianapolis, IN; \textsuperscript{9}Purdue University, West Lafayette, IN
Creating a Physical Tele-mentored Ultrasound Supported Medical Interventions “Box”
Presentation Author: MAJ Andrew Kirkpatrick
Jessica McKee, MSc1, Paul McBeth, FRCS1, Juan Wachs, PhD2,3, Douglas Hamilton, MD3, Chad G Ball, FRCS1, Lawrence M Gillman, FRCS4, Maj Andrew W Kirkpatrick, FRCS1,5
1Department of Trauma Service, Foothills Medical Centre, Calgary, Alberta, Canada; 2Purdue University, West Lafayette, IN; 3Indiana School of Medicine, Indianapolis, IN; 4University of Manitoba, Winnipeg, Manitoba; 5Canadian Forces Medical Services, Ottawa, ON, Canada

Development of Chitosan Endoscopic Hemostatic Device to Control Severe Upper Gastrointestinal Bleeding
Presentation Author: Dr. Simon McCarthy
Cole Gannett1, Simon McCarthy1, Till Kallem1, Makayla McKibben1, Ken Perry2, Andrew Jones3, Lisa Buckley3, Brinha Enestvedt3, Hua Xie3
1Tricol Biomedical Inc, Portland, OR; 2Echobio Inc, Bainbridge Island, WA; 3Center for Regenerative Medicine, Oregon Health & Science University, Portland, OR

Intelligent Point-of-Care Ultrasound for Auto-cannulation and to Enable REBOA Use
Presentation Author: Mr. Jan Berkow
Jan Berkow, MBA1, John Galeotti, PhD2
1Triton Systems, Chelmsford, MA; 2Carnegie Mellon University, Pittsburgh, PA

Self-dispersing Bioabsorbable Hemostatic Powder Non-invasively Addresses Truncal Hemorrhage in Swine
Presentation Author: Dr. Christian Kastrup
James R Baylis, PhD1, Nabil Ali-Mohamadi1, Massimo Cau, BSc1, Fergal Donnellan, MD1, Andrew McFadden, MD1, Hugh Semple, DVM, PhD2, Andrew Beckett, MD, MSc3, Alex E St. John, MD4, Xu Wang, MD4, Nathan J White, MD, MS4, Christian Kastrup, PhD1
1University of British Columbia, Vancouver, BC, Canada; 2Defence Research and Development Canada, Suffield, AB, Canada; 3McGill University, Montreal, QC, Canada; 4University of Washington, Seattle, WA

Training Simulator for Resuscitative Endovascular Balloon Occlusion of the Aorta
Presentation Author: Dr. Gianluca De Novi
Gianluca De Novi, PhD1,2, Fabio Ardenghi3, Stephane Cotin, PhD4, Frederic Roy, MS4, Michael A. Armanini, MS1, David King1,2,5, Mark P. Ottensmeyer, PhD1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Boston, MA; 3University of Genova, Genoa, Italy; 4INRIA, Strasbourg, France; 5U.S. Army

Low Volume Resuscitation with Polyethylene Glycol-20k for Uncontrolled Severe Hemorrhagic Shock
Presentation Author: Dr. Jad Khoraki
Jad Khoraki, MD, Niluka Wickramaratne, MD, Ru Li, MD, PhD, Martin Mangino, PhD

Polyethylene Glycol-20k is Superior to Hextend for Low Volume Resuscitation of Hemorrhagic Shock
and Soft Tissue Injury: 24-hour Survival with Normal Neurological Assessment
Presentation Author: Dr. Jad Khoraki
Jad Khoraki, MD, Niluka Wickramaratne, MD, Ananya Seth, Kayla S Hopkins, Caitlin Archambault, LVT, Charles Blocher, Ru Li, MD, PhD, Martin Mangino, PhD

CELLULAR THERAPEUTICS FOR TREATMENT OF TRAUMA-RELATED INJURIES

MHSRS-19-00008 - Poster Session 2 - #259
Complement Deposition on the Surface of RBC after Trauma Serves a Biomarker of Trauma Severity: A Prospective Study
Presentation Author: LTC Jurandir Dalle Lucca
Abhigyan Satyam, Kostas Andreo, Peter H. Lapchak, Jurandir J. Dalle Lucca, Roger B. Davis, Maria G. Tsokos, Nathan I. Shapiro, George C. Tsokos
1Harvard Medical School, Boston, MA; 2Uniformed Services University School of Medicine, Bethesda, MD

MHSRS-19-00023 - Poster Session 2 - #260
Cellular Therapy to Covert Stump Skin to Palmo-plantar Skin and Enhance Prosthetic Use
Presentation Author: Dr. Luis Garza

OPEN - Poster Session 2 - #261

MHSRS-19-00276 - Poster Session 2 - #262
PDGFRA Marks Distinct Osteoprogenitor Populations within Adipose Tissue
Presentation Author: Dr. Aaron James
Yiyun Wang, PhD, Jiajia Xu, PhD, Carolyn A. Meyers, BS, Sarah Miller, BS, Ye Tian, MD, Yongxing Gao, MPS, Catherine Ding, BS, Kristen Broderick, MD, Bruno Peault, PhD, Aaron W. James, MD, PhD
1Johns Hopkins University, Baltimore, MD; 2University of California, Los Angeles, Los Angeles, CA

MHSRS-19-00325 - Poster Session 2 - #263
In-vitro Production of Platelets for Far-forward Military Settings and Countermeasure Transfusion Needs
Presentation Author: Dr. Jonathan Thon
Jonathan N. Thon, PhD, Bradford Dykstra, PhD, Jorge Valdez, PhD, Christian G. Peters, PhD, Lea M. Beaulieu, PhD
1Platelet BioGenesis, Cambridge, MA; 2Brigham & Women's Hospital, MA; 3Harvard Medical School, Boston, MA

MHSRS-19-00405 - Poster Session 2 - #264
Neural Stem Cell Therapy for Severe Traumatic Brain Injury
Presentation Author: Dr. Karl Johe
Thomas G Hazel, Shyam Gajavelli, Johnathan R Jaggid, Deborah A Shear, Ross M Bullock
1Neuralstem, Inc, Germantown, MD; 2University of Miami, Miami, FL; 3Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-00487 - Poster Session 2 - #265
Assay Development to Assess the Influence of Cell Therapy Agents on Blood Brain Barrier Endothelial Cell Function
Presentation Author: Dr. Barbara Christy
Christopher Delavan, MS¹, Barbara Christy, PhD¹,², Sandra Becerra, MS¹, Maryanne Herzig, PhD¹, James Bynum, PhD¹,³, COL Andrew P. Cap, MD, PhD¹,²,³
¹U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; ²UT Health San Antonio, San Antonio, TX; ³University of Texas San Antonio, San Antonio, TX

MHSRS-19-00504 - Poster Session 2 - #266
Stem Cell and Shockwave Therapies to Promote Sexual Health Recovery in Pelvic Trauma Model
Presentation Author: Dr. Shashikumar Salgar
Shashikumar K. Salgar, PhD; Alexandria M. Hertz, MD; Evalyn I. George, BS; Joseph Hibbert, MD, Amanda B. Reed-Maldonado, MD; Timothy C. Brand, MD
Madigan Army Medical Center, Tacoma, WA

MHSRS-19-00522 - Poster Session 2 - #267
Combinatorial Omics Analysis for Evaluating Adhesion and Osteogenic Differentiation Mechanisms of Human Fat-derived Mesenchymal Stem Cells on a Novel Nanocomposite Platform Technology
Presentation Author: Mr. Austin Bow
Austin J. Bow¹, Monica N. Rawson¹, Bailey K. Jackson², Christopher D. Griffin², Alexander S. Biris², David E. Anderson¹, Shawn E. Bourdo², Madhu Dhar¹
¹University of Tennessee, Knoxville, TN; ²University of Arkansas at Little Rock, Little Rock, AR

MHSRS-19-00529 - Poster Session 2 - #268
Effects of TGF-beta Targeted-therapies in an in-vitro Model of Post-traumatic Heterotopic Ossification
Presentation Author: Dr. Marvin Dingle
Jaira Ferreira de Vasconcellos, PhD¹,², Marvin Dingle, MD¹,³, Alexander Dimtchev, MD, PhD¹,², Leon Nesti, MD, PhD¹,³
¹Uniformed Services University of the Health Sciences, Bethesda, MD; ²Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; ³Walter Reed National Military Medical Medical Cntr, Bethesda, MD

MHSRS-19-00540 - Poster Session 2 - #269
Tumorigenicity Study of Food and Drug Administration-approve for Clinical Trial Human Fetal Neural Stem Cells, Neuralstem Inc-566, in a Preclinical Model of Severe Penetrating Traumatic Brain Injury
Presentation Author: Dr. Shyam Gajavelli
Markus Spurlock, BS¹, Zhen Hu, MD, PhD¹, Anil Mahavadi, BE¹, Liz Quesada¹, Maria M Lujan¹, Sirsy A¹, Esther Monexe¹, MaryLourdes Andreu¹, Sakir H Gultekin, MD¹, Deborah A Shear, PhD², Ross Bullock MD, PhD¹
¹University of Miami Miller School of Medicine, Miami, FL; ²Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-00558 - Poster Session 2 - #270
Heparin Attenuates Procoagulant Toxicity of Systemic Administration of Adipose Derived Mesenchymal Stromal Cells
Presentation Author: Dr. Xiaowu Wu
Xiaowu Wu, MD¹,², Daniel N. Darlington, PhD¹,², Bin Liu, BS¹, Jeffrey D. Keesee, BS¹, Carolina Cantu-Garza, MS¹, Josue Garciamarcano¹, Andrew P. Cap, MD, PhD¹,²
¹U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; ²UT Health San Antonio, San Antonio, TX

MHSRS-19-00565 - Poster Session 2 - #271
Intraperitoneal Delivery as an Alternative Route for Systemic Administration of Bone Marrow Derived Mesenchymal Stromal Cells
Presentation Author: Dr. Xiaowu Wu
MHSRS-19-00732 - Poster Session 2 - #272
Evaluation of Mesenchymal Stromal Cell Differentiation for Healing of Large Bone Tissue Defects
Presentation Author: Dr. Jessica Stukel
Jessica M. Stukel, PhD, Joseph Macaitis MS, Wen Chen, PhD, Eric Botts, Melissa A. Grunlan, PhD, Wen Lien DMD MS, Alexander J. Burdette, PhD
1Naval Medical Research Unit San Antonio, JBSA Fort Sam Houston, TX; 2Texas A&M University, College Station, TX; 3Air Force 59th Medical Wing, JBSA Fort Sam Houston, TX

MHSRS-19-00914 - Poster Session 2 - #273
Closed-system HMSC Working Cell Bank for Use in Scalable Stem Cell Biomanufacturing
Presentation Author: Mr. John Getz
David Wang, BS, Joseph Takacs, MS, Joseph Candiello, PhD, Taby Ahsan, PhD, Jon Rowley, PhD
RoosterBio Inc. Frederick, MD

MHSRS-19-01024 - Poster Session 2 - #274
Scaling a Xeno-free Fed-batch 3D Microcarrier Suspension Bioreactor System From Development to Production Scale for HMSC Manufacturing
Presentation Author: Mr. John Getz
Robert Kirian, B.S., David Wang, B.S., Joseph Takacs, M.S., Ang-Chen Tsai, PhD, Kenny Cruz, MSc, Francisco Rosello BSc, Kayley Cox BSc, Yas Hashimura, MSc, Josephine Lembong, PhD, Jon Rowley, PhD, Sunghoon Jung, PhD, Taby Ahsan, PhD
1RoosterBio Inc. Frederick, MD; 2PBS Biotech, Camarillo, CA

MHSRS-19-00919 - Poster Session 2 - #275
Preconditioning in an Inflammatory Milieu Augments the Immunotherapeutic Function of Mesenchymal Stem Cells
Presentation Author: Mr. Luis Rodriguez
Luis A. Rodriguez II, MS, Arezoo Mohammadipoor, DVM, PhD, Robin M. Kamucheka, BS, Amber M. Asher, MA, Lucero Alvarado, BS, Leopoldo C. Cancio, MD, Ben Antebi, PhD
1U.S. Army Institute of Surgical Research, San Antonio TX; 2Oak Ridge Institute for Science and Education, Oak Ridge, TN; 3University of Texas at San Antonio, San Antonio, TX

MHSRS-19-00966 - Poster Session 2 - #276
Optimization of Stem Cell-derived Exosomes for Therapeutic Application in the Prolonged Field Care Environment
Presentation Author: Dr. Mark Hamrick
Khairat Bahagt El Baradie, Ali Eroglu, Joseph Elphingstone, Mohamed Nouh, Bharati Mendhe, Yutao Liu, Sadanand Fulzele, Frederick O'Brien III, Mark W. Hamrick
1Augusta University, Augusta, GA; 2Dwight D. Eisenhower Army Medical Center, Augusta, GA

MHSRS-19-00992 - Poster Session 2 - #277
Characterization of a Corneal Endothelial Injury in an Ex Vivo Rabbit Model as a Platform for Evaluation of Corneal Endothelial Cell Delivery
Presentation Author: Ms. Lauren Cornell
Recruiting an “Old Hormonal Friend” for Future Skin Wound Management: Thyroxine Promotes the Re-epithelialization and Angiogenesis of Experimentally Wounded Human Skin Even Under Conditions of Severely Impaired Wound Healing

NGF and the Reinnervation of Wounded Human Skin Ex Vivo

Decellularized Muscle Matrix and Muscle-derived Stem Cells for Enhanced Muscle Regeneration in a Volumetric Muscle Loss Model

Manufacturing of Engineered Bladder Tissues for Soldiers with Battlefield Injury

Human Placental Stem Cells Enhance Erectile Function Recovery in a Severe Pelvic Neurovascular Injury Rat Model
MHSRS-19-01183 - Poster Session 2 - #283
Clinical Translation of Tissue Engineered Urethra for Battlefield Injury
Presentation Author: Dr. John Jackson
Dalia Alzebdeh, PhD, Chi Lo, PhD, Sarah Albertson, BS, Jacob Scott, BS, Torie McHone, MHA, Tiana Stewart, BS, Jessica Harvey, BS, Dana Jeffus, MS, Kathryn Krupp, BS, Darren Hickerson, MS, Cynthia Wilkins-Port, PhD, Ryan Terlecki, MD, John D. Jackson, PhD, Anthony Atala, MD, Julie Allickson, PhD, James J. Yoo, MD, PhD
Wake Forest School of Medicine, Winston Salem, NC

MHSRS-19-01186 - Poster Session 2 - #284
Clinical Translation of Engineered Penile Tissue for Battlefield Injury
Presentation Author: Dr. John Jackson
Sita Somara, PhD, Teresa Burnette, BA, Namrata D. Sangha, BA, Lindsey Creahan, BS, Tsghe Abraha, BS, Kathryn A. Krupp, BS, Tiana Stewart, BS, Torie Westendorf, MHA, Brad Damratoski, BS, Lisa Hinshaw, MPH, Shannon Sdao, BS, Darren Hickerson, MS, Cynthia Eileen Wilkins-Port, PhD, Ryan Terlecki, MD, James Yoo, MD, PhD, Anthony Atala, MD, Julie Allickson, PhD, John Jackson, PhD
Wake Forest School of Medicine, Winston Salem, NC

MHSRS-19-01191 - Poster Session 2 - #285
Delivery of Modified mRNA-loaded Aligned Nanofibrillar Scaffolds for Treatment of Traumatic Muscle Injury
Presentation Author: Dr. Ngan Huang
Ngan F. Huang,1,2,3 Tatiana Zaitseva,4 Cynthia Alcazar,1,2 Maedeh Zamani,1,3 Eduard Yakubov,5 Greg King,4 Michael Paukshto,4
1Stanford Cardiovascular Institute, Stanford, CA; 2Veterans Affairs Palo Alto Health Care System, Palo Alto, CA; 3Stanford University, Stanford, CA; 4Fibralign Corporation, Union City, CA; 5PhaRNA, LLC, Houston, TX

MHSRS-19-01214 - Poster Session 2 - #286
Tacrolimus-based Immune Suppression Following Penetrating Brain Injury Negatively Affects Cognition
Presentation Author: Dr. Deborah Shear
Starlyn Okada-Rising, PhD, Lai Yee Leung, PhD, Zachary Bailey, PhD, Matthew Rice, PhD, Justin Sun, MS, Linda Huynh, BS, Caitlin Figiel, BS, Christopher Powels, BS, Deborah Shear, PhD
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-01230 - Poster Session 2 - #287
Flow Cytometric Characterization of Extracellular Vesicle Surface Markers to Identify Optimal Fractions for Therapeutic Applications
Presentation Author: Ms. Robin Kamucheka
Robin M. Kamucheka, BS1, Luis A. Rodriguez II, MS1, Ben Antebi, PhD1, Heuy-Ching H. Wang, PhD1, Thomas J. Walters, PhD1, Arezoo Mohammadiopoor, DVM, PhD1,2
1U.S. Army Institute of Surgical Research, San Antonio, TX; 2Oak Ridge Institute for Science & Education, Oak Ridge, TN

MHSRS-19-01292 - Poster Session 2 - #288
Identification of the Ideal Mesenchymal Stem Cell Candidate to Treat Infection-induced Acute Respiratory Distress Syndrome in-vitro
Presentation Author: Ms. Lucero Alvarado
Lucero Alvarado, BS1,2,3, Luis A. Rodriguez II MS1,2, Arezoo Mohammadiopoor, DVM, PhD1,2, Robin M. Kamucheka, BS1, Leopoldo C. Cancio1, Ben Antebi, PhD1,3
MHSRS-19-01315 - Poster Session 2 - #289
Temporal Evaluation of Mitochondrial Redox Homeostasis Following Penetrating Traumatic Brain Injury
Presentation Author: Dr. Jignesh Pandya
Jignesh D. Pandya, PhD, William J. Flerlage, BS, Linda M. Huynh, BS, Weihong Yang, BS, Deborah A. Shear PhD
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-01328 - Poster Session 2 - #290
Injectable Bio-compatible Gel Composed of IPSC Derived NSC for Regeneration of Brain Tissue
Presentation Author: Dr. Robert Chin
Robert C. Chin, PhD1, Joseph Oleniczak, MS1, Charles S. Cox, Jr, MD2, Qi Lin Cao, PhD2, Henry W. Caplan, MD2, Karthik S. Prabhakara, MS2, Scott D. Olson, PhD2
1Fabrico Technology, Austin, TX; 2The University of Texas Health Science Center at Houston, Houston, TX

MHSRS-19-01337 - Poster Session 2 - #291
Manufacturing of Cellular and Cell-based Therapies at Scale
Presentation Author: Mr. Tom Bollenbach
Bollenbach Thomas, PhD, McCorry Mary Clare, PHD
ARMI | BioFabUSA, Manchester, NH

MHSRS-19-01344 - Poster Session 2 - #292
Magnetically-induced Self-assembly of Skin Microcolumns to Produce Full-thickness Skin Constructs
Presentation Author: Dr. Joshua Tam
Christiane Fuchs, PhD1,2, R. Rox Anderson, MD1,2, Joshua Tam, PhD1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Boston, MA

MHSRS-19-01399 - Poster Session 2 - #293
Exploiting Extracellular Matrix Dynamics to Preserve and Protect the Warfighter
Presentation Author: Dr. Adam Mellott
A.J. Mellott, PhD1,2, Heather Decker, BA2
1University of Kansas Medical Center, Kansas City, KS; 2Ronawk LLC, Kansas City, KS

MHSRS-19-01495 - Poster Session 2 - #294
3D Printing Biomimetic Functional Graphenic Scaffolds for Bone Regeneration
Presentation Author: Dr. Stefanie Sydlik
Stefanie A. Sydlik, PhD1, Anne M. Arnold, MS1, Brian Holt, PhD1, Adam Feinberg, PhD1, Ramille Shah, PhD2, Adam Jakus, PhD2, Cato Laurencin, PhD, MD3
1Carnegie Mellon University, Pittsburgh, PA; 2Dimension Inx LLC, Chicago, IL; 3University of Connecticut Health Center, Farmington, CT

MHSRS-19-01619 - Poster Session 2 - #295
Use of Bone Marrow Derived-mesenchymal Stem Cells to Allow for Early Split-thickness Skin Graft and Noteworthy Overall Outcome
Presentation Author: Ms. Divya Aickara
Divya Aickara, MS, Ambar Candendedo, MS, Wellington Guzman, MA, Luis Rodriguez-Menocal, PhD, Evangelos V. Badiavas, PhD, MD, Carl I. Schulman, MD
University of Miami, Miami, FL
MHSRS-19-01728 - Poster Session 2 - #296
Development and in-vivo Implantation of Lego-like 3D Printed Bone Scaffolds
Presentation Author: Mr. James Jones

MHSRS-19-01744 - Poster Session 2 - #297
Human Mesenchymal Stromal Cells Have a Therapeutic Window for Immunosuppression in the Mixed Lymphocyte Reaction Assay
Presentation Author: Ms. Maryanne Herzig
Maryanne Herzig, PhD, Barbara Christy, PhD, Carolina Cantu, PhD, James Bynum, PhD, Andrew Cap, PhD
U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

MHSRS-19-01757 - Poster Session 2 - #298
Injectable Nanofiber Powder Mediates Enhanced Adipose Cell Engraftment and Volume Retention
Presentation Author: Ms. Ludmila Diaz-Starokozheva
Ludmila Diaz-Starokozheva1,2, Devan Ohst1, Ian Valerio1, Robert Houser1, Jed Johnson3, Daniel Gallego-Perez1,2
1The Ohio State University, Columbus, OH; 2Nanofiber Solutions, Columbus, OH; 3Cosmetic & Plastic Surgery of Columbus, Columbus, OH

MHSRS-19-01775 - Poster Session 2 - #299
CTDSP1 Knockdown in Trauma-induced Mesenchymal Progenitor Cells as a Novel Strategy to Promote Peripheral Nerve Regeneration after Traumatic Injury
Presentation Author: Dr. Noreen Gervasi
Noreen M. Gervasi, MD, PhD1, Alexander Dimitchev, MD, PhD1, Leon J. Nesti MD, PhD2,3
1Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; 2Uniformed Services University, Bethesda, MD; 3Walter Reed National Military Medical Center, Bethesda, MD

MHSRS-19-01836 - Poster Session 2 - #300
Tunable Biomimetic Scaffolds for Directing Stem Cell Growth and Differentiation for Tissue Regeneration Applications
Presentation Author: Dr. Mary Caldorera-Moore
Mary Caldorera-Moore, PhD, Haley Barnett, BS, Jamie Newman, PhD
Louisiana Tech University, Ruston, LA

MHSRS-19-01872 - Poster Session 2 - #301
Controlled Assembly of 3D Nanofiber Matrices for Regenerative Medicine
Presentation Author: Dr. Mark Carlson
Shixuan Chen1, Hongjun Wang1, Alec McCarthy1, Zheng Yan2, Hyung Joon Kim1, Mark A. Carlson3, Younan Xia4, Jingwei Xie1
1University of Nebraska Medical Center, Omaha, NE; 2University of Missouri, Columbia, MO; 3University of Nebraska Medical Center and the Omaha VA Medical Center, Omaha, NE; 4Georgia Institute of Technology and Emory University, Atlanta, GA

MHSRS-19-01882 - Poster Session 2 - #302
Metabolic Profiling of Human Skeletal Muscle during Ex-vivo Normothermic Limb Perfusion
Presentation Author: Ms. Elizabeth Rohde
Elizabeth Rohde, MA1, Maryam Goudarzi, PhD1, Maria Madajka, PhD1, Carlos Ordenana, MD1, Majid Rezaei, DMD1, Sayf Al-deen Said, MD1, Vahe Fahradyan, MD1, Edoardo Dalla Pozza, MD1, Srinivasan Dasarathy, MD1, Henri Brunengraber MD, PhD2, Antonio Rampazzo, MD, PhD1, Bahar Bassiri Gharb, MD, PhD1
MHSRS-19-01968 - Poster Session 2 - #303
Role of Mechanosensing and FAK Expression in a Murine Model of Traumatic Heterotopic Ossification
Presentation Author: Dr. Amanda Huber
Amanda K Huber, PhD¹, Charles Hwang, BS¹, Chase Pagani, BA¹, Shawn Loder, MD¹, Noelle Visser, MS¹, Kaetlin Vasquez, MS¹, Ching-Yun Hsu, BDS, MS², Aaron W James, MD, PhD², John Li, MD¹, Cameron Brownley, BS¹, Shailesh Agarwal, MD¹, Benjamin Levi, MD¹
¹University of Michigan, Ann Arbor, MI; ²Case Western Reserve University, Cleveland, OH

MHSRS-19-02038 - Poster Session 2 - #304
Intentional Positioning Of Cells in Decellularized Muscle Tissues
Presentation Author: Dr. Bradley Berron
Brad Berron, PhD, Cong Li, BS, Lauren Mehanna, BS, Ahmed Abdel-Latif, MD, PhD, Charlotte Peterson, PhD
University of Kentucky, Lexington, KY

MHSRS-19-02066 - Poster Session 2 - #305
Human Genetic Platform for Improved Cell Therapy and Cell Therapy Manufacturing
Presentation Author: Dr. Amy Greene
Amy Greene, PhD¹, Dominique Broccoli, PhD¹, Kara Pascarelli¹, Claire Tompkins¹, Edward Perkins, PhD¹²
¹SynPloid Biotek, LLC, Savannah, GA; ²Mercer University School of Medicine, Savannah, GA

MHSRS-19-02068 - Poster Session 2 - #306
An Extracellular Matrix Replacement Biomaterials Approach to Skin Regeneration in Full-thickness Skin Injuries
Presentation Author: Dr. Emily English
Emily English, PhD, Matthew Davenport, MS, Janty Shoga, MS, Timothy Herpel, BS
Gemstone Biotherapeutics, LLC, Baltimore, MD

MHSRS-19-02070 - Poster Session 2 - #307
β2-adrenergic Receptor Activation Prolongs Survival of Vascularized Composite Tissue Allotransplants in a Murine Model
Presentation Author: Dr. Minhyung Kim
Minhyung Kim¹, Daniel T. Fisher¹, Amy Ku¹, Jennifer K. Loo¹, Paul N. Bogner¹, Umesh Sharma², Joseph J. Skitzki¹, Elizabeth A. Repasky¹
¹Roswell Park Comprehensive Cancer Center, Buffalo, NY; ²University at Buffalo, Buffalo, NY

MHSRS-19-02146 - Poster Session 2 - #308
LPS Induced Inflammation Pre-ACL Rupture Exacerbates Post-traumatic Osteoarthritis
Presentation Author: Dr. Gabriela Loots
Melanie E. Mendez, MS¹², Aimy Sebastian, PhD², Deepa K. Murugesh, BS¹, Blaine A. Christiansen, PhD³, Gabriela G. Loots, PhD¹²
¹Lawrence Livermore National Laboratory, Livermore, CA; ²University of California, Merced, CA; ³University of California-Davis Medical Center, Sacramento, CA

MHSRS-19-02200 - Poster Session 2 - #309
Immunodeficient State of Athymic Rats Enhances the Ability of Decellularized Muscle Matrix to Support Regeneration in a Volumetric Muscle Injury
Presentation Author: Dr. Michael McClure
Lucas C. Olson, David J. Cohen, Barbara D. Boyan, Zvi Schwartz, Michael J. McClure
Virginia Commonwealth University, Richmond, VA; Georgia Institute of Technology, Atlanta, GA; University of Texas Health Science Center at San Antonio, San Antonio, TX

MHSRS-19-02287 - Poster Session 2 - #310
Targeting MHCII/self-peptide Presentation as a Method of Treating Established Autoimmunity
Presentation Author: Dr. Jason Lees

MHSRS-19-02372 - Poster Session 2 - #311
Interaction of Specific Integrin Heterodimers and Fibronectin Potentially Modulate the Adhesion and Osteogenic Differentiation of Human Mesenchymal Stem Cells on Oxidized Graphene
Presentation Author: Dr. Madhu Dhar
Madhu S Dhar, PhD, Steven Newby, MS, Tom Masi, PhD, Chris D Griffin, BS, William J King, BS, Stacy Stephenson, MD, Alexandru S. Biris, PhD, David E Anderson, DVM, and Shawn E Bourdo, PhD
University of Tennessee, Knoxville, TN; University of Tennessee Medical Center, Knoxville, TN; University of Arkansas at Little Rock, Little Rock, AR

MHSRS-19-02399 - Poster Session 2 - #312
Targeting Donor Organ Dendritic Cells to Reduce Immunogenicity in Transplantation
Presentation Author: Mr. Thiago Borges
T. D. Borges, B. Pomahac, C. Bonorino, L. V. Riella
Brigham and Women’s Hospital, Boston, MA; Federal University of Health Sciences of Porto Alegre, Brazil

MHSRS-19-02433 - Poster Session 2 - #313
Peripheral Tissue Injury and Acute Pancreatitis Cause a SIRS-induced Intestinal Microvascular Leak Triggering Ileus via a Specific Enteric Leak Factor
Presentation Author: Dr. Anthony Bauer
Sarah A. Robinson, Vlado Antonic, Allison N. Brindle, COL Alexander Stojadinovic (retired), Annette S. Wilson, Gary D. Isaacs, David C. Whitcomb, Anthony J.M. Bauer
Liberty University College of Osteopathic Medicine, Lynchburg, VA; Walter Reed Army Institute of Research, Silver Spring MD; Combat Wound Initiative Program, Rockville, MD; University of Pittsburgh Medical Center, Pittsburgh, PA

MHSRS-19-02442 - Poster Session 2 - #314
Implantation of Bioengineered Innervated Terminal Gut as a Replacement Therapy for Injured Anus
Presentation Author: Mr. Khalil Bitar

MHSRS-19-02489 - Poster Session 2 - #315
ST266 Amnion Derived Cytokine Secretome for Polytrauma Treatment
Presentation Author: Dr. Larry Brown
Larry Brown, ScD, David Steed, MD, Howard Wessel, BS, MBA, Brian Zuckerbraun, MD, Neal, Matthew, MD
Noveome Biotherapeutics, Inc, Pittsburgh, PA; University of Pittsburgh Medical Center, Pittsburgh, PA

MHSRS-19-02528 - Poster Session 2 - #316
Pre-clinical Evaluation of the Efficacy and Safety of Bone Marrow Mesenchymal Stem Cells for Corneal Wound Healing
Presentation Author: Mr. Ilham Putra
Ilham Putra, MD¹, Xiang Shen, MS¹, Khandaker N Anwar¹, MD, Enmar Almazyad, MD¹, Charlotte Joslin, DO, PhD¹, Deepak Edward, MD¹, Mark Rosenblatt, MD,PhD¹, Nadim Mahmud, MD, PhD¹, Reza Dana, MD², Peiman Hematti, MD³, Medi Eslani, MD¹, Ali R Djalilian, MD¹
¹Univ of Illinois at Chicago, Chicago, IL; ²Harvard Med School, Boston, MA; ³Univ of Wisconsin, Madison, WI

**MHSRS-19-02556 - Poster Session 2 - #317**  
The Effect of an Autologous Keratinocyte Spray on Human Skin Wound Healing Transcriptome  
Presentation Author: Dr. Kristo Nuutila
Kristo Nuutila, MSc, PhD¹,², Antti Siltanen, PhD², Matti Kankainen, PhD¹, Matti Korhonen, MD, PhD³, Johanna Nystedt, PhD³, Jussi Valtonen, MD, Andrew Lindford, MD, PhD⁴, Jyrki Vuola, MD, PhD⁴, Esko Kankuri, MD, PhD²
¹Harvard Medical School, Boston, MA; ²University of Helsinki, Helsinki, Finland; ³Finnish Red Cross Blood Service, Helsinki, Finland; ⁴Helsinki Burn Centre, Helsinki, Finland

**MHSRS-19-02591 - Poster Session 2 - #318**  
Circulating Plasma Micrornas Trigger Innate Immune Activation in a Mouse Model of Polytraumatic Injury  
Presentation Author: Dr. Andrew Suen

**CLINICAL DECISION SUPPORT, MEDICAL ROBOTICS, AND AUTONOMOUS MEDICAL SYSTEMS FOR PROLONGED CARE AND EVACUATION**

**MHSRS-19-00007 - Poster Session 2 - #319**  
Algorithm Directed Troop Medical Care Digital Version App  
Presentation Author: Mr. James Chrosniak
James Chrosniak, MHS, PA-C, James Chrosniak, MHS, PA-C
Andew Galdi, MAJ, SP, PA-C, BCT Senior PA, 173RD IBCT (A), Adam O. Rich, RN, CPT, AN, Brigade Nurse, 173RD IBCT (A), Christian Olsen, Software designer
Regional Health Command Europe, Landstuhl, Germany

**MHSRS-19-00028 - Poster Session 2 - #320**  
Where's the Ondansetron? Preventing Nausea and Vomiting Without the Familiar Favorites  
Presentation Author: LCDR Chad Moore
Chad Moore, DNP, CRNA¹, Rusty Bledsoe, DNP, CRNA², Raymond Bonds, DNP, CRNA³
¹Uniformed Services University, Jacksonville, FL; ²U.S. Naval Hospital Okinawa, Japan; ³Uniformed Services University, Bethesda, MD

**MHSRS-19-00122 - Poster Session 2 - #321**  
Quantifying the Effects Of Wound Healing Risk and Potential on Clinical Measurements and Outcomes of Severely Burned Patients: A “Big Data” Approach  
Presentation Author: Mr. Nehemiah Liu
Nehemiah Liu, MS, Sarah Singleton, MS, Craig Fenrich, BS, Maria Serio-Melvin, MSN, Robert Christy, PhD, José Salinas, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

**MHSRS-19-00128 - Poster Session 2 - #322**  
Developing an Intelligent Decision Support System to Support Tactical Combat Casualty Care and Prolonged Care  
Presentation Author: Ms. Rebecca Lee
Rebecca Lee, Juliane Del Toro, MD, Nehemiah Liu, MS, Jose Salinas, PhD, LTC (Ret.) Maria Serio-Melvin, RN, MSN, COL (Ret.) Elizabeth Mann-Salinas, PhD, RN, Gary Gilbert, PhD, COL Jeremy Pamplin, MD, COL Gina Adam, PhD

MHSRS-19-00162 - Poster Session 2 - #323

Digitizing Air Force Medical Standards for the Creation of a Readiness Decision-support Tool

Presentation Author: Capt Colby Uptegraft
Colby C. Uptegraft, MD, MPH1,2, Matthew G. Barnes, MD3, Jonathan Bickel, MD, MS4, Adam Wright, PhD5, Gajen Sunthara, MS4, Jonathan D. Hron, MD1
1Boston Children’s Hospital, Boston, MA; 2Air Force Institute of Technology, Wright-Patterson AFB, OH; 3711th Human Performance Wing, Wright-Patterson AFB, OH; 4Boston Children’s Hospital, Boston, MA; 5Harvard Medical School, Boston, MA

MHSRS-19-00166 - Poster Session 2 - #324

Digital Transformation in the Bundeswehr Medical Service

Presentation Author: Lt Col Frank Balszuweit

MHSRS-19-00216 - Poster Session 2 - #325

Novel Prehospital Documentation and Communication System Tested at Guardian Response 2018

Presentation Author: Ms. Alexandra Cholewczynski
Alexandra Cholewczynski, MS1, Todd Bishop1, Caroline Gibson1, Jeffery Jones2, Tony Hwang, PhD1, Shilo Apland, SFC1, Brad Stevens, SSG3, Jay Wang, MS1, Christian Cook, LTC1
1U.S. Army Medical Research and Development Command, Fort Detrick, MD; 2U.S. Army School of Aviation Medicine, Fort Rucker, AL; 3Second General Support Battalion, Fort Carson, CO

MHSRS-19-00281 - Poster Session 2 - #326

Classifying Burn Wound Severity Using Spatial Frequency Domain Imaging and Supervised Machine Learning

Presentation Author: Ms. Rebecca Rowland
Rebecca Rowland1, Adrien Ponticorvo1, David M. Burmeister2, Robert J. Christy2, Nicole Bernal3, Anthony J. Durkin1
1University of California, Irvine, CA; 2U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 3UC Irvine Regional Burn Center, Orange, CA

MHSRS-19-00308 - Poster Session 2 - #327

Deployed Exercise Using T6 Health Systems Web-based Application Electronic Trauma Resuscitation Documentation and Decision Support

Presentation Author: Lt Col Valerie Sams
Valerie Sams, MD, Lisa Angotti, MD, Jared Folwell, MD, Dominick Vitale, MD, Remealle How, MD
San Antonio Military Medical Center, San Antonio, TX

MHSRS-19-00671 - Poster Session 2 - #328

Protein Retention Levels of Fresh Frozen Plasma and Cryoprecipitate Derived from Pathogen Reduced Fresh Whole Blood

Presentation Author: Dr. Francisco Rentas
Kevin Rhee, Lt1, Rebecca Jones, LT2, Marcia Firmani, PhD3, Susan Yonemura, PhD4, Francisco J. Rentas, PhD3
1Wright Patterson AFB, OH; 2Naval Hospital Portsmouth, Portsmouth, VA; 3The George Washington University, Ashburn, VA; 4Terumo BCT, Lakewood CO
MHSRS-19-00822 - Poster Session 2 - #329
Visual Perception Research for Medical Robotic and Autonomous Systems Applications
Presentation Author: Mr. Nathan Fisher
Nathan Fisher, MS¹, Justin Peel, MS², Kelly Roman, BS², Gary Gilbert, PhD¹, COL Jeremy Pamplin, MD¹, COL Gina Adam, PhD¹
¹U.S. Army Medical Research and Development Command, Fort Detrick, MD; ²Areté Associates, Arlington, VA

MHSRS-19-00869 - Poster Session 2 - #330
Improving Prognostication of Death on the Battlefield: Development and Internal Validation of a Dynamic Bayesian Network to Enhance Decision-support and Governance
Presentation Author: Dr. Somayyeh Mossadegh
Somayyeh Mossadegh, Dr¹, Evangelia Kyrimi, Dr¹, Max Marsden, Maj¹², William Marsh, Dr¹, Nigel Tai, Col¹²
¹Queen Mary University of London, London, England; ²Royal Centre for Defence Medicine, Birmingham, England

MHSRS-19-00951 - Poster Session 2 - #331
Using the Low Minute Ventilation Parameter from a Non-invasive Respiratory Volume Monitor in Perioperative Management of OSA Patients in an Ambulatory Setting
Presentation Author: Dr. Vimal Desai
Vimal Desai, MD¹, Shawn Winnick, MD², Peggy G. Duke, MD³, Diana Laplace, MD¹, Vu T Nguyen, MD¹, Atef Morkos, MD¹, Stephen Moy, MD¹, Elena Chung, MD¹, Jennifer Naughton, BS¹, Jennifer Dang, RN¹, Ryan Depakakibo, RN¹, Sangita Nichols, BS¹, Chunyuan Qiu, MD, MS¹
¹Kaiser Permanente Baldwin Park Medical Center, Baldwin Park, CA; ²Kaiser Permanente Fontana Medical Center, Fontana, CA; ³Emory University School of Medicine, Atlanta, GA

MHSRS-19-01076 - Poster Session 2 - #332
Improved Human Machine Interface for Combat Medics to Capture and Transfer Clinical Data to an Electronic Health Record System
Presentation Author: Dr. Lauren Shluzas
Lauren Aquino Shluzas, PhD¹², David Pickham, PhD¹², Gabriel Aldaz, PhD¹⁴, Alan Shluzas, MS¹, Thomas Strohmer, PhD¹³, Miguel Garcia¹, Taryn Sanks¹, Simon Mawer¹²
¹Bio1 Systems, LLC, San Carlos, CA; ²Stanford University, Stanford, CA; ³University of California at Davis, Davis, CA; ⁴Simplexity Product Development, Sunnyvale, CA

MHSRS-19-01213 - Poster Session 2 - #333
Using EHR Data in the Development of Machine Learning Models for Shock Identification and Differentiation
Presentation Author: Dr. Adam Amos-Binks
Adam Amos-Binks, PhD¹, Chris Nemeth, PhD¹, Vitaly Herasevich, MD, PhD², Brian Pickering, PhD², Ryan Lowe, PhD¹, Natalie Keeney, Andrew Harrison, MD, PhD², Yulia Pinevich, MD², Greg Rule, Dawn Laufersweiler, Mei Sun, PhD³
¹Applied Research Associates, Albuquerque, NM; ²Mayo Clinic, Rochester, MN; ³U.S. Army Medical Research & Development Command, JPC-1, Fort Detrick, MD

MHSRS-19-01247 - Poster Session 2 - #334
Tactical Combat Casualty Care Decision Support for Medics, Battalion Aid Station and Field Hospital Clinicians
Presentation Author: Dr. Christopher Nemeth
C. Nemeth¹, A. Amos-Binks², R. Lowe³, N. Keeney³, A. Harrison⁵, Y. Pinevich⁵, B.W. Pickering⁵, G. Rule⁴, D. Laufersweiler¹, V. Herasevich⁵, M. Sun⁶

**MHSRS-19-01255 - Poster Session 2 - #335**
**Active Breast Biopsy Needle for an Autonomous Needle Insertion System**
Presentation Author: Dr. Bardia Konh
Bardia Konh, PhD
University of Hawaii at Manoa, Honolulu, HI

**MHSRS-19-01324 - Poster Session 2 - #336**
**Benefits of Telesonography in Diagnostic Support on Military Deployments Abroad**
Presentation Author: Lt Col Lorenz Scheit

**MHSRS-19-01352 - Poster Session 2 - #337**
**U.S. Air Force Project ECHO Diabetes: Our Seven-year Experience**
Presentation Author: MAJ Darrick Beckman
Darrick Beckman, MD¹, Mark True, MD¹,², Jana Wardian, PhD, MSW¹, Nina Watson, MSN, RN, CDE¹, Connie Morrow, MAEd-AET, CRT¹, Tom Sauerwein, MD¹
¹Diabetes Center of Excellence, Lackland AFB, TX; ²San Antonio Uniformed Services Health Education Consortium, San Antonio, TX

**MHSRS-19-01423 - Poster Session 2 - #338**
**Wearable Ultrasound Array for Rapid Point-of-Care Assessment**
Presentation Author: Dr. Rahul Singh
Kristen Nguyen¹, Hamed Gheidi, PhD², Chris Thomas, PhD³, Paul Theilmann, PhD³, Neel Bagora¹, Noopur Siroya¹, Lu Xu¹, Yan Gong⁴, Rahul Singh, PhD¹
¹Farus LLC, Vista, CA; ²Anokiwave Inc, San Diego, CA; ³MaXentric Technologies LLC, La Jolla, CA; ⁴University of California San Diego, La Jolla, CA

**MHSRS-19-01461 - Poster Session 2 - #339**
**Morphomic Mapping of Airway Location, Dimensions and Orientation in Live Humans**
Presentation Author: Dr. Stewart Wang
Stewart C. Wang, MD, PhD¹, Sven A Holcombe, PhD¹, Brian E. Ross¹, June A. Sullivan¹, Robert A. De Lorenzo, MD², Kathy L. Ryan, PhD³, Megan B. Blackburn, PhD³
¹University of Michigan, Ann Arbor, MI; ²University of Texas Health Science Center at San Antonio, TX; ³U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

**MHSRS-19-01508 - Poster Session 2 - #340**
**Pulse and Respiration Rate Measurement Through RF Sensing in Search and Rescue and Through-wall 3D Imaging**
Presentation Author: Mr. Hossein Ghaffari Nik
Hossein Ghaffari Nik, MS, Nathalia Peixoto, PhD
George Mason University, Fairfax, VA

**MHSRS-19-01517 - Poster Session 2 - #341**
**Development of a Low Power Wireless Pulse Oximeter, Wearable on the Torso, for Tele-medical**
Monitoring
Presentation Author: Dr. Marcus Kramer
Marcus Kramer PhD
Nonin Medical, Inc, Plymouth, MN

MHSRS-19-01561 - Poster Session 2 - #342
Photocoustic Transesophageal Echocardiography for Improving Early Management of Hemorrhagic Shock: Towards a Field-deployable Prototype
Presentation Author: Dr. Li Li
Li Li1, Fouad Attiou1, Hemanth K. Guti1, Jia Liu1, Zhiqiang Wang1, Balachundhar Subramaniam2, Aaron D. Aguirre1, Guillermo J. Tearney1
1Massachusetts General Hospital, Boston, MA; 2Beth Israel Deaconess Medical Center, Boston, MA

MHSRS-19-01663 - Poster Session 2 - #343
Toward Robotic-assisted Casualty Extraction in Multi-domain Operations
Presentation Author: Mr. Nathan Fisher
Nathan Fisher, MS1, Stan German, MS2, Pinhas Ben-Tzvi, PhD3, Gary Gilbert, PhD1, COL Jeremy Pamplin, MD1, COL Gina Adam, PhD1
1Medical Research and Development Command, Fort Detrick, MD; 2Charles River Analytics, Cambridge, MA; 3Virginia Polytechnic Institute and State University, Blacksburg, VA

MHSRS-19-01704 - Poster Session 2 - #344
Developing Automated Clinical Decision Support for Wound Infection Evaluation and Care: A Combined Imaging and Machine Learning Approach
Presentation Author: Dr. Petra Wilder-Smith
Tracie Lam, BS1, Bofan Song, PhD2, Ross Uthoff, PhD2, Jane Kim, MS3, Saba Ranjbar, MS1, Joann Phan, MS1, Thair Takesh, DDS, PhD1, Allon Hochbaum, PhD1, Katrine Whiteson, PhD1, Rongguang Liang, PhD2, Manuela Martins-Green, PhD3, Petra Wilder-Smith, DDS, DMD, PhD1
1University of California, Irvine, CA; 2University of Arizona, Tucson, AZ; 3University of California, Riverside, CA

MHSRS-19-01799 - Poster Session 2 - #345
A Wearable System Which Reduces Motion Sickness and Improves Recovery of Balance
Presentation Author: Dr. Didier Depireux
Didier A. Depireux1,2, Thomas Hardart1, Jack Daggitt1, Jonathan Akers1, Samuel Owen1
1Otolith Labs, Washington, DC; 2University of Maryland School of Medicine, Baltimore, MD

MHSRS-19-01844 - Poster Session 2 - #346
Miniaturized Continuous Lactate Monitor with Additional Analyte Monitoring Capability for Real-time Injury Status Assessment
Presentation Author: Dr. Avid Najdahmadi
Avid Najdahmadi, PhD, John Weidling, PhD; Sean White, PhD; Samir Shreim, PhD, Mark Keating, PhD, Elliot Botvinick, PhD
Beckman Laser Institute, Irvine, CA

MHSRS-19-01848 - Poster Session 2 - #347
Development of an Application Specific Integrated Circuit Based Field Deployable Near-infrared Spectroscopy System
Presentation Author: Dr. Timothy Quang
Timothy Quang, PhD1, Jesse Lam, BS1, Saba Mohammadi, BS1, Siavash Yazdi, PhD1, Amanda Durkin, BS1, Brian Hill, MS1, Thomas O’Sullivan, PhD2, Michael Green, PhD2; Matthew Brenner, MD1, Bruce J Tromberg, PhD1,3
1University of California Irvine, Irvine, CA; 2University of Notre Dame, Notre Dame, IN; 3National Institute of Health, Bethesda, MD

MHSRS-19-01856 - Poster Session 2 - #348
Detection of Internal Bleeding Through Optical Measurements of Draining Lymph Nodes
Presentation Author: CAPT Judith Runnels
Judith M. Runnels, PhD1,2, Clemens Alt, PhD1,2, Charles P Lin, PhD1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Boston, MA

MHSRS-19-01875 - Poster Session 2 - #349
Persistent Access to Tactical Casualty Health
Presentation Author: Dr. Ryan Myers
Ryan Myers1, James Beach2, Gordon Hirschman1, Ron Yeaw2
1Vivonics, Inc, Bedford, MA; 2Telemedicine and Advanced Technology Research Center, Fort Gordon, GA

MHSRS-19-01948 - Poster Session 2 - #350
Novel Monitoring of Tissue Microvasculature Oxygenation Using Resonance Raman Spectroscopy
Presentation Author: Mrs. Amanda Pennington
Amanda J. Pennington, MS, Mohamad H. Tiba, MD, MS, Brandon C. Cummings, BS, Varisha Essani, Claire Roberge, Kyle Gunnerson, MD, Kevin R. Ward, MD
University of Michigan, Ann Arbor, MI

MHSRS-19-01985 - Poster Session 2 - #351
From the Desk (Dexterous Surgical Skill) to the Battlefield - A Robotics Exploratory Study
Presentation Author: Dr. Juan Wachs
Natalia Sanchez-Tamayo1, Glebys Gonzalez1, Naveen Madapana1, Molly O’Brien3, Yexiang Xue, PhD1, Richard Voyles, PhD1, Vaneet Aggarwal, PhD1, Gregory Hager, PhD3, MAJ Andrew W Kirkpatrick, CD, MD, MHSR, FRCSC, FACS4,5, MAJ Steve Overholser, MD, FACS6, Juan Wachs PhD1,2
1Purdue University, West Lafayette, IN; 2Indiana University School of Medicine, Indianapolis, IN; 3Johns Hopkins University, Baltimore, MD; 4Foothills Medical Centre Calgary, Alberta, Canada; 5Forces Medical Services Ottawa, Ontario, Canada; 6Womack Army Medical Center, Fort Bragg, NC

MHSRS-19-02120 - Poster Session 2 - #352
Movement and Maneuver Controls for Unmanned Casevac
Presentation Author: Mr. Mitchell Bauer
Mitchell Bauer, Kristin Cable
Cornerstone Research Group, Miamisburg, OH

MHSRS-19-02154 - Poster Session 2 - #353
Development and Validation of Low Cost 3D Printed Anatomical Models for Pre-surgical Planning and Clinical Education
Presentation Author: Mr. David Salazar
David Salazar, BS1, Justin Cramer, MD1, Nicholas Markin, MD1, Gabe Linke2, Jorge Zuniga, PhD1
1University of Nebraska at Omaha, Omaha, NE; 2Children’s Hospital and Medical Center, Omaha, NE
Bioprinting in Austere Military Environments: Results and Design Considerations
Presentation Author: Dr. Joel Gaston
Joel Gaston, LTC Jason Barnhill, Kenneth Church, Vincent Ho
1Uniformed Services University of the Health Sciences, Bethesda, MD; 2The Geneva Foundation, Tacoma, WA; 3U.S. Military Academy, West Point, NY; 4NScrypt Inc, Orlando, FL

A National Survey of Radiation Oncologists and Urologists on Proton Beam Radiotherapy and Robotic Surgery for Localized Prostate Cancer
Presentation Author: Dr. Luke Bidikov
Luke Bidikov, MD, Paul Maroni, MD, Thomas J. Pugh, MD, Janet Kukreja, MD, Sameer K. Nath, MD, Rodrigo R. Pessoa, MD, PhD, Simon P. Kim, MD, MPH
1University of Colorado, Aurora, CO; 2University, Cancer Outcomes and Public Policy Effectiveness Research Center, New Haven, CT

Creating an Automated, Enhanced Lund Browder Diagram to Enable More Accurate and Timely Burn Wound Annotations
Presentation Author: Mr. Gregory Rule
Gregory Rule, MS, PE, Chris Argenta, PhD, Greg Foderaro, PhD, Thomas Paniagua, Jose Salinas, PhD, Maria Serio-Melvin, MSN, RN, Craig A. Fenrich, BS, Mark Espinoza, BS, Sena R. Veazey, MS, Jeremy C. Pamplin, MD

Prehospital Point Of Care Testing for the Prediction of Lifesaving Interventions in Trauma Patients
Presentation Author: Dr. Shiming Yang
Samuel M. Galvagno, MD, Howard Hu, BS, Yao Li, PhD, Douglas Floccare, MD, Peter Rock, MD, Shiming Yang, PhD, Robert Sikorski, MD, Catriona Miller, PhD, Joseph DuBose, MD, Colin F. MacKenzie, MD, Justin Richards, MD, Micheal Mazzeffi, PhD, Thomas Scalea, MD, Peter Hu, PhD
1University of Maryland School of Medicine, Baltimore, MD; 2Maryland Institute for Emergency Medical Services Systems, Baltimore, MD; 3U.S. Air Force School of Aerospace Medicine, San Antonio, TX

In-flight Vital Signs Predict Emergency and Massive Blood Transfusion after Trauma
Presentation Author: Dr. Shiming Yang
Shiming Yang, Peter Hu, PhD, Chien-Yu Lin, PhD, Colin Mackenzie, MD, Catriona Miller, PhD, Thomas Karathanos, PhD, Douglas Floccare, MD, Christopher Winans, BS, Samuel Galvagno, MD, Thomas Scalea, MD, Peter Rock, MD
1University of Maryland School of Medicine, Baltimore, MD; 2U.S. Air Force School of Aerospace Medicine, San Antonio, TX; 3Maryland Institute for Emergency Medical Services Systems, Baltimore, MD; 4University of Maryland Medical Center, Baltimore, MD

Modeling Healthcare: Capacity, Access and Resource Allocation
Presentation Author: COL Mary Lowe Mayhugh, USA Retired
Mary Lowe Mayhugh, MA, MBA, Deborah A. G. Ercolini, MS, Matthew Henchey, PhD, Brendan F. Smith, MS
**MHSRS-19-02364 - Poster Session 2 - #360**

**Benefits and Design Consideration of a Platform for an Autonomous Medical System**

Presentation Author: Ms. Tracy Rausch
Tracy Rausch, CCE
DocBox, Waltham, MA

**MHSRS-19-02377 - Poster Session 2 - #361**

**Integrated Platform for Point-of-Care Testing**

Presentation Author: Mr. Robert Granier
Robert Granier¹, Benjamin Crocker, MD², Ramin Haghgooie, PhD³
¹General Fluidics Corporation, Waltham, MA; ²Massachusetts General Hospital, Boston, MA; ³Flexion Therapeutics, Inc, Burlington, MA

**MHSRS-19-02437 - Poster Session 2 - #362**

**Reliability and Validity of A-mode Ultrasound to Quantify Body Composition**

Presentation Author: Dr. Michael Willey
Nathan Hendrickson, MD¹, John Davison, MPH¹, Luke Schiller, BS¹, Michael Willey, MD¹
University of Iowa Hospitals and Clinics, Iowa City, IA

**MHSRS-19-02492 - Poster Session 2 - #363**

**Convolutional-neural-network Based Machine-learning Interpretation of Lung Ultrasound Images: Ultrasound Detection of Lung Complications in Patients with Hematological Malignancies**

Presentation Author: Dr. Meihua Zhu
Meihua Zhu, MD, PhD¹, Cynthia Gregory, PhD¹, Richard Maziarz, MD¹, Brandon Hayes-Lattin, MD¹, Hua Xie, MD, PhD¹, James Jones, BA¹, Xijun Zhang, MD¹,², Jack Lazar, BA¹, Amber Halse, BA¹, Fen Wang, MD, PhD¹,³, Sourabh Kulhare, MS⁴, Xinliang Zheng, PhD⁴, Courosh Mehanian, PhD⁴, Liming Hu, PhD⁴, Benjamin Wilson, PhD⁴; Mike Stone, MD¹,⁵, Kenton Gregory, MD¹,⁴
¹Oregon Health & Science University, Portland, OR; ²The People's Hospital of Zhengzhou University, Zhengzhou, China; ³Fudan University, Shanghai, China; ⁴Intellectual Ventures Laboratory, Bellevue, WA; ⁵Legacy Emanuel Hospital, Portland, OR

**MHSRS-19-02537 - Poster Session 2 - #364**

**Building A "Real" Telemadicine Ultrasound Supported Medical Intervention Mousetrap: Creating A Practical Multi-modality Telementoring Capacity for Far Forward Resuscitation**

Presentation Author: Ms. Jessica Mckee
Jessica L Mckee, MSc¹, Paul McBeth, FRCS⁵, Juan Wachs, PhD¹,²,³, Douglas Hamilton, MD¹, Chad G Ball, FRCSC¹, Lawrence M Gillman, FRCSC⁴, Maj Andrew W Kirkpatrick, FRCSC¹,⁵
¹Foothills Medical Centre Calgary, Alberta, Canada; ²Purdue University, West Lafayette, IN; ³Indiana School of Medicine, Indianapolis, IN; ⁴University of Manitoba, Winnipeg, Manitoba, Canada; ⁵Canadian Forces Medical Services Ottawa, ON, Canada

**MHSRS-19-02545 - Poster Session 2 - #365**

**Noninvasive Breath Analysis Using NASA E-nose Technology for Health Assessment**

Presentation Author: Dr. Jing Li
Jing Li, PhD, Ami Hannon, MS, David Loftus, MD, Tore Straume, PhD
NASA Ames Research Center, Moffett Field, CA
Implementation of a Modified Early Warning System Real-time Clinical Decision Support Application to Evaluate Interoperable Medical System Capabilities
Presentation Author: Dr. Julian Goldman
Julian M. Goldman, MD, Dave Arney, Barbara Dumas, Simon Kelly
Massachusetts General Hospital, Boston, MA

Applicability of the Automotive Levels of Automation To Autonomous Medical Systems
Presentation Author: Dr. Julian Goldman

ENROUTE CARE FUTURE RESEARCH CHALLENGES

Vibration Alone Induces the Inflammatory Response in an Experimental Animal Model
Presentation Author: CDR Carl Goforth
Yaron Dayani¹, ², Andrea White ², ³, Francoise Arnaud ², ³, Jordan Hubbell ², ³, Alexander Connor ², ³, Fang Zhou ², ³, Joel Duberstein ², ³, Meghan Patterson ², ³, Debra Malone ⁴, ⁵, Anke Scultetus ²
¹Naval Medical Research Center, Silver Spring, MD; ²Uniformed Services University, Bethesda, MD; ³Henry M. Jackson Foundation, Rockville, MD; ⁴Walter Reed Army Institute of Research, Silver Spring, MD; ⁵Walter Reed National Military Medical Center, Bethesda, MD

Effect of Blood Flow on Platelets, Leukocytes, and Extracellular Vesicles in Thrombosis of Simulated Extracorporeal Circulation
Presentation Author: Dr. Andrew Meyer
Andrew D. Meyer, MD, MS¹, ², Anjana Raghunath MS¹, Robin Kamucheka², Crystal Lafleur², Nigel Mackman PhD³, Andriy Batchinsky, MD², Andrew P. Cap, MD, PhD²
¹University of Texas Health Science Center, San Antonio, TX; ²U.S. Army Institute of Surgical Research, Ft. Sam Houston, TX; ³University of North Carolina at Chapel Hill, NC

Development and Evaluation of a Trans-cutaneous Tissue Oxygenation Wearable Device
Presentation Author: Dr. Juan Cascales

Validation and Training Requirements Definition for Effective Combat Casualty Care Handoff Operations
Presentation Author: Dr. Camilla Knott
Camilla C. Knott, PhD¹, Kerri Chik¹, Anna Grome¹, Joseph Keebler, PhD², Col Douglas “Boots” Hodge (R)², Maj Lewis Christensen³, CDR Henry Phillips IV, PhD⁴, LCDR Lee W. Sciarini, PhD⁵
¹TiER1 Performance Solutions, Washington, DC; ²Embry Riddle Aeronautical University, Daytona Beach, FL; ³Keebler Air Force Base, Biloxi, MS; ⁴Naval Air Warfare Center Training Systems Division, Pensacola, FL; ⁵Naval Survival Training Institute, Orlando, FL

Joint Trauma System Medical Enroute Care Registry (MERCURY): A Six Month Glimpse of Data
Presentation Author: Dr. Kimberly Smith
A Groundbreaking Method to Safely Transport Medical & Pharma Items
Presentation Author: Mr. Robert Allan Sailer
Robert Sailer, MS¹, Maria Grazia Verardi, MS², William Refiling, PE¹, Mark Holzwanger, BAcc
¹North Dakota State University, Fargo, ND; ²Project Management Institute, Newtown Square, PA

The Effect of Experience on Critical Care Air Transport Team Coordination
Presentation Author: Dr. Frank Robinson
F. Eric Robinson, PhD¹, LtCol Sarah L. Huffman, PhD², MAJ Christopher Stucky, PhD³, Leslie Drummond, PhD¹, Clayton Rothwell, PhD⁴, Maj Daniel Bevington, BSN²
¹Naval Medical Research Unit Dayton, Wright-Patterson Air Force Base, OH; ²United States Air Force School of Aerospace Medicine, Wright-Patterson Air Force Base, OH; ³Womack Army Medical Center, Ft. Bragg, NC; ⁴Ohio State University Wexner Medical Center, Columbus, OH

A Novel Test of Night Vision Goggle Compatibility of Medical Carry On Equipment
Presentation Author: Dr. Marcy Conti
William McLean, MS, OD¹,³, SPC Ivan Herrera¹
¹U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL; ²Goldbelt, Inc, Juneau, AK; ³Voluntary Emeritus Program, Fort Rucker, AL

Aeromedical-Relevant Hypobaria Exposure-Induced Oxidative Stress in Rats with Mild Traumatic Brain Injury Facilitates Homocysteine Flux Through the Transsulfuration Pathway: A Compensatory Mechanism to Mitigate the Secondary Injury Process
Presentation Author: Dr. Flaubert Tchantchou
Flaubert Tchantchou¹,², Catriona Miller³, Fengying Li¹,², Lyric K. Ramsue¹,², Molly Goodfellow¹,², Gary Fiskum¹,²
¹University of Maryland School of Medicine, Baltimore, MD; ²U.S Air Force School of Aerospace Medicine, Wright-Patterson AFB, OH

Space Expeditionary Medicine: Miniature, Low-power, Low-mass, Autonomous Robots for Lunar and Expeditionary Surgery
Presentation Author: Dr. Dmitry Oleynikov
Dmitry Oleynikov, MD¹, Ka-Chun Siu, PhD¹, Nathan Bills, MBA, PhD², Shane Farritor, PhD¹,²
¹University of Nebraska Medical Center, Omaha, NE; ²University of Nebraska-Lincoln, Lincoln, NE

Interoperability Challenges in ERC: Exploring Combined Training and Collaborative Research Exchange Opportunities with International Partners
Presentation Author: Lt Col Sarah Huffman
INNOVATIONS IN MEDICAL TECHNOLOGIES TO ADVANCE ENROUTE PATIENT CARE

MHSRS-19-00068 - Session 2 - #379
Remote Health Monitoring of Patient with Glaucoma
Presentation Author: LTC Jennifer Stowe

MHSRS-19-00163 - Session 2 - #380
Smart Threads as Sutures and Bandages for Monitoring and Treatment of Wounds
Presentation Author: Mr. Sameer Sonkusale
Sameer Sonkusale, PhD, Pooria Mostafalu, PhD, Trupti Terse, PhD, Rachel Owyeung, Meera Punjiya, Hojat Rezaei Nejad, PhD, Aydin Sadeqi
Tufts University, Medford MA

MHSRS-19-00468 - Session 2 - #381
Telemedicine Training for Novice Providers during Underway Naval Operations
Presentation Author: LCDR Art Ambrosio
LCDR Edward Utz, MD¹, LT Kastley Marvin, MD¹, 2d Lt Tarah Woodle², 2d Lt Alison Snyder², 2d Lt Norah Shemery², ENS Vikram Mukherjee², CAPT Konrad Davis, MD¹, LCDR Art Ambrosio, MD, MBA¹
¹Medical Center San Diego, San Diego, CA; ²Uniformed Services University of the Health Sciences, Bethesda, MD

MHSRS-19-00622 - Session 2 - #382
Rapid Reconstitution Packages for Storage and Delivery of Emergency Drugs in Combat Theater
Presentation Author: Dr. Noel Elman

MHSRS-19-00667 - Session 2 - #383
Transcontinental Dialysis at 30,000 Feet
Presentation Author: Capt Paul Pikman
Thomas Ross, BSN¹, Shannon Diffley, BSN², Daniel Pearson, MD²
¹81st Medical Group, Biloxi, MS; ²88th Medical Group, Dayton, OH

MHSRS-19-00678 - Session 2 - #384
Real-time, Sensitive, Monitoring of Cholesterol Levels Using a Microfluidic Device
Presentation Author: Dr. Abhinav Bhushan

MHSRS-19-00757 - Session 2 - #385
A Novel Index from a Wearable Continuous Wave Ultrasound Patch Instantly Detects Fall In Cardiac Output
Presentation Author: Dr. Jon-Emile Kenny
J-ES Kenny¹, AE Eibl¹, JK Eibl¹, BF Long², C Demore³, PN Burns³
¹Flosonics Medical, Sudbury, Ontario, Canada; ²Health Science North Research Institute, Sudbury, Ontario, Canada; ³Sunnybrook Research Institute, Toronto, Ontario, Canada

MHSRS-19-00784 - Session 2 - #386
Baseline Proportions of False Negatives in Simulated 12-Core Templated Transrectal Ultrasound Prostate Biopsy
Presentation Author: Dr. Samsun Lampotang
Assessing the Feasibility and Accuracy of a Novel Physiological Monitoring Device for Service Members With Traumatic Brain Injury
Presentation Author: Mr. Dylan Scarton

Developing and Validating an Accelerated Extracorporeal Membrane Oxygenation Course for Military Critical Care Clinicians Using Yorkshire Swine (Sus Scrofa)
Presentation Author: Lt Col Joseph Maddry

Advancing Combat Casualty Evacuation: Patients Amenable to Aeromedical Evacuation via Unmanned Aerial Vehicles
Presentation Author: Lt Col Joseph Maddry

Go with the Flow – Comparison of Acellular Solutions for Ultraportable Ex-vivo Perfusion of Amputated Limbs
Presentation Author: Dr. Valentin Haug

Comparison of the Effects of Motion and Dirt on Hand-held and Fingertip Pulse Oximeters Accuracy
Presentation Author: CPT Avishai Tsur
MHSRS-19-01627 - Session 2 - #392
**High-end Diagnostics in the Field and at the Point Of Care**
Presentation Author: Dr. Avishay Bransky
Avishay Bransky, PhD, Yaara Ben-Yosef, PhD, Robert Christenson, PhD, MD
1PixCell Medical, Yokneam Ilit, Israel; 2University of Maryland School of Medicine, Baltimore City, MD

MHSRS-19-01684 - Session 2 - #393
**Patient Experience and Perception of Using Telehealth for Post-surgery Wound-healing Follow-ups at the AMEDD Medical Centers: Results From a Proof-of-concept Study**
Presentation Author: Dr. Vahe Heboyan
LTC Byron Faler, MAJ Joel Brockmeyer, Joseph Woods, MD, Gianluca De Leo, PhD
1Dwight D. Eisenhower Army Medical Center, Ft. Gordon, GA; 2Augusta University, Augusta, GA

MHSRS-19-01721 - Session 2 - #394
**Micro-oxygen Sensors Measure Tissue Oxygen in a Porcine Radiation Model**
Presentation Author: Mr. Scott Nichols
Scott P. Nichols, PhD, Waylon Weber, PhD, Melanie Doyle-Eisele, PhD, Natalie A. Wisniewski, PhD
1Profusa, College Station, TX; 2Lovelace Biomedical and Environmental Research Institute, Albuquerque, NM; 3Profusa, South San Francisco, CA

MHSRS-19-01824 - Session 2 - #395
**Noninvasive Sub-organ Ultrasound Stimulation for Targeted Neuromodulation**
Presentation Author: Mr. Jeffrey Ashe
Jeff Ashe, MS, Chris Puleo, Victoria Cotero, John Graf, Ying Fan, Kirk Wallace
GE Research, Niskayuna, NY

MHSRS-19-01846 - Session 2 - #396
**Administration of Purified Exosome Product for Sciatic Nerve Autograft Regeneration**
Presentation Author: Dr. Chunfeng Zhao
Akira Ikumi, MD, Anne Gingery, PhD, Tony Chieh-Ting Huang, MD, Chunfeng Zhao, MD, Steven L Moran, MD, Soulmaiz Boroumand, PhD, Atta Behfar, MD, PhD, Alexander Y Shin, MD, Peter C Amadio, MD
1Mayo Clinic, Rochester, MN; 2Mayo Clinic College of Medicine, Rochester, MN

MHSRS-19-02002 - Session 2 - #397
**Using Modular Principles to Efficiently Design and Build New Simulators and Part Task Trainers for Different Healthcare Procedures**
Presentation Author: Dr. Samsun Lampotang
Samsun Lampotang, PhD, William T. Johnson, BS, Andre Bigos, David E. Lizdas, BS
University of Florida, Gainesville, FL

MHSRS-19-02034 - Session 2 - #398
**The Wound Healing Effects of a Next-generation Advanced Antimicrobial Silver Hydrofiber Wound Dressing on Deep Partial Thickness Wounds Using a Porcine Model**
Presentation Author: Mr. Joel Gil
Joel Gil, Alexander Higa, Jie Li, Jose Valdes, Michael Solis, Philip Bowler, Stephen Davis
1University of Miami Miller School of Medicine, Miami, FL; 2ConvaTec Limited, Deeside, Flintshire, UK
**MHSRS-19-02058 - Session 2 - #399**

**A Light-weight, Portable CT System for Forward Surgical and En Route Care**

Presentation Author: Dr. Rajiv Gupta

Avilash Cramer, 1,2, Jamie Caines, 3, Dufan Wu, 1, Kai Yang, 1,3, Tim Moulton, 4, Wolfgang Krull, 1

1Massachusetts General Hospital, Boston, MA; 2Massachusetts Institute of Technology, Cambridge, MA; 3Harvard University, Boston, MA; 4Motim Industries, Inc, Newport, RI

**MHSRS-19-02196 - Session 2 - #400**

**Dependability and Adaptability in a Family of Surgical Robots**

Presentation Author: Dr. Dmitry Oleynikov

Myra B. Cohen PhD, 1,2, Hamid Bagheri PhD, 2,3, Niloofar Mansoor, BSc, 3, Jonathan A. Saddler PhD, 1, Bruno Silva, BS, 3, Lisong Xu, PhD, 2,3, Shane Farritor, PhD, 2,3, Dmitry Oleynikov MD, 1,4

1Iowa State University, Ames, IA; 2University of Nebraska Medical Center, Omaha, NE; 3University of Nebraska-Lincoln, Lincoln, NE; 4University of Nebraska Medical Center, Omaha, NE

**MHSRS-19-02212 - Session 2 - #401**

**Continuous Blood Pressure Band-aid© Sensor for Real-time Beat-to-beat Monitoring of the Warfighter**

Presentation Author: Dr. Michelle Khine

**MHSRS-19-02269 - Session 2 - #402**

**Designing and Building Ruggedized Microfluidic Cards for Point Of Care Applications**

Presentation Author: Mr. Matt Coleman

Matthew A. Coleman, PhD, 1,2, David Loftus, MD, 3, Michael Triplet, BS, 1, Erik Mukerjee, PHD, 1, Jing Li, PhD, 3, Tore Straume, PhD, 3, Frederic Zenhausern, PhD, 4, Matthias Frank, PhD, 1,2

1Lawrence Livermore National Laboratory. Livermore, CA; 2University of California at Davis, Sacramento, CA; 3NASA Ames Research Center, Mountain View, CA; 4Univ of Arizona, Phoenix, AZ

**MHSRS-19-02354 - Session 2 - #403**

**Manufacturing of Flexible Wireless Devices for Human Health and Performance Monitoring**

Presentation Author: Dr. Azar Alizadeh

Azar Alizadeh, 1, Andrew Burns, 1, Mark Doherty, 1, Aghogho Obi, 1, Matthew Misner, 1, Mark Poliks, 2, Gurvinder Singh Kinda, 2, Shannon Duggan, 3, Nathan Pretorius, 4, Art Wall, 4

1GE Global Research, Niskayuna, NY; 2Binghamton University, Binghamton, NY; 3DuPont Silicon Valley Innovation Center, Sunnyvale, CA; 4NextFlex, San Jose, CA

**MHSRS-19-02366 - Session 2 - #404**

**Development of a Point Of Care Technology for Military Medical Applications in Austere Environments**

Presentation Author: Dr. David Loftus

David Loftus, MD, PhD, 1, Tore Straume, PhD, 1, Jing Li, PhD, 1, Matt Coleman, PhD, 2, Erik Mukerjee, PhD, 2, Matthias Frank, PhD, 2, M. Austin Johnson, MD, PhD, 3,4, Ian Stewart, MD, 4, Jessica Cromheecke, MS, 4, Leonard Tato, PA, 4

1NASA Ames Research Center, Moffett Field, CA; 2Lawrence Livermore National Laboratory, Livermore, CA; 3University of California, Davis, CA; 4Travis Air Force Base, Fairfield, CA

**MHSRS-19-02637 - Session 2 - #405**

**24-hour Ex Vivo Perfusion with Acellular Solution Enables Successful Replantation of Porcine Forelimbs**

Presentation Author: Dr. Valentin Haug

Valentin Haug MD, 1,4, Nico Krezdom MD, 1,2, Fiona Macleod, 3, Sotirios Tasigorgos MD, 1, Marvee Turk MD, 1, Luccie Wo MD, 1, Harriet Kwanaka MS, 5, Rachel Lopdrup, 1, Branislav Kollar MD, 1, Maximilian Kueckelhaus, 1, Elazer Edelman MD, PhD, 3,1, Bohdan Pomahac MD, 1
EFFECTS OF CARE ENVIRONMENTS ENROUTE

MHSRS-19-00915 - Poster Session 2 - #406
Pre-surgical Environmental Stress Activates the Pituitary to Produce Increased Levels of Prolactin and Luteinizing Hormone in the Porcine Air Transport Stress Model
Presentation Author: Dr. Suizhao Wang
Suizhao Wang, MD, PhD\(^1\), Thomas Shaak, PhD\(^1\), Richard Kelly, MAJ, USA, VTC III\(^2\), Nicholas Stassen, Maj USAF\(^1\)
\(^1\)Keesler Medical Center, Biloxi, MS; \(^2\)Fort Bragg, Fayetteville, NC

MHSRS-19-01016 - Poster Session 2 - #407
Oxygen Supplementation of Injured Swine during Flight
Presentation Author: Dr. Francoise Arnaud
Andrea N. White, BS\(^1,3\), Jordan Hubbell, BS\(^1,3\), Joel Duberstein, BS\(^1,3\), Alexander Connor, BS\(^1,3\), Fang Zhou Yang, BS\(^1,3\), Melissa Mehalick, PhD\(^1,3\), Yaron Dayani, PhD\(^1,3\), CDR Carl Goforth, NC, USN\(^1,2\), Anke H. Scultetus, MD\(^1,2\)

MHSRS-19-01115 - Poster Session 2 - #408
Vibration Does Not Affect Short-Term Outcomes Following Traumatic Brain Injury in a Porcine Model
Presentation Author: Dr. Mackenzie Morris
Andrew D Jung, MD\(^1\), Mackenzie C Morris, MD\(^1\), Rosalie Veile, BS\(^1\), Lou Ann Friend, RVT\(^1\), Sabre Stevens-Topie, RVT\(^2\), Jennifer L McGuire, PhD\(^1\), Brandon Foreman, MD\(^1\), Jed A. Hartings, PhD\(^1\), Timothy A Pritts, MD, PhD\(^1\), Amy T Makley, MD\(^1\), Michael D Goodman, MD\(^1\), Joel Elterman, MD\(^2\)
\(^1\)Univ of Cincinnati, Cincinnati, OH; \(^2\)U.S. Air Force School of Aerospace Medicine, Wright-Patterson AFB, OH

MHSRS-19-01558 - Poster Session 2 - #409
The Swine Distress Assessment Score Sheet Identified Pre-surgical Stress in the Porcine Air Transport Stress Model
Presentation Author: Dr. Richard Kelly
MAJ Richard Kelly III, USA\(^2\), Thomas Shaak, PhD\(^1\), Suizhao Wang, MD, PhD\(^1\), Maj Nicholas Stassen, USAF\(^1\)
\(^1\)Keesler Medical Center, Biloxi, Mississippi; \(^2\)Fort Bragg, Fayetteville, NC

MHSRS-19-02238 - Poster Session 2 - #410
Optimal Physical Space for En Route Care: Medic Posture and Injury Survey
Presentation Author: Ms. Laura Kroening
Laura Kroening\(^1,2\), Sandra Conti\(^1,3\), Jeff Molles\(^1,2\), Amy Lloyd\(^1,3\), Rachel Kinsler\(^1\)
\(^1\)U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL; \(^2\)Oak Ridge Institute for Science and Education, Oak Ridge, TN; \(^3\)Goldbelt Frontier LLC, Alexandria, VA

APPROACHES FOR MONITORING WARFIGHTER BLAST-RELATED EXPOSURES IN TRAINING TO DEVELOP EFFECTIVE SAFETY STANDARDS

MHSRS-19-00284 - Poster Session 2 - #411
A DoD-wide Survey Study to Characterize Service Member Blast Exposure

Presentation Author: Lt Claire Modica

LT C. M. Modica 1, M. J. Egnoto 2,3, W. Car 2,4, CDR C. W. Goforth 1,5, S. T. Ahlers 1

1 Naval Medical Research Center, Silver Spring, MD; 2 Walter Reed Army Institute of Research, Silver Spring, MD;
3 Geneva Foundation, Silver Spring, MD; 4 Oak Ridge Institute for Science and Education, Oak Ridge, TN;
5 Uniformed Services University of the Health Sciences, Bethesda, MD

MHSRS-19-00533 - Poster Session 2 - #412
Development of Field Deployable Technologies to Detect Persistent TBI

Presentation Author: Dr. Steven Kornguth

Steven Kornguth, PhD 1, Steven Steffensen, MD 1, Henry G Rylander, MD 1, Thomas Milner, PhD 1, Julia Campbell, PhD 1, Alex Athey, PhD 1, David Arnold, BA 1, J Neal Rutledge, MD 1, Brian Fagan, PhD 2, Sikhanda Satapathy, PhD 2, Scot Engel, PhD 3

1 The University of Texas, Austin, Austin, TX; 2 The Army Research Laboratories, Aberdeen Proving Ground, MD; 3 The Intrepid Spirit Center, Ft. Hood, TX

MHSRS-19-00631 - Poster Session 2 - #413
The Effect of Peak Overpressure and Impulse on the Reflected Pressure: An Experimental Study Using 2D Planar Geometry Model with Implications for Occupational Exposure Measurements

Presentation Author: Dr. Maciej Skotak

Jose J. Rodriguez, Eren Alay, MS, Maciej Skotak, PhD, Namas Chandra, PhD

New Jersey Institute of Technology, Newark, NJ

MHSRS-19-00772 - Poster Session 2 - #414
A New Innovative Sensor and Dosimeter Technology for Blunt Impact and Blast Over-pressure Exposure Measurement and Injury Prediction

Presentation Author: Mr. Stephen Pruitt

Stephen D Pruitt, MR, Michael Beckage, MR

Diversified Technical Systems, Inc, Seal Beach, CA

MHSRS-19-00905 - Poster Session 2 - #415
Effects of Animal Orientation on Brain Responses to Primary Blast

Presentation Author: Dr. Ginu Unnikrishnan

Ginu Unnikrishnan, PhD 1,2, Haojie Mao, PhD 1,2, Aravind Sundaramurthy, PhD 1,2, Venkata Sajja, PhD 3, Stephen van Albert, MS 3, Joseph Long, PhD 3, Jose Rubio, PhD 1,2, Dhananjay Subramaniam, PhD 1,2, Jaques Reifman, PhD 1

1 U.S. Army Medical Research and Development Command, Fort Detrick, MD; 2 The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, MD; 3 Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-00929 - Poster Session 2 - #416
The Current and Potential Future Roles of Hearing Conservation Programs in Monitoring the Effects of Repetitive Blast Exposure in Military Populations

Presentation Author: Dr. Douglas Brungart

Douglas S. Brungart 1, Benjamin M. Sheffiled 2, LaGuinn Sherlock 2, Christopher Montagne 3, Megan Eitel 3, Stefanie Kuchinsky 1

1 Walter Reed National Military Medical Center; 2 U.S. Army Public Health Center; 3 Henry M. Jackson Foundation
Measurements of Infrasound Signatures from Grenade Blast During Training
Presentation Author: Dr. Alessio Medda
Alessio Medda, PhD¹, Rob Funk, PhD¹, Krish Ahuja, PhD¹, Gary Kamimori, PhD²
¹Georgia Tech Research Institute, Atlanta, GA; ²Walter Reed Army Institute of Research, Silver Spring, MD

How Do You Characterize “Breachers' Brain?”
Presentation Author: Dr. Walter Carr
Elena Polejaeva, BS¹, Walter Carr, PhD²³, Kristine C. Dell, BA⁴, Eric M. Wassermann, MD⁵
¹University of Florida, Gainesville, FL; ²Walter Reed Army Institute of Research, Silver Spring, MD; ³Oak Ridge Institute for Science and Education, Oak Ridge, TN; ⁴The Pennsylvania State University, University Park, PA; ⁵National Institute of Neurological Disorders and Stroke, Bethesda, MD

Soldier Self-report in a Combat Zone: Subclinical Outcome Associations with Blast Exposure
Presentation Author: Dr. Walter Carr
Walter Carr, PhD¹², Lyndon A. Riviere, PhD², Michael J. Egnoto, PhD²
¹Oak Ridge Institute for Science and Education, Oak Ridge, TN; ²Walter Reed Army Institute of Research, Silver Spring, MD

Systematic Review of Low Level Blast Exposure – Clinical Effects on Humans
Presentation Author: Dr. Heather Belanger¹ U.S. Special Operations Command, Tampa, FL; ²Calhoun International, Tampa, FL; ³9Line LLC, Tampa, FL; ⁴University of South Florida, Tampa, FL

Comparison of In-brain Pressure in Blast for Surrogate Headforms with Gel-fluid Interface and Gel-skull Interfaces
Presentation Author: Dr. Amit Bagchi
Chen, Y.¹, Kamimori, G.H.², Horner, D.M.³ and O'Shaughnessy, T.J.¹
¹U.S. Naval Research Laboratory, Washington, DC; ²Walter Reed Army Institute of Research, Silver Springs, MD; ³KBR/Wylie, Columbia, MD

Computational Models of Protein Concentrations Following Repeated Blast Overpressure Exposure
Presentation Author: Mr. Jonathan Statz
Jonathan Statz, MS¹², Venkatasivasaisujith Sajja, PhD³, Lanier Heyburn, PhD³, Rania Abutarboush, PhD¹², Samantha Goodrich, BS¹², Rodrigo Urioste, BS³, Andrew Batuure, BS³, Donna Wilder, MS³, Joseph Long, PhD³, Stephen Ahlers, PhD¹
¹Naval Medical Research Center, Silver Spring, MD; ²The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, MD; ³Walter Reed Army Institute of Research, Silver Spring, MD

The Role of Acoustic Signatures in Overpressure Symptomatology
Presentation Author: Dr. Sujith Sajja
VS Sajja, PhD, CR LaValle, MS, JE Salib, MS, AC Misistia, MS, MY Ghebremedhin, MS, WS Carr, PhD, MJ Egnoto, PhD, JB Long, PhD, GH Kamimori, PhD
Walter Reed Army Institute of Research, Silver Spring, MD

Force Preservation through Individual Blast Exposure Surveillance
Presentation Author: Dr. David Borkholder
BlackBox Biometrics, Inc, Rochester, NY
Experimental Models of TBI Using Novel Controlled Dynamic Rotation Devices
Presentation Author: Dr. Daniel Shedd, Ahmed Alshareef, J Sebastian Giudice, Kristen A Reynier, Matthew B Panzer, PhD
University of Virginia, Charlottesville, VA

Biofidelic Human Head Phantoms for Studies of Traumatic Brain Injury
Presentation Author: Dr. Suhas Vidhate, Kerwin, S. Vidhate, A.M. Willis, MD, PhD, Maj, R. Mejia-Alvarez, PhD
1Michigan State University, East Lansing, MI; 2San Antonio Military Medical Center, Fort Sam Houston, TX

Optimizing Helmet Pad Placement Using Computational Predicted Injury Pattern to Reduce mTBI
Presentation Author: Dr. Peter Matic, X. Gary Tan, PhD, Peter Matic, PhD
U.S. Naval Research Laboratory, Washington, DC

Characterization of the Performance of Human Torso and Animal Physical Models Exposed to Underwater Impulse Acoustics
Presentation Author: Dr. Brandon Casper, Matthew A. Babina, ME
Naval Submarine Medical Research Laboratory, Groton, CT

Formulation and Characterization of Apocynin Loaded Albumin Nanoparticle and its Pharmacotherapeutic Effects on Animal Model of Repeated Low-level Blast
Presentation Author: Dr. Namas Chandra
Venkatesan Perumal, Manisha Kannan, Kakulavarapu Rama Rao, Yuanwei Zhang, Kevin Belfield, Raj Gupta
1New Jersey Institute of Technology, Newark, NJ; 2U.S. Army Medical Research and Development Command, Fort Detrick, MD

Delineating the Roles of Resident Microglia and Infiltrating Monocytes in Causing Chronic Neuroinflammation and Behavioral Deficits Using a Mouse Model of Blast-induced Traumatic Brain Injury
Presentation Author: Dr. Namas Chandra
Madhuvika Murugan
New Jersey Institute of Technology, Newark, NJ

The Combat and Training Queryable Exposure/event Repository Operational Monitoring Program
Presentation Author: CDR Josh Duckworth
Todd Massow, Wallace Graves III, Eric Schneider, CDR Josh Duckworth
1Uniformed Services University of the Health Sciences, Bethesda, MD; 2University of Virginia, Charlottesville, VA; 3Johns Hopkins University, Baltimore, MD

The Effect of Impulse on Brain Pathology in an Animal Blast TBI Model: A Telltale Case Study for
Occupational Low-level Blast Human Studies?
Presentation Author: Dr. Maciej Skotak
Maciej Skotak, PhD, Eren Alay, MS, Kakulavarapu V. Rama Rao, PhD, and Namas Chandra, PhD
New Jersey Institute of Technology, University Heights, Newark, NJ

MHSRS-19-01893 - Poster Session 2 - #433
Occupational Blast Wave Exposure during Multiday .50 Caliber Rifle Course
Presentation Author: Dr. Maciej Skotak
Maciej Skotak, PhD1, Christina LaValle, MS2,4, Anthony Misistia, MS2,3, Michael J Egnoto, PhD2, Namas Chandra, PhD1, and Gary Kamimori, PhD2
1New Jersey Institute of Technology, University Heights, Newark, NJ; 2Walter Reed Army Institute of Research, Silver Spring, MD; 3Cherokee Nation Businesses; 4Geneva Foundation

MHSRS-19-02150 - Poster Session 2 - #434
Measuring Head Motion for TBI Detection and Prevention
Presentation Author: Mr. Ron Szalkowski
Ron Szalkowski1, Alice Lux Fawzi2, M. Masiur Rahaman, PhD2, Sushant Malave1, Haneesh Kesari, PhD2
1Team Wendy, Cleveland, OH; 2Brown University, Providence, RI

MHSRS-19-02171 - Poster Session 2 - #435
Dynamic and Static Stability in Experienced Breachers
Presentation Author: LCDR F. J. Haran
LCDR F. J. Haran, PhD1, C. Zampieri, PT, PhD2, E. M. Wasserman, MD2, E. Polejaeva, MS3, K. C. Dell4, LT C. M. Modica, PhD1, S. T. Ahlers, PhD1, and W. Carr, PhD5
1Naval Medical Research Center; 2National Institutes of Health; 3University of Florida, FL; 4The Pennsylvania State University, PA; 5Walter Reed Army Institute of Research, Silver Springs, MD

MHSRS-19-02339 - Poster Session 2 - #436
The VHA 4 Question TBI Screening Tool Effectively Identifies Individuals with TBI-related Multi-sensory Effects
Presentation Author: Dr. Felix Barker
Felix M. Barker, II, OD, MS1, Karen J. Hanson, PhD2, Lynn D. Greenspan, OD, PhD2,3, Bre L. Myers, AuD, PhD2, Kathleen Youse, PhD, CCC-SLP, BC-ANCDS2, Greta R. Bunin, PhD2, Linda Casser, OD2
1Vision Center of Excellence, Bethesda, MD; 2Salus University, Elkins Park, PA; 3Bryn Mawr Rehabilitation Hospital, Bryn Mawr, PA

MHSRS-19-02349 - Poster Session 2 - #437
Bioprinted 3D In Vitro Co-cultures of the Blood-brain Barrier for Testing The Effects Of Blast-related Overpressure
Presentation Author: Dr. Joel Gaston
Yeonho Kim1, Vincent Ho1, Joseph T. McCabe5
1Uniformed Services University of the Health Sciences, Bethesda, MD; 2The Geneva Foundation, Tacoma, WA; 3Food and Drug Administration, Silver Spring, MD

MHSRS-19-02397 - Poster Session 2 - #438
Blast Part 1: Deriving Safe Exposure Thresholds from Blast Sensor Data
Presentation Author: Dr. Tim Walilko
Tim Walilko PhD1, Suthee Wiri PhD1, Ted Argo PhD1, Christina Wagner PhD1, Mark Tommerdahl PhD2, Tim Bentley PhD3, Laila Zai PhD3
MHSRS-19-02429 - Poster Session 2 - #439
Blast Part 2: Establishing Safe Exposure Thresholds for Repeated Blast
Presentation Author: Dr. Tim Walilko
Tim Walilko, PhD1, Ted Argo, PhD1, Christina Wagner, PhD1, Suthee Wiri, PhD1, Mark Tommerdahl, PhD2, Tim Bentley, PhD3, Laila Zai, PhD3
1Applied Research Associates, Raleigh, NC; 2Cortical Metrics, Chapel Hill, NC; 3Lucent Research, Parker, CO; 4Office of Naval Research, Arlington, VA

MHSRS-19-02436 - Poster Session 2 - #440
Blast Part 3: Assessing Safe Exposure Thresholds after Blast Exposure
Presentation Author: Dr. Tim Walilko
Tim Walilko PhD1, Mark Tommerdahl PhD2, Suthee Wiri PhD1, Ted Argo PhD1, Christina Wagner PhD1, Tim Bentley PhD3, Laila Zai PhD3
1Applied Research Associates, Raleigh, NC; 2Cortical Metrics, Chapel Hill, NC; 3Lucent Research, Parker, CO; 4Office of Naval Research, Arlington, VA

MHSRS-19-02481 - Poster Session 2 - #441
Exposure to Low-level Blast during Breacher Training. Possible Effects on Brain Health and Performance
Presentation Author: Mr. Niclas Wisen
Niclas Wisén Lic, PSYC, Mårten Risling, MD, PhD, Prof
Karolinska Institute, Stockholm, Sweden

OCULAR INJURIES CAUSED BY EXPOSURE TO BLAST OVERPRESSURE

MHSRS-19-01124 - Session 2 - #442
Analysis of Far Forward Ocular Trauma among Combat Casualties in Afghanistan
Presentation Author: Mrs. Jennifer Trevino
Jennifer D. Trevino, MBA1, Amanda M. Staudt, PhD1, Mithun R. Suresh, MD1, Frank K. Butler, Jr, MD2, Krystal Valdez-Delgado, BSN1, Elizabeth A. Mann-Salinas, PhD2
1U.S. Army Institute of Surgical Research, San Antonio, TX; 2Joint Trauma System, San Antonio, TX

MHSRS-19-01550 - Session 2 - #443
Severe Ocular Injuries during LDF Low Intensity Combat and the use of Protective Eyewear
Presentation Author: CPT Avishai Tsur
Daphna Prat, MD1, Guy J. Ben Simon, MD1, Shiran Madgar, MD1, Ofira Zloto, MD1, Hila Goldberg, MD1, Joseph Moisseiev, MD1, Amir Alhalel, MD1, Sami Gendler, MD2, Roy Nadler, MD2, Perach Osaadon, MD3, Erez Tsumi, MD3
1Sheba Medical Center, Tel Hashomer, Israel; 2Surgeon General’s Headquarters, Israel Defense Forces, Ramat Gan, Israel; 3Soroka Medical Center, BeerSheva, Israel

MHSRS-19-01937 - Session 2 - #444
Long-term Prognosis of Patients with Ocular Blast Injuries
Presentation Author: CPT Alexander Stoddard
Stoddard, Alexander R1, Purt, Boonkit, MD1, Ryan, Denise S, MS2,3, Kagemann, Janice, BS1,3, Colyer, Marcus H, MD1
Preservation of Vision Following Severe Ocular Trauma Through the Application of Nanofiber-reinforced Hydrogel Bandages

Presentation Author: Dr. Lindsay Woodard
Lindsay Woodard, PhD, Lauren Costella, PhD, Kelsey Broderick, Mallory Gasbarre, Spencer Mattson, Xiaokun Wang, PhD, Christopher Tison, PhD
1Luna Innovations Incorporated, Charlottesville, VA; 2Johns Hopkins University, Baltimore, MD

Low-intensity Repeated Blast Exposure Leads to Visual System Damage in Rats

Presentation Author: Dr. James DeMar
James DeMar, PhD, Venkatasivasai Sajja, PhD, Mary Johnson, PhD, Andrew Batuure, BS, Donna Wilder, MS, Joseph Long, PhD
1Walter Reed Army Institute of Research, Silver Spring, MD; 2University of Maryland School of Medicine, Baltimore, MD

Blast Injury Prevention Standards Recommendation Process: Ocular Blast Injury Type

Presentation Author: Ms. Jennifer Lombardo
Elizabeth B. Brokaw, Janice R. Ballo, Rachel W. Spencer, Lisa Lalis, Raj Gupta, Michael Leggieri
1The MITRE Corporation, Arlington, VA; 2U.S. Army Medical Research and Development Command, Fort Detrick, MD

PAIN MANAGEMENT FOR THE FUTURE FIGHT

Effects of Opioid Analgesics (Morphine, Fentanyl, and Sufentanil) and Trauma on Survival Time After Severe Conscious Hemorrhage in Rats

Presentation Author: Ms. Mariam Calderon
Mariam Calderon, MS, Cassandra Rodriguez, BS, Brian Connor, BA, Carmen Hinojosa-Laborde, PhD, Harold Klemcke, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX

Effect of Chronic Stress and Morphine Treatments on Spinal Nerve Growth Factor in a Rat Model

Presentation Author: Dr. Hans Linsenbardt
Hans R Linsenbardt, PhD, Natasha M Sosanya, PhD, Sirima Tongkhuya, BS, Robert J Christy, PhD, MAJ Stephen Crimmins, PhD, Bopaiah P Cheppudira, PhD
U.S. Army Institute of Surgical Research, JBSA Ft Sam Houston, TX

Effect of High Omega-6 Diet on Sensory Neuron Excitability and Pain Behavior

Presentation Author: Dr. Kenneth Hargreaves
Ken Hargreaves, PhD, Peter LoCoco, PhD, Jacob Boyd, MS
MHSRS-19-00531 - Session 2 - #451
**Efficacy of Pulpal Anesthesia Using a Needle-less Syringe**
Presentation Author: Dr. Kraig Vandewalle
Kraig Vandewalle, DDS, MS, Colman Christensen, DDS, MS, Stephen Arnason DDS, MS, Ross Oates, DMD, Michael Crabtree DDS, John Kersey, DDS
U.S. Air Force Postgraduate Dental School, Lackland AFB, TX

MHSRS-19-00674 - Session 2 - #452
**Reductions in Opioid Consumption with Percutaneous Medial Branch Peripheral Nerve Stimulation for Chronic Low Back Pain**
Presentation Author: Dr. Steven Cohen
Steven Cohen, MD1, Christopher Gilmore, MD2, Leonardo Kapural, MD, PhD2, Thomas Hopkins, MD, MBA3, Mehul Desai, MD, MPH4, Michael DePalma, MD5, Sean Li, MD6, Abram Burgher, MD7, Timothy Deer, MD8, Anthony Plunkett, MD9, Meredith McGee, PhD10, Joseph Boggs, PhD10
1Walter Reed National Military Medical Center, Bethesda, MD; 2Center for Clinical Research, Winston Salem, NC; 3Duke University, Durham, NC; 4International Spine, Pain and Performance Center, Washington, DC; 5Virginia iSpine Physicians, Richmond, VA; 6Premier Pain Centers, Shrewsbury, NJ; 7Hope Research Institute, Phoenix, AZ; 8The Spine and Nerve Center of The Virginias, Charleston, WV; 9Womack Army Medical Center, Fort Bragg, NC; 10SPR Therapeutics, Inc, Cleveland, OH

MHSRS-19-00690 - Session 2 - #453
**Development and Implementation of the Military Treatment Facility Engagement Committee to Support Pragmatic Clinical Trials in the Military Health System**
Presentation Author: Mr. Dylan Scarton
Dylan Scarton1-3, William Roddy1-3, Jerika Taylor, MA1-3, Mary Geda, RN4, Peter Peduzzi, PhD5, Cynthia Brandt, MD6, Robert Kerns, PhD4, Paul Pasquina, MD1,2
1Uniformed Services University of the Health Sciences, Bethesda, MD; 2Walter Reed National Military Medical Center, Bethesda, MD; 3The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; 4Yale School of Medicine, New Haven, CT; 5Yale School of Public Health, New Haven, CT; 6VA Connecticut Healthcare System, West Haven, CT

MHSRS-19-00788 - Session 2 - #454
**Fentanyl Impairs but Ketamine Preserves the Microcirculatory Response to Hemorrhage - A Novel Approach to Evaluate Hemodynamic Impacts of Analgesics**
Presentation Author: Dr. Lusha Xiang
Alfredo S. Calderon, BS, Brian S. Connor, BA, Carmen Hinojosa-Laborde, PhD, Kathy L. Ryan, PhD

MHSRS-19-00858 - Session 2 - #455
**Metagenomic Marker of Pain Management in Mouse Model of Partial Bone Resection Followed by Prolonged Musculoskeletal Unloading**
Presentation Author: Mr. Nabarun Chakraborty
Nabarun Chakraborty1, Raina Kumar2, Aarti Gautam1, Paul Childress3, Bintu Sowe1, Melissa A. Kacena3,4, Rasha Hammamieh1
1U.S. Army Center for Environmental Health Research, Fort Detrick, MD; 2Frederick National Lab, NIH, Frederick, MD; 3Indiana University School of Medicine, Indianapolis, IN; 4Richard L. Roudebush VA Medical Center, Indianapolis, IN
MHSRS-19-00874 - Session 2 - #456
Sustained Analgesic and Anti-inflammatory Efficacy of a Single Dose COX-2 Inhibiting Nanomedicine in a Mouse CFA-induced Inflammatory Model
Presentation Author: Dr. Jelena M. Janjic
Lu Liu1, Michele Herneisey1, Eric Lambert1, Shannon Loftus1, Takaaki Komatsu2, Vijay S. Gorantla3, Jelena M. Janjic1
1Duquesne University, Pittsburgh, PA; 2Daiichi University of Pharmacy, Fukuoka, Japan; 3Wake Forest Institute for Regenerative Medicine, Winston-Salem, North Carolina

MHSRS-19-00887 - Session 2 - #457
Determining the Role of Acupuncture, Chiropractic and Yoga in Functional Restoration among Active Duty Service Members with Chronic Pain
Presentation Author: Dr. Diane Flynn
Diane Flynn, MD, MPH1, Dale Langford, PhD2; Honor McQuinn, ARNP, DNP1; Alexandra Fairchok1; Teresa Collins1; Tyler Snow, DPT1; Noelle Teemant, DPT1; Dana Sanford1; Lorraine Morgan, DNP1; Duane Lowe, DC1; Tara Fernald1; Jeffrey Sargent1; Sean Smith1; James Rogalla1; Amanda Valadez1; Erma Funtanilla1; Ricke Weickum, PharmD1; Ardith Z. Doorenbos, PhD, RN2
1Madigan Army Medical Center, Tacoma, WA; 2University of Washington, Seattle, WA

MHSRS-19-00888 - Session 2 - #458
Determinants of OptimalDosage and Sequence of Functional Restoration and Integrative Therapies Study in Service Members with Neuromusculoskeletal Injury
Presentation Author: Dr. Diane Flynn
Diane Flynn, MD, MPH1, Dale Langford, PhD2; Honor McQuinn, ARNP, DNP1; Teresa Collins1; Nichole Blaylock1; Noelle Teemant, DPT1; Tyler Snow, DPT1; Dana Sanford1; Lorraine Morgan, DNP1; Duane Lowe, DC1; Tara Fernald1; Jeffrey Sargent1; Sean Smith1; James Rogalla1; Amanda Valadez1; Patricia Barr, PhD1; Kara Pegram, PhD1; Erma Funtanilla1; Ashley Alden1; Ardith Z. Doorenbos, PhD, RN2
1Madigan Army Medical Center, Tacoma, WA; 2University of Washington, Seattle, WA

MHSRS-19-00889 - Session 2 - #459
Improving Primary Care Pain Management through Weekly Didactic and Case-based Telementoring
Presentation Author: Dr. Diane Flynn
Diane Flynn, MD, MPH1, Honor McQuinn, ARNP, DNP1; Dale Langford, PhD2; Ashley Alden1; Ardith Z. Doorenbos, PhD, RN2
1Madigan Army Medical Center, Tacoma, WA; 2University of Washington, Seattle, WA

MHSRS-19-00922 - Session 2 - #460
Effect of Midazolam on Morphine-mediated Analgesia, Tolerance, and Respiration in a Rat Model
Presentation Author: Dr. Bopaiah Cheppudira
Bopaiah Cheppudira, PhD, Harold Klemcke, PhD, Alex Trevino, MS, Robert Christy, PhD, Stephen Crimmins, PhD
U.S. Army Institute of Surgical Research, Fort Sam Houston, TX

MHSRS-19-00984 - Session 2 - #461
Presentation Author: Mr. Thomas Garza
Thomas H. Garza, BS; Laura L. F. Scott, PhD, MPH, MS; CPT Ian L. Hudson; COL Jennifer M. Gurney; Robert Christy, PhD
MHSRS-19-01039 - Session 2 - #462
Pain Registry Biobank: A Protocol for a Novel Approach to Studying Pain
Presentation Author: Mr. Raymond Kroma
Raymond B. Kroma, BS1,2, Nicholas A. Giordano, PhD, RN1,2, Mary McDuffe, BSN, RN1,2, Kalyn C. Jannace, MPH1,2, Peter Bedocs, MD, PhD1,2, Krista Beth Highland, PhD1,2, Chester Trip Buckenmaier III, MD1
1Uniformed Services University, Rockville, MD; 2Henry M. Jackson Foundation, Bethesda, MD

MHSRS-19-01067 - Session 2 - #463
Pilot of a Novel Online Survey to Assess Risk-benefit Profile of Pain Treatments
Presentation Author: Dr. Janetta Iwanicki
Janetta Iwanicki, MD1, Ruth Magtanong, MA1, Elise Amioka, MS1, Kevin May, MS1, Joshua Black, PhD1, Col. Kathleen Flarity, USAF, DNP, PhD2,3, Richard Dart, MD, PhD1
1Denver Health, Denver, CO; 2HQ Air Mobility Command, Scott AFB, IL; 3Center for COMBAT Research, Aurora, CO

MHSRS-19-01134 - Session 2 - #464
Duration of Chronic Pain before Referral for Interdisciplinary Pain Care and its Relationship to Likelihood of Medical Retirement among Service Members: A Retrospective Analysis
Presentation Author: LTC Justin Stewart
Justin Stewart, DO1, Diane Flynn, MD1, Honor Mcquinn, DNP1, Ashley Alden1, Ardith Doorenbos, PhD2
1Madigan Army Medical Center, JBLM, WA; 2University of Washington, Seattle, WA

MHSRS-19-01143 - Session 2 - #465
Naloxone Co-prescription Policy Implementation: Pilot Program to Reduce Overdose-related Mortality in Military Beneficiaries
Presentation Author: Dr. Nicholas A. Giordano
Lynn Hallard, MSL1, Kevin Galloway, BSN, MHA2, Aaron Sawyer, PhD3, Faye Curran, PhD3, Diane Flynn, MD, PH4, Kalyn Jannace, MPH2, Honor McQuinn, DNP, ARNP, FNP-BC4, JiEun Kim, PharmD4, CPT Alisa Snyder, MS4, Krista Highland, PhD2
1Defense Health Agency, Falls Church, VA; 2Defense and Veterans Center for Integrative Pain Management, Rockville, MD; 3Defense Health Agency Contract Support, Falls Church, VA; 4Madigan Army Medical Center, Tacoma, WA

MHSRS-19-01146 - Session 2 - #466
Analgesics in the Pre-hospital Setting: Ketamine Does Not Alter Tolerance to Simulated Hemorrhage in Humans
Presentation Author: Dr. Craig Crandall
Craig G. Crandall, PhD1, Mu Huang DPT, PhD1, Gilbert Moralez, PhD 1, Matthew N. Cramer, PhD 1, Joseph M. Hendrix, MD1, Carmen Hinojosa-Laborde, PhD2
1Texas Health Presbyterian Hospital Dallas and The University of Texas Southwestern Medical Center, Dallas, TX; 2U.S. Army Institute of Surgical Research, San Antonio, TX

MHSRS-19-01177 - Session 2 - #467
Association of Oral or Parenteral Opioids in the ED Treatment of Back Pain with Future Opioid Aberrant Use
Presentation Author: Dr. Kennon Heard
Hoppe J1, Ledbetter C2
MHSRS-19-01233 - Session 2 - #468
Long-lasting, Non-opioid and Drug-free Method of Treating Pain
Presentation Author: Dr. Lilit Garibyan
Lilit Garibyan, MD, PhD, Sara Moradi Tuchayi, MD, MPH, P Ying Wang, MD, Anat Stemmer-Rachamimov, MD, Martin Purschke, PhD, Sam Osseiran, PhD, Conor Evans, PhD, R. Rox Anderson, MD
Harvard Medical School, Boston, MA

MHSRS-19-01281 - Session 2 - #469
Kerecis Fish Skin Healing of Painful Ulcers. A Case Study on Amputation Prevention and Pain Management
Presentation Author: Dr. Mark Suski
Mark Suski, MD
Center for Advanced Wound Healing, Thousand Oaks, CA

MHSRS-19-01511 - Session 2 - #470
Delivery of Bupivacaine from Ultra-high Molecular Weight Polyethylene and Implications for Post-arthroplasty Pain
Presentation Author: Dr. Ebru Oral
Scott C. Grindy1,2, Jeremy Suhardi1,2, Hany Bedair1,2, Orhun K. Muratoglu1,2, Ebru Oral1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Boston, MA

MHSRS-19-01628 - Session 2 - #471
Antibacterial Properties of Anesthetic-eluting Ultra-high Molecular Weight Polyethylene
Presentation Author: Dr. Ebru Oral
Dmitry Gil1,2, Scott Grindy1,2, Orhun Muratoglu1,2, Hany Bedair1,2, Ebru Oral1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Boston, MA

MHSRS-19-01579 - Session 2 - #472
Opioid Use and Length of Stay Significantly Reduced With Enhanced Recovery after Surgery Program Utilizing Liposomal Bupivacaine for Total Knee Arthroplasty
Presentation Author: Dr. Garen Collett
Garen Collett, MD,1 Paul Nakonezy, PhD,1 Secherre Michaelis, CRNA,2 Allison Insley, CRNA,2 Sherly Shaji, CRNA,2 Bobbi Feierstein, PA-C,2 John R. Martell, MD2
1UT Southwestern Medical Center, Dallas, TX; 2North Texas Veterans Affairs Hospital, Dallas, TX

MHSRS-19-01581 - Session 2 - #473
Study to Identify the Genetic Variations Associated with Phantom Limb Pain
Presentation Author: Mrs. Natalie Ivanina
Natalie Ivanina, BS1-3, Emilia Jaskot, BS1-3, Kiara Buccellato, MA1-3, Elizabeth Harper, MA1-3, Dylan Scarton, MA1-3, Jerika Taylor, MA1-3, Paul Pasquina, MD, COL (Ret)1,2
1Uniformed Services University of the Health Sciences, Bethesda, MD, 2Walter Reed National Military Medical Center, Bethesda, MD, 3Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD

MHSRS-19-01617 - Session 2 - #474
Pain Relieving Antimicrobial Dressing for Burn Wounds
Presentation Author: Dr. Kris Rangan
Krishnaswamy K. Rangan, PhD, Tirumalai S. Sudarshan, PhD
Chemokine Receptor Antagonists Increase Opioid Potency in Incisional Pain In Rats
Presentation Author: Dr. Toby Eisenstein
Saadet Inan, MD, PhD, Xiaohong Chen, MD, Christopher Tallarida, BSc, Michael Ruff, PhD, Joseph J. Meissler, BSc, Ellen Geller, MA, Scott M. Rawls, PhD, Alan Cowan, PhD, Toby K. Eisenstein, PhD, Martin W. Adler, PhD
Lewis Katz School of Medicine at Temple University, Philadelphia, PA; Creative BioPeptides, Inc, Potomac, MD

NSaid Topical Transdermal Diclofenac Epolamine Spray Film DSF100 for the Management Of Acute Musculoskeletal Pain
Presentation Author: Dr. Lucille Russell
Lucille Russell, MD, Jeffrey Gudin, MD
Virpax Pharmaceuticals, Inc, Malvern, PA

Sustained Non-opioid Pain Management in Prolonged Field Care and Hospital Settings Using LBL100
Presentation Author: Dr. Lucille Russell
Lucille Russell, MD, Jeffrey Gudin, MD
Virpax Pharmaceuticals, Inc, Malvern, PA

Evaluation of Analgesia and Clotting Time of Novel Acetaminophen Analogs
Presentation Author: Mr. David Trapolsi
David J. Trapolsi BS, Thomas Garza BS, Winfred Stacey PhD, Marcie Fowler PhD, Kristin M. Reddoch-Cardenas PhD, Ron S. Bryant MT, Andrew P. Cap MD, Deborah Slee PhD, Chad Hopkins PhD, Kevin Bunker PhD, Robert J. Christy PhD, Stephen L. Crimmins PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; Kalyra Pharmaceuticals, Inc, San Diego, CA

Percutaneous Peripheral Nerve Stimulation Provides Relief of Chronic Pain to Enable Improvements in Function Following Amputation
Presentation Author: COL Steven Cohen
Steven P. Cohen, MD, Christopher A. Gilmore, MD, Brian M. Ilfeld, MD, Joshua M. Rosenow, MD, Sean Li, MD, Mehul J. Desai, MD, Corey W. Hunter, MD, Richard L. Rauck, MD, Leonardo L. Kapural, MD, PhD, Antoun Nader, MD, John Mak, MD, Nathan D. Crosby, PhD, Joseph W. Boggs, PhD
Walter Reed National Military Medicine Center, Bethesda, MD; Center for Clinical Research, Winston-Salem, NC; University of California San Diego, San Diego, CA; Northwestern University, Chicago, IL; Premier Pain Centers, Shrewsbury, NJ; International Spine Pain and Performance Center, Washington, DC; Ainsworth Pain Institute, New York, NY; SPR Therapeutics, Cleveland, OH

Pain Management in the Operational Environment Using Noninvasive Neuromodulation Technology
Presentation Author: Mr. Richard Hanbury
Richard Hanbury, MBA, Dip. Law, BA, Brad Chedister, BS, MS, Philippe A. Souvestre, MD, CES, CEAPhD, FAsMA
MHSRS-19-01971 - Session 2 - #481
Presentation Author: Dr. Patrick Richard
Mary Jo Larson, PhD, MPA,1  Mark R. Bauer, MD,1 Natalie Moresco, MA,1 and Patrick Richard, PhD2
1Brandeis University, Waltham, MA; 2Uniformed Services University of the Health Sciences, Bethesda, MD

MHSRS-19-02010 - Session 2 - #482
Arylepoxamides Receptor Targets: Potent Analgesics Lacking Side-effects
Presentation Author: Dr. Susruta Majumdar
BH Reich1, Anna R Pasternak1, Balazs Varga3, Ying Xian Pan1,2, Susruta Majumdar1,3
1Sparian Biosciences Inc, New York, NY; 2Memorial Sloan-Kettering Cancer Center, New York, NY; 3Louis College of Pharmacy and Washington University School of Pharmacy, St Louis, MO

MHSRS-19-02040 - Session 2 - #483
Local Immunomodulation at the Site of Neuronal Injury with Theranostic Analgesic Regenerative Gel-emulsion Technology Controls Pain and Neuroinflammation
Presentation Author: Dr. Mallory Wampler
Mallory R. Wampler, MD1, Lu Liu2, Claire Gerall, MD1, Jennifer Cox-Hinshaw1, Shannon Loftus2, Michele L. Herneisey2, Margaux M. Salas, PhD1, Vijay S. Gorantla, MD, PhD1,3, Jelena M. Janjic, PhD1,2, Erik K. Weitzel, MD1
159th Medical Wing United States Air Force, San Antonio, TX; 2Duquesne University, Pittsburgh, PA; 3Wake Forest University School of Medicine, Winston-Salem, NC

MHSRS-19-02104 - Session 2 - #484
A Rat Model for Assessing Post-surgical Pain and Recovery Following Joint Replacement
Presentation Author: Dr. Yingfang Fan
Yingfang Fan1, Wali A. Sabuhi1, Orhun K. Muratoglu1,2, Jamie E. Collins1,3, Mark Randolph1,2, Ebru Oral1,2
1Massachusetts General Hospital, Boston, MA; 2Harvard Medical School, Harvard University, Boston, MA; 3Brigham and Women’s Hospital, Boston, MA

MHSRS-19-02119 - Session 2 - #485
Low Frequency Pulsed Electromagnetic Field Acts as a Modulator of Inflammatory Signaling Pathways
Presentation Author: Dr. Tracy Criswell
Christina L. Ross, PhD1, Yu Zhou, PhD1, Charles E. McCall, MD2, Shay Soker, PhD1, Tracy L. Criswell, PhD1
1Wake Forest Institute for Regenerative Medicine, Winston-Salem, NC; 2Wake Forest Baptist Health, Winston-Salem, NC

MHSRS-19-02173 - Session 2 - #486
A Review of Casualties that Underwent Pain Management Before Reaching Role 2 in Afghanistan
Presentation Author: CPT Ian Hudson
CPT(P) Ian L Hudson1, Amanda Staudt, PhD MPH1, CPT Julian Trent2, Carmen Hinojosa-Laborde, PhD1, Kathy L Ryan PhD1, LTC Christopher Van Fosson1
1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2Brooke Army Medical Center, Fort Sam Houston, TX
MHSRS-19-02396 - Session 2 - #487
Utilizing Internal Behavioral Health Consultants to Treat Chronic Pain in Primary Care Settings
Presentation Author: Dr. Don McGeary
Jeff Goodie, PhD1, Don McGeary, PhD2,3, Kathryn Kanzler, PsyD2, Briana Cobos, MA2, Abby Blankenship, PhD2, Paul Fowler, MA2, Stacey Young-McCaughan, PhD2, Deanne Hargita2, Cindy McGeary, PhD2,3, Katy Dondanville, PhD2, Williel Hale, PhD4, CAPT Anne Dobmeyer, PhD5, CAPT Christopher Hunter, PhD5, Christine Buhrer, LSSW6, CAPT Aditya Bhagwat, PhD5
1Uniformed Services University, Bethesda, MD; 2University of Texas Health Science Center, San Antonio, TX; 3South Texas Veterans Health Care System, San Antonio, TX; 4University of Texas San Antonio, San Antonio, TX; 5Defense Health Agency Headquarters, Falls Church VA; 6Harker Heights Clinic, CRDAMC, Killeen, TX

MHSRS-19-02547 - Session 2 - #488
Development of a Novel, Non-opioid, Non-NSAID, Non-hepatotoxic Analgesic for Pain Management
Presentation Author: Dr. Kevin Bunker
Kevin D. Bunker1, Chad D. Hopkins1, Deborah H. Slee1, Ron S. Bryant2, Andrew P. Cap2, Kristin M. Reddoch Cardenas2, Roger Chavez2, Bopaiah Cheppudira2, Robert J. Christy2, MAJ. Stephen L. Crimmins2, Marcie Fowler2, Thomas Garza2, CG Lafleur2, RK Montgomery2, Winfred Stacey2, David J. Trapolisi2, Kelly Eddinger3, David J. Gonzalez2, Matthew Hunt3, Tony L. Yaksh3
1Kalyra Pharmaceuticals, Inc., San Diego, CA; 2U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX; 3University of California, San Diego, CA

MHSRS-19-02561 - Session 2 - #489
Examining Spatial Dimensions of the Prescription Opioid Rate Across the U.S.
Presentation Author: Dr. Kyle Fluegge
Kyle Fluegge, PhD, MPH1,2, Keith Fluegge1
1Inst of Health & Environmental Research, Columbus OH; 2NYC Depart of Health & Mental Hygiene, NY, NY

MHSRS-19-02658 - Session 2 - #490
Focus on Epithelialized Palatal Grafts. Part 3: Methods to Enhance Patient Comfort at Palatal Donor Sites
Presentation Author: CPT Joshua P. Berridge
Joshua P. Berridge, DMD, MS1, Thomas M. Johnson, DMD, MS1, Albert W. Cheng, DMD, MS1, Dane T. Swenson, DMD1, Preston D. Miller, Jr, DDS2
1Uniformed Services Univ of the Health Sciences, Fort Gordon, GA; 2New York Univ, New York, NY

FRONTLINE CARE: TBI TREATMENT & MANAGEMENT IN THE PREHOSPITAL ENVIRONMENT

MHSRS-19-00364 - Session 2 - #491
Immune Modulating Nutrition Supplements in an Animal Model of Traumatic Brain Injury
Presentation Author: Dr. Angus Scrimgeour
Angus G. Scrimgeour, Michelle M. Saillant, Michelle L. Condlin
Military Nutrition Division, U.S. Army Research Institute of Environmental Medicine, Natick, MA

MHSRS-19-00856 - Session 2 - #492
Cerium Oxide Nanoparticles in the Treatment of Traumatic Brain Injury and Parkinson's Disease
Presentation Author: Dr. Beverly Rzigalinski
Effective Inhibitors of Traumatic Brain Injury-induced Systemic Endothelial Dysfunction
Presentation Author: Dr. Fletcher White
Fletcher A. White, PhD, Xingjuan Chen, PhD, Natalie Taylor-Nguyen, Ashley M Riley, B. Paul Herring, Alexander Obukhov
Indiana University School of Medicine, Indianapolis, IN

Alpha-methyltyrosine Inhibits the Cardiovascular and Behavioral Sequeale of Traumatic Brain Injury
Presentation Author: Dr. Ryan Woodman
Ryan Woodman1, Coleman Miller1, Dan Perl2, Warren Lockette1
1University of Missouri School of Medicine, Columbia, MO; 2Uniformed Services University for the Health Sciences, Bethesda, MD

Groundbreaking Evaluation for TBI in Deployed Settings
Presentation Author: MAJ Nicholas Koreerat
Nicholas Koreerat, DPT
1st Security Force Assistance Brigade, Fort Benning, GA

Novel Monitoring Modality of TBI Patients Using Transocular Brain Impedance
Presentation Author: Dr. Mohamad Hakam Tiba
Mohamad Hakam Tiba, MD, MS, Venkatakrishna Rajjee, MD, Craig A. Williamson, MD, Brandon C. Cummings, BS, Brendan M. McCracken, BS, Carmen I. Colmenero, BS, Danielle C. Leander, BS, Anne Marie Weitzel, BS, Abdelrahman B. Awad, MD, Amanda J. Pennington, MS, Kevin R. Ward, MD
University of Michigan, Ann Arbor, MI

Protective Role of ADORA3 Agonist AST-004 in Blast and Blunt TBI Models
Presentation Author: Dr. Eda Bozdemir
Eda Bozdemir, MD1, Fabio A. Vigil, PhD1, Vladislav Bugay, PhD1, Sang H. Chun, MS1, Deborah M. Holstein1, Rowe Elliot2, Cassie Sprague2, Gregory Rule, MS3, Jose Cavazos, MD1, Theodore E. Liston, PhD4, William S. Korinek, PhD4, Mark S. Shapiro, PhD1, David Zamora, PhD2, Robert Brenner, PhD1, James Lechleiter, PhD1
1UT Health San Antonio, San Antonio, TX; 2U.S. Army Institute of Surgical Research, Fort Sam Houston, San Antonio, TX; 3Applied Research Associates, San Antonio, TX; 4Astrocyte Pharmaceuticals Inc, Cambridge, MA

A Novel Nmda Receptor Modulator, NYX-458, Shows Therapeutic Potential for Cognitive Impairment Associated with TBI
Presentation Author: Dr. Katherine Leaderbrand
Katherine Leaderbrand, PhD1, Luisa P Cacheaux, PhD1, Rebecca J Wilson, MS1, Jeffrey S Burgdorf, PhD1, Mary E Schmidt, BS1, Srishti U Sahu, MS2, Amiko K Lagrimas, BS1, Joseph R Moskal, PhD1
1Aptinyx Inc, Evanston, Illinois; 2Northwestern University, Evanston, Illinois
**MHSRS-19-01930 - Session 2 - #499**

**Improving Health Outcomes for Acute Concussion Patients**

Presentation Author: Dr. Kendra Jorgensen-Wagers

Kendra Jorgensen-Wagers, PhD\(^1,2\); Dawn Collins, MA\(^1,2\); Anna Komitov, MS\(^1,2\); Carissa Remillard 3

\(^1\)Landstuhl Regional Medical Center, Landstuhl, Germany; \(^2\)Defense and Veterans Brain Injury Center, Silver Springs, MD; \(^3\)Vicenza/Del-Din Clinic Landstuhl Regional Medical Center, Vicenza, Italy

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**MHSRS-19-01935 - Session 2 - #500**

**Pre-hospital Whole Blood Resuscitation Reduces Fluid Requirement and Improves Cerebral Physiology Compared to Crystalloid Resuscitation in a Severe Model of TBI**

Presentation Author: Dr. Zachary Bailey

Zachary S. Bailey, PhD\(^1\); Lai Yee Leung, PhD\(^1,2\); Xiaofang Yang, BS\(^1\); Katherine Cardiiff, BS\(^1\); Janice Gilford, PhD\(^1\); Deborah Shear, PhD\(^1\); Patrick M. Kochanek, MD\(^3\)

\(^1\)Walter Reed Army Institute of Research, Silver Spring, MD; \(^2\)Uniformed Services University of the Health Sciences, Bethesda, MD; \(^3\)University of Pittsburgh, Pittsburgh, PA

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**MHSRS-19-01942 - Session 2 - #501**

**Nicotine Administration Ameliorates Motor & Cognitive Deficits in Rats Following Penetrating Brain Injury**

Presentation Author: Dr. Matthew Rice

Matthew Rice, PhD; Starlyn Okada-Rising, PhD; Kristen DeDominicis, PhD; Justin Sun, MS; Linda Huynh, BS; Caitlin Figiel, BS; Janice Gilford, PhD; and Deborah Shear, PhD

Walter Reed Army Institute of Research, Silver Spring, MD

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**MHSRS-19-02141 - Session 2 - #502**

**Transcriptomic Analysis of Mouse Brain Regions after TBI Indicates Candesartan Treatment Alters Novel Molecular Pathways**

Presentation Author: LTC Peter Attilio

P.J. Attilio\(^1\), A. Isaac\(^2\), A.R. Soltis\(^2\), M.D. Wilkerson\(^1,2,3\), C.L. Dalgard\(^1,3\), A.J. Symes\(^1,4\)

\(^1\)Uniformed Services University of the Health Sciences, Bethesda, MD; \(^2\)Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; \(^3\)The American Genome Center, Bethesda, MD; \(^4\)Center for Neuroscience and Regenerative Medicine, Bethesda, MD

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**MHSRS-19-02211 - Session 2 - #503**

**Curcumin Nanoparticle Therapy after TBI Prevents Memory Impairment and Depression with Reduced Tissue Loss and Neuroinflammation, and Increased Hippocampal Neurogenesis**

Presentation Author: Dr. Maheedhar Kodali


Texas A&M Health Science Center, College Station, TX

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**MHSRS-19-02628 - Session 2 - #504**

**Supplementation of Itaconate to Resuscitation Fluid Improves Survival in a Combined Traumatic Brain Injury and Hemorrhagic Shock Mouse Model**

Presentation Author: Mr. Alfredo Lucas

Thekla Cordes, PhD; Alfredo Lucas, BS; Christian Metallo, PhD; Pedro Cabrales, PhD

University of California, San Diego, CA
The Effect of Fear Conditioning on Fractional Anisotropy in the Mouse Model of Mild TBI Under Implicit and Explicit Conditions and of Bicycling and Other Implicit Learning Tasks on Service Members Suffering from Mild TBI

Presentation Author: Dr. Joachim Spiess
Joachim Spiess, PhD, MD1, Craig Weiss, PhD3, Frances R. Lendacki, MPH4, Paul H. Rigby, PhD5, Alice M. Wyrwicz, PhD6, John F. Disterhoft, PhD7, CDR Josh L. Duckworth, MD8
1Cortrop Incorporated, Encinitas, CA; 2Sanford Burnham Prebys Medical Discovery Institute, La Jolla, CA; 3Northwestern University, Chicago, IL; 4NorthShore University Health System, Evanston, IL; 5L3 Applied Technologies, San Diego, CA; 6Uniformed Services University of the Health Sciences, Bethesda, MD

WHAT'S NEW IN BRAIN HEALTH FOR ELITE WARFIGHTERS

Revisiting Blast versus Non-blast Traumatic Brain Injury Profiles in an Active Duty Cohort
Presentation Author: Dr. Lars Hungerford
Lars Hungerford, PhD1,2,3 Mark Ettenhofer, PhD1,2,4 Jenna Trotta1,2,4 Lynita Mullins1,2 1Defense and Veterans Brain Injury Center, San Diego, CA; 2Naval Medical Center San Diego, San Diego, CA; 3General Dynamics Health System, Fairfax, VA; 4American Hospital Services Group, Exton, PA

USSOCOM Comprehensive Strategy and Action Plan for SOF Warfighter Brain Health
Presentation Author: Mr. F Bowling
F. Bowling1,2, Heather G. Belanger, PhD1,3,4 Chad Vermillion, LTC1, Katryna Deary1, Stephanie Ehlers1,3, April Verlo1, LTC1, Eveline F. Yao, Col, USAF, MC, CFS1 1U.S. Special Operations Command, Tampa, FL; 2Calhoun International, Tampa, FL; 39Line LLC, Tampa, FL; 4University of South Florida, Tampa, FL

Randomized Controlled Trial of Allostatic Neurotechnology to Treat Mild Traumatic Brain Injury
Presentation Author: Dr. Michael Roy
Michael J. Roy, COL (Ret.), MC, USA1, Wesley R. Cole, PhD2, Y. Sammy Choi, MD2, Paula Bellini, MA1, Gustavo Marino1, Nora Rachels2, Makayla Brewer2, Jacques Arrieux2, Lee Gerdes3, Catherine Tegeler4, Charles Tegeler, MD4 1Services Univ of the Health Sciences, Bethesda, MD; 2Womack Army Medical Center, Fort Bragg, NC; 3Brain State Tech, Scottsdale, AZ; 4Wake Forest Univ School of Medicine, Winston-Salem, NC

Multi-site RCT of Targeted Dietary Manipulation as an Adjunct Strategy for Managing Chronic Post-traumatic Headache
Presentation Author: Dr. Kimbra Kenney
Kimbra Kenney1,2, Keturah Faurot3, Beth MacIntosh3, Jacques Arrieux4,5, Michelle Bean3, Wesley Cole4,5, Cora Davis1,2, Melissa Guerra6, J Douglas Mann4, Carol Moore4, Rian Orny6, Olafur Palsson3, Maryetta Reese2,7, Wanda Rivera6,7, Brittnay Roberson4,5, Katie Russell4,5, Rebecca Sandlaim1,2,7, Dana Wallace2, Chris Ramsden8 1Uniformed Services University of the Health Sciences, Bethesda, MD; 2Walter Reed National Military Medical Center, Bethesda, MD; 3University of North Carolina, Chapel Hill, NC; 4Defense and Veterans Brain Injury Center, Fort Bragg, NC; 5Womack Army Medical Center, Fort Bragg, NC; 6Fort Belvoir Community Hospital, Fort Belvoir,
Poor Baseline Eye-tracking is Associated with Postconcussive Symptoms

Presentation Author: Dr. Angela Lumba-Brown
Angela Lumba-Brown, MD¹; Lisa Spielman, PhD²; Jun Maruta, PhD³; Jamshid Ghajar, MD, PhD¹
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Survival among Glioma Cases in the U.S. Military Health System: A Comparative Study with Cases from the U.S. General Population in the National Surveillance, Epidemiology, and End Results Program

Presentation Author: Dr. Jie Lin
Jie Lin, PhD, MPH¹,²; Julie A. Bytnar, MPH¹,²; Katherine A. McGlynn, PhD³; Craig D. Shriver, MD¹; Kangmin Zhu, MD, PhD¹,²,⁴
¹Uniformed Services Univ of the Health Sciences and Walter Reed National Military Medical Cntr, Bethesda, MD; ²Henry M. Jackson Found for the Adv of Military Medicine, Bethesda, MD; ³National Cancer Inst, Bethesda, MD; ⁴Uniformed Services Univ of the Health Sciences, Bethesda, MD

Olfactory Functional MRI (FMRI) Using T2-prepared Bold FMRI at Ultra-high Field (7T)

Presentation Author: Mr. Adrian Paez
Adrian G. Paez, BS¹,²; Suraj Rajan, MD²; Grace-Anna Chaney, BS²; Xinyuan Miao, PhD¹,²; Di Cao, BS¹,²,³; Chunming Gu, BS¹,²,³; Dapeng Liu, PhD¹,²; Alex Y. Pantelyat, MD²; Liana I. Rosenthal, MD²; Zoltan K. Mari, MD², Kelly Mills, MD²; Ted Dawson, MD²; Peter C. M. van Zijl¹,²; Susan Bassett²; David M. Yousem²; Vidyulata Kamath²; Jun Hua¹,²
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A New Concussion Clinical Profiles Screening Tool: Preliminary Evidence

Presentation Author: Dr. Anthony Kontos
Anthony P. Kontos, PhD¹; RJ Elbin, PhD²; Alicia Sufrinko, PhD¹; Melissa Womble, PhD³; Azkya Said²; Vanessa Fazio Sumrok, PhD¹; Jonathan French, PsyD¹; Nathan Kegel, PhD¹; Alicia Puskar, PsyD; Natalie Sherry, PsyD¹; Cyndi Holland, MPH¹; Michael W. Collins, PhD¹
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Differences in Vestibular Ocular Motor Screening Scores between Military Personnel with Acute mTBI and Healthy Controls: Preliminary Findings

Presentation Author: Dr. Anthony Kontos
Cyndi L. Holland, MPH¹,²; Hannah B. Bitzer1,2; MAJ Kati Monti, PA3; MAJ Eliot Thomasma, DPT3, Drew Thomas4, Hannah B. Bitzer1,2, Anne Mucha, DPT2,5, Michael W. Collins, PhD1,²; Anthony P Kontos PhD1,²
¹University of Pittsburgh, Pittsburgh, PA; ²UPMC Sports Concussion Program, Pittsburgh, PA; ³1st Special Forces Group (Airborne), Joint Base Lewis McChord, WA; ⁴The Geneva Foundation, Tacoma, WA; ⁵Centers for Rehabilitation Services, Pittsburgh, PA
MHSRS-19-01549 - Session 2 - #515
Brain Gauge: Measuring Brain Health for Concussion Recovery
Presentation Author: Dr. Kendra Jorgensen-Wagers
Kendra Jorgensen-Wagers, PhD,1-2; Dawn Collins, MA,1-2; Anna Komitov, MS,1-2; Carissa Remillard3
1Landstuhl Regional Medical Center, Landstuhl, Germany; 2Defense and Veterans Brain Injury Center, Silver Springs, MD; 3Landstuhl Regional Medical Center, Vicenza, Italy

MHSRS-19-01969 - Session 2 - #516
Evolution of a Study of Bilateral Prefrontal Transcranial Magnetic Stimulation to Treat the Symptoms of Mild TBI and PTSD: Research Methods, Participant Demographics, and Tolerability
Presentation Author: Mr. Jared Garland
Jared Garland, BS,1-2; Emilia-Marie Jaskot, BS,1-2; Jerika Taylor, MA,1-2; Kiara Buccellato, MA,1-2; Navneet Atwal, MD,4-5; Paul Pasquina, MD,3-4
1The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; 2The Center for Rehabilitation Sciences Research, Bethesda, MD; 3Uniformed Services University of the Health Sciences, Bethesda, MD; 4Walter Reed National Military Medical Center, Bethesda, MD

MHSRS-19-02059 - Session 2 - #517
Primary Care Practices and Perceptions in Care for Service Members with Post-traumatic Headache: Does Self-reflection in a Mixed-methods Study Modify Practice?
Presentation Author: Dr. Seth Kiser
Seth Kiser1,2, Hamid Ferdosi1,2, Emma Gregory1, Tiffany Chiu1,2, Alison Grant1,2, Sandra Escolas1,2,5, Scot Engel5, Saaﬁan Malik1, Sean Sebesta4, Daniel Beauchamp4, Conethra Burt-Kelley1,6, Adriana Rico4,6, Ann Scher3, Sidney R. Hinds II7
1Defense & Veterans Brain Injury Center; 2General Dynamics Health Solutions; 3Uniformed Services Univ of the Health Sciences; 4Fort Bliss Intrepid Spirit Center; 5Fort Hood Intrepid Spirit Center; 6Henry M. Jackson Found for the Adv of Military Medicine; 7U.S. Army Medical Research and Development Command

MHSRS-19-02143 - Session 2 - #518
Physics-based Neutralization of Threats to Human Tissues and Organs
Presentation Author: Dr. Stylianos Koumlis
Stylianos Koumlis, PhD1, Leslie Lamberson, PhD1, M. Masiur Rahaman, PhD2, Haneesh Kesari, PhD2, Rafael D. González Cruz, PhD2, Diane Hoffman-Kim, PhD2, Alice Lux Fawzi2, Sushant Malave3, Ron Szalkowski3, Chad Hovey PhD4, Harry C. Cramer III4, Mark Scimone5, Angel Chukwu5, Luke Summey5, Christian Franck PhD5
1Drexel University, Philadelphia, PA; 2Brown University, Providence, RI; 3Team Wendy, Cleveland, OH; 4Sandia National Laboratories, Albuquerque, NM; 5University of Wisconsin-Madison, Madison, WI

MHSRS-19-02245 - Session 2 - #519
Healthcare among Special Operations Forces Diagnosed and Treated for Traumatic Brain Injury
Presentation Author: Dr. Heather Belanger
Heather G. Belanger, PhD1,2,3, Lindsay Stewart4, F. Bowling1,5, Eveline F. Yao, Col, USAF, MC, CFS1
1U.S. Special Operations Command, Tampa, FL; 29Line LLC, Tampa, FL; 3University of South Florida, Tampa, FL; 4Salient CRGT; 5Calhoun International, Tampa, FL

MHSRS-19-02246 - Session 2 - #520
A Prospective, Double Blind, Randomized, Sham-controlled, Clinical Trial to Evaluate the Safety and Efficacy of Biometrics-guided Magnetic EEG Resonance Therapy Treatment of Persistent Post-concussive Symptoms Following Traumatic Brain Injury
Presentation Author: Dr. David Keyser
Moderate-to-severe Self-reported Insomnia and Frequent Daytime Sleepiness Increase Athletes’ Risk for Sustaining a Sports-related Concussion

Presentation Author: Dr. Adam Raikes
Adam Raikes, Amy Athey, Pamela Alfonso-Miller, William D. S. Killgore, Michael A. Grandner
University of Arizona, Tucson, AZ

Using Trait Resilience and Heart Rate Variability to Predict Cerebrovascular Reactivity in Special Operations Forces Soldiers

Presentation Author: Ms. Nikki Barczak
Nikki E. Barczak, MSc, Cassie B. Ford, PhD, Patricia R. Combs, MEd, ATC, LTC Stephen M. DeLellis, MPAS, PA-C, CPT Marshall L. Healy, APA-C, Shawn F. Kane, MD, LTC Gary E. Means, MD, COL James H. Lynch, MD, Jason P. Mihalik, PhD, CAT(C), ATC

Monosodium Luminol Alleviates Brain Dysfunction in a Model of Chronic Gulf War Illness with Modulation of Oxidative Stress and Inflammation in the Brain and Circulating Blood

Presentation Author: Mrs. Sahithi Attaluri
TX A&M Health Science Center College of Medicine, College Station, TX

Cognitive Functioning Following Concussion and the Role of Sleep

Presentation Author: Ms. Kristina Clarke-Walper
Kristina Clarke-Walper, MPH, Ronald Whalen, PhD, Joshua E. Wilk, PhD, Jayne Holzinger, MA, Phillip J. Quartana, PhD

Assessment of Far-forward Provider Performance in Using a Hand-held Algorithmic Electroencephalogram Device to Screen Traumatic Brain Injury

Presentation Author: Mr. Nathanael Franks
Nathanael Franks, MBA, Anastasia Perez, BS, Walker Pride, BS, Jessie Fernandez, BS, Robert DeLorenzo, MD

TBI BIOMARKERS: DIAGNOSTIC AND PROGNOSTIC INDICATORS

Assessment of Far-forward Provider Performance in Using a Hand-held Algorithmic Electroencephalogram Device to Screen Traumatic Brain Injury

Presentation Author: Mr. Nathanael Franks
Nathanael Franks, MBA, Anastasia Perez, BS, Walker Pride, BS, Jessie Fernandez, BS, Robert DeLorenzo, MD

University of Texas Health San Antonio, San Antonio, TX; Uniformed Services University of the Health Sciences San Antonio, San Antonio, TX
MHSRS-19-00230 - Session 2 - #526  
Towards a Cognitive Stress Test for Concussion: Normobaric Hypoxia Reveals Hidden Deficits in the Saccades of Service Members with Mild Traumatic Brain Injury History  
Presentation Author: Dr. Leonard Temme  
Leonard Temme, PhD¹, Christopher Aura, MS¹,²,³,⁴, Paul St. Onge¹, Patrick Regan, PhD²,³, Thomas DeGraba, MD², Joseph Bleiberg, PhD²  
¹U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL; ²National Intrepid Center of Excellence, Bethesda, MD; ³Laulima Government Solutions, LLC, Orlando, FL; ⁴Goldbelt Frontier, LLC, Juneau, AK

MHSRS-19-00328 - Session 2 - #527  
Deployable Visually Evoked Potential Monitor for Detecting Traumatic Brain Injury at Forward Clinics (Clinical Update)  
Presentation Author: Mr. Gordon Hirschman  
Gordon B. Hirschman, MEng¹, Jamie M. Bogle, AuD, PhD², Kristian J.DiMatteo, MS¹, Jan Stepanek, MD², Michael J. Cevette, PhD²  
¹Vivonic, Inc, Bedford, MA; ²Mayo Clinic, Scottsdale, AZ

MHSRS-19-00333 - Session 2 - #528  
Impact of Shock Wave Physics in Open Air on Blast-induced Traumatic Brain Injury  
Presentation Author: Ms. Barbara Rutter  
Barbara Rutter¹, Hailong Song², Jiankun Cui²,³, Ralph G. DePalma⁴, Stuart W. Hoffman⁴, Graham K. Hubler², Zezong Gu²,³, Catherine E. Johnson¹  
¹Missouri Univ of Science and Technology, Rolla, MO; ²Univ of Missouri School of Medicine, Columbia, MO; ³Truman VA Hospital Research Service, Columbia, MO; ⁴Depart of Veterans Affairs, Washington, DC

MHSRS-19-00458 - Session 2 - #529  
Gender Difference Of Cortical Thickness and Diffusion Properties for the Patients with Traumatic Brain Injury  
Presentation Author: Dr. Maheen Adamson  
Xiaojian Kang¹, Keith L. Main¹,³, Anna-Clare Milazzo¹,³, Salil Soman¹,²,⁺, Jennifer Kong¹, Stephanie Kolakowsky-Hayner⁵, Ansgar J. Furst¹,², J. Wesson Ashford¹,², Maheen M. Adamson¹,²  
¹Veterans Affairs Palo Alto Healthcare System, Palo Alto, CA; ²Stanford University School of Medicine, Stanford, CA; ³Defense and Veterans Brain Injury, Silver Spring, MD; ⁴Harvard Medical School, Boston, MA; ⁵Icahn School of Medicine at Mt. Sinai, New York, NY

MHSRS-19-00489 - Session 2 - #530  
Animal Model of Multiple Low-level Blast Injury Displays a Spectrum of Neuropathological and Neurobehavioral Changes  
Presentation Author: Dr. Kakulavarapu RamaRao  
Arunreddy Ravula, MS, Kakulavarapu V. Rama Rao, PhD, Namas Chandra, PhD, PE

MHSRS-19-00567 - Session 2 - #531  
Widespread Dendritic Pathology is Evident Following Severe Penetrating Brain Injury in Rats  
Presentation Author: Dr. Sindhu Kizhakke Madathil  
Sindhu Madathil, PhD, Bernard Wilfred, PhD, Alexander Caraballo BS, Savannah Barannikov, MS, Binyam Hundito, BS¹ Sarah Urankar, MS, Janice Gilsdorf, PhD, Deborah Shear, PhD
MHSRS-19-00605 - Session 2 - #532
Neuron- and Glia-derived Exosomes as Novel Blood Biomarkers of Concussion and Subconcussive Conditions
Presentation Author: Dr. Masato Mitsuhashi
Masato Mitsuhashi¹, Grace E. Stutzmann², Keisuke Kawata³
¹NanoSomiX, Inc, Irvine, CA; ²Rosalind Franklin University/The Chicago Medical School, North Chicago, IL; ³Indiana University, Bloomington, IN

MHSRS-19-00779 - Session 2 - #533
A Novel Portable Venomanometer to Measure Episcleral Venous Pressure: A Biomarker for Intracranial Pressure
Presentation Author: Dr. Deepta Ghate
Deepta Ghate, MD, Vikas Gulati, MD, Shan Fan, MD, Carl Nelson, PhD, Tze Yeen Yap, BS, Deepak Khazanchi, PhD, Adam Hahn, Zachary Fowler, MS, Sachin Kedar, MD
University of Nebraska Medical Center, Omaha, NE

MHSRS-19-00849 - Session 2 - #534
The Consequences of a TBI on Visual Processing: Post Trauma Vision Syndrome and Visual Midline Shift Syndrome
Presentation Author: Dr. William Padula
William V. Padula, OD, SFNAP, FAAO, FNORA¹,²
¹Salus Univ College of Optometry, Elkins Park, PA; ²Western Univ of Health Sciences, Pomona, CA

MHSRS-19-00960 - Session 2 - #535
The Utility of Single-photon Emission Computed Tomography/computed Tomography in Mild Traumatic Brain Injury: Case Report
Presentation Author: Dr. Irma Molina-Vicent
Irma L. Molina-Vicent, MD¹,²; Isabel Borrás- Fernández, MD¹,²; Deborah Acosta- Ramírez, MD¹; Ana Barlueca- Bajo, MD¹; Cecilia M. Soler- Llompart¹,²; Neishaliz Diaz-Acevedo¹
¹VA Caribbean Healthcare System, San Juan, Puerto Rico; ²Univ of Puerto Rico, San Juan, Puerto Rico

MHSRS-19-00985 - Session 2 - #536
Combat and Operational Stress Effects on Amygdala Blast Neuropathology and Behavior
Presentation Author: Dr. Michael Urban
Michael J. Urban¹,², William B. Hubbard¹, Zachary S. Bailey¹, and Pamela J. VandeVord¹,²
¹Virginia Tech, Blacksburg, VA; ²Salem Veterans Affairs Medical Center, Research Services, Salem, VA

MHSRS-19-01011 - Session 2 - #537
Rapid and Sensitive Detection of Glial Fibrillary Acidic Protein by Utilizing Plasmonic Nanoparticles
Presentation Author: Dr. Fei Peng
Fei Peng, PhD¹, Sinyoung Jeong, PhD¹, Haley Marks, PhD¹, Emmanuel Roussakis, PhD¹, Amin Feizpour, PhD¹, Alexander Ho¹, Petra B. Kraulad, PhD¹,², Peter Hansen, PhD¹,², Conor L. Evans, PhD¹
¹Massachusetts General Hospital, Charlestown, MA; ²PNP Research Corporation, LLC, Drury, MA
**Development of a Novel in-vivo Objective Retina Test to Diagnose Traumatic Brain Injury**

Presentation Author: Dr. Lyndsay Randolph

Lyndsay M. Randolph, PhD\(^1\), Suhail Rasool, PhD\(^1\), Patrick Honma\(^1\), Richard D’Souza, PhD\(^1\), Victoria Risbrough, PhD\(^2\), Brian P. Head, PhD\(^2\), Robert A. Rissman\(^2\), Stella Sarraf, PhD\(^1\)

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**Mild Traumatic Brain Injury Assessment: Towards the Development of Reliable Diagnostic and Prognostic Biomarkers**

Presentation Author: Dr. George Zouridakis

George Zouridakis, PhD\(^1\), Xianghong Arakaki, MD, PhD\(^2\), Michael G. Harrington, MB, ChB, FRCP\(^2\)

\(^1\)University of Houston, Houston, TX; \(^2\)Huntington Medical Research Institutes, Pasadena, CA

**Normalization of Brain Activity Accompanies Reduced Insomnia in Chronic Post-concussive Syndrome - A Team TBI Study**

Presentation Author: Mr. Donald Krieger

Don Krieger, PhD, Ryan Soose, MD, Paul Shepard, PhD, Ava Puccio, RN, PhD, Sue Beers, PhD, Walter Schneider, PhD, Anthony Kontos, PhD, Michael Collins, PhD, David O. Okonkwo, MD, PhD

University of Pittsburgh, Pittsburgh, PA

**Toward Validation of mTBI Phenotyping with Neurocomputational Models of Static Balance and Dynamic Walking**

Presentation Author: Dr. Gregory Ciccarelli

Gregory Ciccarelli\(^1\), Michael Nolan\(^1\), Tanya Talkar\(^1,2\), Hrishikesh Rao\(^1\), Anne O’Brien\(^3\), Gloria Vergara-Diaz\(^2\), Harvey Edwards\(^1\), Delsey Sherrill\(^1\), Jeffrey Palmer\(^1\), Ross Zafonte\(^3,4\), Thomas Quatieri\(^1\), Paolo Bonato\(^3,4\), Ryan McKindles\(^1\), Adam Lammert\(^1\)

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**Automated Optic Nerve Sheath Diameter Measurement**

Presentation Author: Dr. Reza Soroushmehr

Reza Soroushmehr, PhD, Krishna Rajajee, MD, Craig Williamson, MD, Jonathan Gryak, PhD, Kayvan Najarian, PhD, Kevin Ward, MD, Mohamad H. Tiba, MD

University of Michigan, Ann Arbor, MI


Presentation Author: Dr. Davneet Minhas

Davneet S. Minhas, PhD, Charles M. Laymon, PhD, Jane Sharpless, MS, Sue R. Beers, PhD, Ava Puccio, PhD, Kathryn Edelman, MS, Chester A. Mathis, PhD, James M. Mountz, MD, PhD, David O. Okonkwo, MD, PhD
MHSRS-19-01181 - Session 2 - #544
Fusion Neurocognitive Eye Tracking: Validation of an Optimized Mobile Platform for Assessment of Mild Traumatic Brain Injury in Military Medical Environments
Presentation Author: Dr. Mark Ettenhofer
Mark L. Ettenhofer, PhD, Sarah I. Gimbel, PhD, Lars D. Hungerford, PhD, Evelyn Cordero, MA, Angelica Aguirre, MPH, Lynita Mullins, DO
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MHSRS-19-01189 - Session 2 - #545
A Novel Machine Learning Model to Disentangle Patient Heterogeneity for Accurate Prognosis of Individuals with Mild Traumatic Brain Injury
Presentation Author: Dr. Jing Li
Lujia Wang, MS, Todd J. Schwedt, MD, David W. Dodick, MD, Ross Zafonte, PhD, Jing Li, PhD
1Arizona State University, Tempe, AZ; 2Mayo Clinic, Phoenix, AZ; 3Brigham and Women's Hospital, Boston, MA

MHSRS-19-01273 - Session 2 - #546
Virtual Reality Based Assessment of Visual and Cognitive Performance of the Warfighter
Presentation Author: Dr. Wolfgang Fink
Wolfgang Fink, PhD, Chris Adams, BA, John Cerwin, BS
Ceeable Technologies Inc, Somerville, MA

MHSRS-19-01307 - Session 2 - #547
Associations Between White-matter Abnormalities and Clinical Outcomes in Sport-related Concussion: A Longitudinal Study of Diffusion Magnetic Resonance Imaging from the NCAA-DoD Care Consortium
Presentation Author: Dr. Yu-Chien Wu
Yu-Chien Wu, MD, PhD; Jaroslaw Harezlak, PhD; Nahla M. H. Elsaid, PhD; Zikai Lin, MS; Qiuting Wen, PhD; Sourajit M. Mustafi, PhD; Larry D. Riggen, MS; Kevin M. Koch, PhD; Andrew S. Nencka, PhD; Timothy B. Meier, PhD; Andrew R. Mayer PhD; Yang Wang, MD, PhD; Christopher C. Giza, MD; John P. DiFiori, MD, FACSM; Kevin M. Guskiewicz, PhD, ATC; Jason P. Mihalik, PhD, CAT(C), ATC; Stephen M. LaConte, PhD; Stefan M. Duma, PhD; Steven P. Broglio, PhD, ATC; Andrew J. Saykin, PsyD, ABCN; Michael A. McCrea, PhD, ABPP; Thomas W. McAllister MD
1Indiana University, Indianapolis, IN; 2Medical College of Wisconsin, Milwaukee, WI; 3The Mind Research Network, Albuquerque, NM; 4University of California Los Angeles, Los Angeles, CA; 5University of North Carolina, Chapel Hill, NC; 6Wake Forest and Virginia Tech University, Blacksburg, VA; 7University of Michigan, Ann Arbor, MI

MHSRS-19-01342 - Session 2 - #548
Blood Biomarkers in Acute Sport-related Concussion: Findings from the NCAA-DoD Care Consortium
Presentation Author: Dr. Michael McCrea
Michael McCrea, PhD, Dan Huber, MPH, Jessica Gill, PhD, Chris Giza, MD, Thomas McAllister, MD, Steven Broglio, PhD, Tim Meier, PhD
MHSRS-19-01354 - Session 2 - #549
Optimization of the Concussion Assessment Battery
Presentation Author: Dr. Steven Broglio
Steven Broglio, PhD, Jaroslaw Harezlak, PhD, Barry Katz, PhD, Shi Zhao, PhD, Thomas McAllister, MD, Michael McCrea, PhD ABPP
1University of Michigan, Ann Arbor, MI; 2Indiana University, Bloomington, IN; 3Indiana University School of Medicine, Indianapolis, IN; 4Eli Lilly and Co, Indianapolis, IN; 5Medical College of Wisconsin, Milwaukee, WI

MHSRS-19-01381 - Session 2 - #550
Longitudinal Changes in Homotopic Region Connectivity in Concussion: A FMRI Study
Presentation Author: Dr. Catherine Chong
Catherine D. Chong1, Lujia Wang2, Kun Wang2, Jing Li2
1Mayo Clinic, Phoenix, AZ; 2Arizona State University, Phoenix, AZ

MHSRS-19-01386 - Session 2 - #551
Post-traumatic vs Non-traumatic Headaches: Differences in Phenotype, Prognosis, and Medical Consultation
Presentation Author: Dr. Ann Scher
Ann Scher, PhD, Andrea Metti, PhD, Alan Finkel, MD, Renee Pazdan, MD, Lisa Brenner, PhD, Wesley Cole, PhD, Heidi Terrio, MD, Karen Schwab, PhD
1Uniformed Services University of the Health Sciences, Bethesda, MD; 2Metti Consulting Company, Pittsburgh PA; 3Defense and Veterans Brain Injury Center, Fort Bragg, NC; 4Carolina Headache Institute, NC; 5University of Colorado, Aurora, CO; 6VHA Rocky Mountain Mental Illness Research Education and Clinical Center, Denver, CO; 7Womack Army Medical Center, Fort Bragg, NC; 8Evans Army Community Hospital, Colorado Springs, CO

MHSRS-19-01418 - Session 2 - #552
The Consequences of Traumatic Brain Injury Affecting Visual Processing
Presentation Author: Ms. Ayra Sayyed
Ayra I. Sayyed, OD, William V. Padula, OD, FAAO, FNORA
Padula Institute of Vision, Guilford, CT

MHSRS-19-01425 - Session 2 - #553
Correlation of Elevated Serum MicroRNA Expression with Neurocognitive Function in Sub-concussive and Concussive Sports Injuries
Presentation Author: Dr. Manish Bhomia
Manish Bhomia, PhD, Linda Papa, MD, Semyon Slobounov, PhD, Hans Breiter, MD, Renee Walter, MD, Tim Bream, MD, Peter Seidenberg, MD, Julian Bailes, MD, Stephen Bravo, MD, Brian Johnson, PhD, David Kaufman, DO, Dennis Molfese, PhD, Thomas Talavage, PhD, David Zhu, PhD, Barbara Knollmann-Ritschel, MD
1Orlando Regional Healthcare, Orlando, FL; 2Pennsylvania State University, University Park, PA; 3Northwestern University, Chicago, IL; 4University of Tennessee at Chattanooga, Chattanooga, TN; 5NorthShore University Health System, Evanston, IL; 6Orlando, FL; 7Dallas, TX; 8Michigan State University Clinical Center, East Lansing,
MHSRS-19-01462 - Session 2 - #554
Cumulative Adversity May Predict the Development of Persistent Symptoms Following Mild Traumatic Brain Injury
Presentation Author: Dr. Matthew Reid
Matthew Reid, PhD1,2, Lisa Lu, PhD1,2, Jan Kennedy, PhD1,2
1Defense & Veterans Brain Injury Center, San Antonio, TX; 2General Dynamics Health Solutions, San Antonio, TX

MHSRS-19-01509 - Session 2 - #555
The UCD-DGMC TBI Precision Medicine Network for Complex Trauma
Presentation Author: Dr. Ryan Martin
Ryan Martin, MD1; Ian Brown, MD, PhD1; Lt Col. Ian Stewart, MD2; Mary Jo Pugh, RN, MD3; Nam K. Tran, PhD, HCLD (ABB), FACC1; Lara Zimmermann, MD1; Frederick Meyers, MD1; Tina L. Palmieri, MD, FACS1
1University of California Davis, Sacramento, CA; 2David Grant Medical Center, Travis Airforce Base, Fairfield, CA; 3University of Utah, Salt Lake City, UT

MHSRS-19-01647 - Session 2 - #556
Exploring Genomic Signatures of Neural Regeneration to Assess Long-term Recovery from Blast Brain Injury and Mechanical Neurotrauma
Presentation Author: Dr. Stan Svetlov
Stanislav Svetlov1, Kevin Wang1, Susan Murphy2, Firas Kobeissy3, Michael Urban2, Pamela Vandevord2
1University of Florida, Gainesville, FL; 2Virginia Tech, Blacksburg, VA; 3American University of Beirut, Beirut/LB

MHSRS-19-01686 - Session 2 - #557
Injury Severity Profile of Repeated Closed-head Concussions on Cognitive Outcome and White Matter Pathology
Presentation Author: Dr. Adem Can
Adem Can, PhD1, Jignesh D. Pandya, PhD1, Lai Yee Leung, PhD2, Angela M. Boutté, PhD1, Jenny R. Browning, PhD1, Christopher F. Powels, BA1, Deborah A. Shear, PhD1
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MHSRS-19-01710 - Session 2 - #558
Alterations in Brain Microrna Expression Following Closed-head Concussive Injury
Presentation Author: Dr. Bernard Srambical Wilfred
Bernard Wilfred, PhD, Sindhu Madathil, PhD, Savannah Barannikov, MS, Sarah Urankar, MS, Alexander Caraballo, BS, Binyam Hundito, BS, Angela Boutte, PhD, Janice Gilsdorf, PhD, Deborah Shear, PhD
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-01711 - Session 2 - #559
Systolic Target Assessment Tool
Presentation Author: Mr. Justin Massey
Justin Massey, BS, David Hackenson MD, Brandon Cummings, BS, Mohamad Hakam Tiba, MD, MS, Kevin Ward, MD
University of Michigan, Ann Arbor, MI

MHSRS-19-01759 - Session 2 - #560
Understanding Headaches Characteristics in the VA Traumatic Brain Injury Population
Presentation Author: Ms. Nytzia Licona
Nytzia Licona, MPH1, Joyce Chung, PhD2, Maheen Adamson, PhD1, Odette Harris, MD, MPH1,2,3
1Defense and Veterans Brain Injury Center, Palo Alto, CA; 2Veterans Affairs Palo Alto Health Care System, Palo Alto, CA; 3Stanford School of Medicine, Stanford, CA

MHSRS-19-01785 - Session 2 - #561
The Use of the QEEG in the Diagnosis and Rehabilitation of the Brain Injured Patient
Presentation Author: Dr. Kirtley Thornton
Kirtley Thornton, PhD
Neuroeducation, Charlotte, NC

MHSRS-19-01894 - Session 2 - #562
Blood Based Biomarkers of Neurodegeneration Predict Disordered Sleep in Mild Traumatic Brain Injury Warfighters
Presentation Author: LCDR J. Kent Werner
J. Kent Werner, MD, PhD1,2; Pashtun Shahim PhD3,4; Jessica Gill, PhD3; Risa Nakase-Richardson, PhD5,6; Kimbra Kenney, MD7
1Walter Reed National Military Medical Center, Bethesda, MD; 2Johns Hopkins University, Baltimore, MD; 3National Institutes of Health, Bethesda, MD; 4Center for Neuroscience and Regenerative Medicine, Bethesda, MD; 5University of South Florida, Tampa, FL; 6Defense and Veterans Brain Injury Center, Tampa, FL; 7Uniformed Services University of Health Sciences, Bethesda, MD

MHSRS-19-01896 - Session 2 - #563
White Matter Integrity Predictors of Changes in Postconcussive Symptom Reporting – A CENC Study
Presentation Author: Dr. Nicholas Davenport
Nicholas D. Davenport, PhD1,2
1Minneapolis VA Health Care System, Minneapolis, MN; 2University of Minnesota, Minneapolis, MN

MHSRS-19-01901 - Session 2 - #564
Comparison of Traumatic Injury Biomarker Profiles Between Burned vs. Non-burned Trauma Patients: Are Burn Patient Different?
Presentation Author: Dr. Nam Tran
Nam K. Tran, PhD, HCLD (ABB), FACB1; Kelly Lima, BS1; Stephanie Falwell, BS1; Ryan Martin, MD2; Lara L. Zimmermann, MD2; Frederick Meyers, MD3; Tina L. Palmieri, MD, FACS4
University of California, Davis, Sacramento, CA

MHSRS-19-01917 - Session 2 - #565
Subacute HDAC Inhibition Reduces the Long-term Neuropathology and Behavior Dysfunction in Mouse CCI Model of Traumatic Brain Injury
Presentation Author: Dr. Samba Reddy
MHSRS-19-01965 - Session 2 - #566
A Novel Device for Modeling Blast Traumatic Brain Injury Pressures in Laboratory
Presentation Author: Dr. Ricardo Mejia-Alvarez
Suhas Vidhate¹, Adam Willis²
¹Michigan State University, East Lansing, MI, ²San Antonio Military Medical Center, Fort Sam Houston, TX

MHSRS-19-02072 - Session 2 - #567
In Vitro Quantitative Analysis of Neuronal-structural and Electrophysiological Changes Following Mechanical Loading
Presentation Author: Dr. Ann Mae DiLeonardi
Ann Mae DiLeonardi, PhD, Amy Wegener, MS, Cameron Good, PhD
U.S. Army Research Laboratory, Aberdeen Proving Ground, MD

MHSRS-19-02105 - Session 2 - #568
Biomarker Examination Studies and Translation: A Novel Biomarker Core
Presentation Author: Dr. Katie Edwards
Katie Edwards¹, Jessica M Gill¹
¹National Institutes of Health, Bethesda, MD; ²Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD

MHSRS-19-02132 - Session 2 - #569
A Novel Algorithm That Integrates Clinical Data, Electroencephalogram, and Neuroimaging Biomarkers in TBI Diagnosis
Presentation Author: Mr. Santosh Srinivasaiah
Daniel Bryden, PhD, A. George Wilson, Suzanne Garcia
Booz Allen Hamilton, McLean, VA

MHSRS-19-02175 - Session 2 - #570
Neurophysiological Bases of Human Neurofunctional Assessments of mTBI
Presentation Author: Dr. Oleg Favorov
Oleg V. Favorov¹, Timothy Challener¹, Eric Francisco², Laila Zai³, Mark Tommerdahl¹²
¹University of North Carolina, Chapel Hill, NC; ²Cortical Metrics, LLC, Carrboro, NC; ³Lucent, LLC, Denver, CO

MHSRS-19-02218 - Session 2 - #571
Rna Sequencing Following Multiple Traumatic Brain Injuries in a Closed-head Mouse Model
Presentation Author: Dr. Kartik Balachandran
Celeste Dunn, BS, Sara Venier, Jeffrey Wolchok, PhD, Kartik Balachandran, PhD

MHSRS-19-02227 - Session 2 - #572
Impact of Blue-wavelength Light Therapy on Cortical Volume and Simple Reaction Time Following Mild TBI
Presentation Author: Dr. Sahil Bajaj
Sahil Bajaj, PhD¹, Natalie S. Dailey, PhD¹, Adam C. Raikes, PhD¹, John R. Vanuk, MA¹, Mareen Weber, PhD¹,², Isabelle M. Rosso, PhD², Scott L. Rauch, PhD², William D. S. Killgore, PhD¹
¹University of Arizona, Tucson, AZ; ²McLean Hospital, Belmont, MA

**MHSRS-19-02236 - Session 2 - #573**

**Acute Biomarkers in Military Cadets Sustaining Concussions Outside of Varsity Sports Participation**

Presentation Author: Dr. Christopher Giza
Christopher Giza, MD¹, Dan Huber MPH², Jessica Gill PhD RN³, Thomas McAllister, MD⁴, Steve Broglio, PhD, ATC⁵, Timothy Meier, PhD⁵, Gerald McGinty, DPT⁶, Kenneth Cameron, PhD, MPH, ATC⁷, Megan Houston, PhD, ATC⁷, Paul Pasquina, MD⁸, Michael McCrea, PhD²
¹David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Medical College of Wisconsin, Milwaukee, WI; ³National Institutes of Health, Bethesda, MD; ⁴Indiana University School of Medicine, Indianapolis, IN; ⁵University of Michigan School of Kinesiology, Ann Arbor, MI; ⁶U.S. Air Force Academy, Colorado Springs, CO; ⁷U.S. Military Academy, West Point, NY; ⁸Uniformed Services University of the Health Sciences, Bethesda, MD

**MHSRS-19-02237 - Session 2 - #574**

**Moderate Traumatic Brain Injury Leads to Acute Changes in Cardiac Function In Rats**

Presentation Author: Mr. Alfredo Lucas
Alfredo Lucas, BS, Alexander T. Williams, BS, Pedro Cabrales, PhD
University of California, San Diego, CA

**MHSRS-19-02381 - Session 2 - #575**

**In-vitro Experiments of Highly Dynamic Loading of Brain Slices and Cell Cultures**

Presentation Author: Mr. Suhas Vidhate
Suhas Vidhate¹, Ricardo Mejia-Alvarez¹, Joseph Beatty¹, C. Lee Cox¹, Michael March³, Patrick Sleiman³, Hakon Hakonarson³, Adam Willis¹,²
¹Michigan State University, East Lansing, MI; ²San Antonio Military Medical Center, Fort Sam Houston, TX; ³Children’s Hospital of Philadelphia, Philadelphia, PA

**MHSRS-19-02390 - Session 2 - #576**

**In Vivo Mapping of Linear Acceleration in Central Vestibular Nuclei**

Presentation Author: Dr. Avril Genene Holt
Srinivasu Kallakuri, PhD¹, Mirabela Hali¹, Aaron Apawu¹, Rod D. Braun¹, Anthony Cacace¹, Avril Genene Holt¹,²,³, Holt AG¹, Hali M¹, Kallakuri S³, Cavanaugh J³, Pace E¹, Zhang J², Altschuler RA
¹Wayne State University Ophthalmology, Visual, and Anatomical Sciences, Detroit, MI; ²John D Dingell VAMC, Detroit, MI; ³Walter Reed National Military Medical Center, Bethesda, MD

**MHSRS-19-02400 - Session 2 - #577**

**Ultra-high Performance Head Gradient for Assessment of Brain Microstructure Changes in Mild Traumatic Brain Injury at 3.0 Tesla: Initial Imaging Tests**

Presentation Author: Dr. Thomas Foo
Thomas K.F. Foo¹,²,³, Ek T. Tan¹, Joseph Piel¹, Eric Fiveland¹, Keith Park¹, Justin Ricci¹, Mark Vermilyea¹, Robert Y. Shih²,³, J. Kevin DeMarco²,³, Maureen N. Hood²,³, Vincent B. Ho²,³
¹GE Research, Niskayuna, NY; ²Uniformed Services University of the Health Sciences, Bethesda, MD; ³Walter Reed National Military Medical Center, Bethesda, MD
Automated Pupillary Screening and a Portable Headset for Ocular Monitoring
Presentation Author: Dr. Dogancan Temel
Dogancan Temel, PhD¹, Melvin J. Mathew, MS¹, Ghassan AlRegib, PhD¹, Yousuf M. Khalifa, MD²
¹Georgia Institute of Technology, Atlanta, GA; ²Emory University, Atlanta, GA

Elevation of Neuronal Olfactory Receptors in Human Serum and Cerebrospinal Fluid after Traumatic Brain Injury
Presentation Author: Dr. Manish Bhomia
Manish Bhomia, PhD¹, Kevin Wang, PhD², Claudia Robertson, MD³, Barbara Knollmann-Ritschel, MD¹
¹Uniformed Services University, Bethesda, MD; ²University of Florida, Gainesville, FL; ³Baylor College of Medicine, Houston, TX

Plasma Levels of Neurotrophic Factors in Mild Traumatic Brain Injury Compared to Gulf War Illness
Presentation Author: Dr. Brahma Mulugu
Mulugu V. Brahmajothi MS, MHS, PhD, Mohamed B Abou-Donia, PhD
Duke University Medical Center, Durham, NC

Progressive Structural and Functional Neurodegeneration in Veterans with Mild Traumatic Brain Injury
Presentation Author: Dr. Casey Gilmore
Casey Gilmore, PhD¹,², Randy Kardon, MD, PhD³,⁴, Johannes Ledolter, PhD⁴,⁵, Jan Full³,⁴, Julie Nellig³,⁴, Alicia Fenske¹,², Pieter Poolman³,⁴, Mona Garvin, PhD³,⁴, Jui-Kai Wang³,⁴, Timothy Hendrickson⁶, Michael Armstrong, MD², Kelvin O. Lim, MD¹,²,⁶
¹Defense and Veterans Brain Injury Center, Minneapolis, MN; ²Minneapolis VA Healthcare System, Minneapolis, MN; ³University of Iowa, Iowa City, IA; ⁴Iowa City VA Healthcare System, Iowa City, IA; ⁵University of Iowa Business College, Iowa City, IA; ⁶University of Minnesota, Minneapolis, MN

Middle Cerebral Artery Flow Velocity, a Measure of Cerebral Blood Flow, Measured Acutely Following Sports Related Concussion, May Predict Symptom Burden and Cognitive Functioning 30 and 90 Days after Injury
Presentation Author: Dr. Tonia Sabo
Tonia M Sabo, MD¹, Mathew A Stokes, MD¹, Kathleen R Bell, MD¹, Sushmita Purkayastha, PhD²
¹University of Texas Southwestern Medical Center, Dallas, TX; ²Southern Methodist University, Dallas, TX

Improving Blast Traumatic Brain Injury Outcomes by Exploring Individual Vulnerabilities
Presentation Author: Capt Paul Elsbernd
Paul Elsbernd, MD, MS¹, Zahari Tchopev, MD¹, Jeffrey R. Spies, PhD², Adam Willis, MD, PhD¹,²,³
¹San Antonio Military Medical Center, Fort Sam Houston, TX; ²221B Consulting, Columbus, OH; ³Michigan State University, East Lansing, MI; ⁴University of Texas Southwestern, Dallas, TX
Identifying Individuals who had Suffered from mTBI with the Head and Intraocular Trauma Test
Presentation Author: Mr. Carlos Torres-Quinones
Carlos Torres-Quinones, BS¹, Alexander Jones, PhD², Lee Goldstein, MD, PhD³,⁴ Justin Shaka, MBA⁴, David Hunter, MD, PhD¹,⁴,⁵
¹Harvard Medical School, Boston, MA; ²Sackler School, Tufts University, Boston, MA; ³Boston University School of Medicine, Boston, MA; ⁴Rebion, Boston, MA; ⁵Boston Children’s Hospital, Boston, MA

Providing MRI Calibrated Ground Truth Measurement of Tissue Pathology Across Brain Space, Instruments, and Time for Brain Health Monitoring Enabling Normative Diagnostics of TBI
Presentation Author: Dr. Walter Schneider
Walter Schneider¹,⁴, Elisabeth Wilde², Sudhir Pathak¹, Kristofer Pomiecko¹, Catherine Fissell¹, Anthony Zuccolotto³, David Okonkwo⁴
¹University of Pittsburgh, Pittsburgh PA; ²George E. Wahlen VAMC and Univ. of Utah, Salt Lake City, UT; ³Psychology Software Tools Inc, Pittsburgh, PA; ⁴University of Pittsburgh Medical Center, Pittsburgh, PA

COMBAT CASUALTY CARE FOR THE NAVY: CHALLENGES AT SEA

Augmented Reality Fasciotomy Anatomy and Surgical Training Tool
Presentation Author: Dr. Win Liu

Maritime Capabilities to Conduct Damage Control Surgical Interventions
Presentation Author: Ms. Domenique Selby
Domenique Selby, BSN¹, Elizabeth Mann-Salinas, PhD¹, Kimberly Smith, DNP¹, Patricia Drouillard, BSN¹, Lisa McFarlan, MS¹, Brian King, MS¹, Sherri Rudinsky, MD², Andre Cap, MD¹, Jennifer Gurney, MD¹, Stacy Shackelford, MD¹, Jacob Glaser, MD¹
¹Joint Trauma System, San Antonio, TX; ²Naval Medical Center San Diego, San Diego, CA

Development of a Comprehensive Navy Medicine Trauma Strategy
Presentation Author: CDR David Barrows
David Barrows, MD¹, Travis Polk, MD², Shawn Passons, MEd, MBA, BSN¹, Justice Parrott, DNAP¹, Virginia Blackman, PhD, MSN, BSN³, Matthew Bradley, MD⁴, C. Jeb Kucik, MD⁵, Matthew D. Tadlock, MD⁶, Robert F. Cuento Sr, MBA, BSN¹, Charles Hickey, HMCM(SW/AW)¹
¹Naval Bureau of Medicine and Surgery, Falls Church, VA; ²Navy Trauma Training Center, Los Angeles, CA; ³Uniformed Services University of the Health Sciences, Bethesda, MD; ⁴Navy Medical Research Center, Silver Spring, MD; ⁵Naval Health Clinic, Oak Harbor, WA; ⁶Naval Medical Center San Diego, San Diego, CA

U.S. Navy Search and Rescue Patient Transport and Care Missions at Sea, 2009–2018
Presentation Author: Ms. Stephanie McWhorter
Stephanie McWhorter, MA, HM1, Margrette Hellberg2,3
1Naval Health Research Center, San Diego, CA; 2Innovative Employee Solutions, San Diego, CA; 3Expeditionary Medical Facility, Camp Pendleton, CA

MHSRS-19-02606 - Poster Session 2 - #591
Trauma Knowledge, Confidence, and Stress Assessments at Navy Trauma Training Center: Preliminary Analyses
Presentation Author: CDR Tony Torres
Tony Torres, MS, RN (CDR, NC, USN)1, Jami Stakley, MSN, RN (CDR, NC, USN)2, Elizabeth Garcia, MHA3, Nancy Stotts, EdD, RN4, Travis Polk, MD5 (CDR, MC, USN)5, Virginia Blackman, PhD, RN (CDR, NC, USN)1
1Uniformed Serv Univ of the Health Sciences, Bethesda, MD; 2Naval Medical Center San Diego, San Diego, CA
3Geneva Foundation, Tacoma, WA; 4University of California San Francisco, San Francisco, CA; 5Navy Trauma Training Center, Los Angeles, CA

WARFIGHTER PERFORMANCE

LOWER AND UPPER EXTREMITY MUSCULOSKELETAL INJURY PREVENTION IN THE TRAINING AND OPERATIONAL DISMOUNTED ENVIRONMENT

MHSRS-19-00148 - Session 2 - #592
Restricting Lower Limb Flail is Key to Preventing Fatal Pelvic Blast Injury
Presentation Author: Dr. Iain Rankin
Iain Rankin, MB, ChB, MRCS1, Thuy-Tien Nguyen, PhD1, Diagarajen Carpanen, PhD1, Jonathan C. Clasper, DPhil, FRCS(Orth)1,2, Spyros D. Masouros, PhD1
1Imperial College London, London, UK; 2Royal Centre for Defence Medicine, Birmingham, UK

MHSRS-19-00775 - Session 2 - #593
Reinforced Pelvic Protection Mitigates the Effects of Dismounted Pelvic Blast Injury
Presentation Author: Dr. Iain Rankin
Iain Rankin, MB, ChB, MRCS1, Thuy-Tien Nguyen, PhD1, Diagarajen Carpanen, PhD1, Louise McMeneny, MBBS MRCS1,2, Jonathan C. Clasper, DPhil, FRCS(Orth)1,2, Spyros D. Masouros, PhD1
1Imperial College London, London, UK; 2Royal Centre for Defence Medicine, Birmingham, UK

MHSRS-19-00161 - Session 2 - #594
Fitforce Planner: Data-driven Physical Training Programming for Reducing USMC Musculoskeletal Injuries
Presentation Author: Mr. Timothy Clark
Timothy Clark, Laura Cassani, Lisa Lucia, PhD, Angelica Smith, Gabe Ganberg, Vinay Bharadwaj, Rijvi Rajib, Benjamin Hutchins, Diane Kramer, Christopher Jenkins, Ben Nargi
Aptima, Woburn, MA

MHSRS-19-00181 - Session 2 - #595
New Training System Based on the Discovery of Subperiosteal Transmission of Pressures Between Joint
Capsules
Presentation Author: Dr. Mark Pitkin
Mark Pitkin, PhD, DSc
Poly-Orth International, Sharon, MA

MHSRS-19-00340 - Session 2 - #596
U.S. Service Member Fall Injuries, 2001-2018: A Descriptive Study with Implications for Prevention
Presentation Author: Ms. Jessica Liendo
Jessica Aulasa Liendo, MA, MPH, Caryn Stern, PhD, Jeff Howard, PhD, Grant Johnson, MPH, Brock Graham, MPH, Jud Janak, PhD, COL Jennifer Gurney, MD
Joint Trauma System, JBSA Fort Sam Houston, TX

MHSRS-19-00363 - Session 2 - #597
Exploring Nonbattle Injury Prevention in the Deployed Military Environment Using Existing Databases
Presentation Author: LTC David Kauvar
LTC David S. Kauvar, MD,¹,² Judson Janak, PhD, MPH,³ LtCol Edward Mazuchowski, MD,³ COL Jennifer Gurney, MD³
¹San Antonio Military Medical Center, JBSA Fort Sam Houston, TX; ²Uniformed Services University, Bethesda, MD; ³Joint Trauma System, JBSA Fort Sam Houston, TX

MHSRS-19-00481 - Session 2 - #598
Differential Transcriptome Expression Analysis of Osteoarthritis and Rheumatoid Arthritis Synovial Tissues
Presentation Author: Mr. Manuel Caballero
Tho Hua, MS, Manuel Y. Caballero, MS, Hui Xia, MS, Sandra Valtier, PhD, G. Jilani Chaudry, PhD
59th Medical Wing, JBSA-Lackland, TX

MHSRS-19-00832 - Session 2 - #599
In-processing Musculoskeletal Screening for a Large Army Base: The Wins, the Losses and Moving Forward
Presentation Author: CPT John Harless
CPT John Harless, PT, DPT¹, Brian Hatler, PT, DPT, OCS², MAJ Robert Halle, PT, DSc, OCS, SCS², MAJ Eliza Szymanek, PT, DSc, OCS, SCS²
¹1-2 Stryker Brigade Combat Team, JBLM, WA; ²Madigan Army Medical Center, JBLM, WA

MHSRS-19-00946 - Session 2 - #600
A Software Platform for Dynamic Simulation of Anatomically Realistic Warfighter Avatars during Military-relevant Tasks
Presentation Author: Dr. Nathan Pickle
Nathan T. Pickle, PhD¹, Timothy P. Zehnbauer, BS¹, Xianlian Alex Zhou, PhD², Diana P. Sanford, PhD³, Reed W. Hoyt, PhD³, Gary P. Zientara, PhD³, and Paulien E. Roos, PhD¹
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MHSRS-19-00994 - Session 2 - #601
Biomechanical and Physiological Simulations of Individual Warfighters Based on Individualized Avatars with Complete Anatomy
Presentation Author: Dr. Zhiqing Cheng
Zhiqing Cheng, PhD1, Jingwen Hu, PhD2, James Yang, PhD3, Diana Sanford, PhD4, Reed W. Hoyt, PhD4, and Gary P. Zientara, PhD4
1Innovision, LLC, Dayton, OH; 2University of Michigan, Ann Arbor, MI; 3Texas Tech University, Lubbock, TX; 4U.S. Army Research Institute of Environmental Medicine, Natick, MA

**MHSRS-19-01163 - Session 2 - #602**  
Shoulder Proprioception Quantification for Injury Prevention and Return To Duty Decision-making  
Presentation Author: LTC Margaret Nowicki  
Jeremy R. Schnipke1, Thomas G. Rounds1, Jacob P. Sroka1, Zachary B. Lowe1, LTC Margaret A. Nowicki1, Dr. Gregory M. Freisinger1, Brittany R. Hotaling2, Dr. Kenneth L. Cameron3, Dr. Richard B. Westrick2  
1U.S. Military Academy, West Point, NY; 2U.S. Army Research Institute of Environmental Medicine, Natick, MA; 3Keller Army Community Hospital, West Point, NY

**MHSRS-19-01176 - Session 2 - #603**  
The Prevalence Of Bunion Deformity in the Active Duty Military  
Presentation Author: LTC Deanna Duran  
Deanna E. Duran, LTC, MS, DPM, Cristóbal S Berry-Cabán, PhD, Jeannie Huh, MAJ(P)MC, MD, Thomas Beltran, MA  
Womack Army Medical Center, Fort Bragg, NC

**MHSRS-19-01257 - Session 2 - #604**  
A Non-inferiority Study Comparing a Photobiologic Therapy Kiosk to Oral Vitamin D Supplementation to Optimize Serum 25(OH)D  
Presentation Author: Dr. Mary McCarthy  
Mary S. McCarthy, PhD, RN, FAAN1, Evelyn B. Elshaw, MS, RD, CD2, Barbara M. Szekely, BSN, RN3, Thomas Beltran, BS, BA, MA2  
1Madigan Army Medical Center, Tacoma, WA; 2The Geneva Foundation, Tacoma, WA

**MHSRS-19-01454 - Session 2 - #605**  
A Retrospective Study of Foot Biomechanics and Injury History in Elite Athletes at the U.S. Naval Academy  
Presentation Author: Mr. Joshua Jeffries  
Joshua Jeffries, BS1, Jennifer Windsor, MD2, Paul Pasquina, MD2,3  
1The Henry M. Jackson Foundation, Bethesda, MD; 2Walter Reed National Military Medical Center, Bethesda, MD; 3Uniformed Services University, Bethesda, MD

**MHSRS-19-01813 - Session 2 - #606**  
Associations between an Integrated Musculoskeletal Injury Risk Mitigation Program and Self-reported Pain during U.S. Military Training  
Presentation Author: Ms. Carolyn Dartt  
Carolyn E. Dartt, MEd, ATC1,2, Daniel R. Clifton, PhD, ATC1,2, Timothy C. Gribbin, MEd, ATC1,2, John Tra,PhD 1,2, Sarah J. de la Motte, PhD, MPH, ATC2  
1Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; 2Uniformed Services University, Bethesda, MD

**MHSRS-19-02342 - Session 2 - #607**  
Novel Approaches to Get Ahead of Neuro-musculoskeletal Injuries in Conventional Military Forces through Embedded Multi-disciplinary Teams  
Presentation Author: MAJ Nicholas Koreerat
MHSRS-19-02653 - Session 2 - #608  
Loss Of Hypoxia Signaling Limits Skeletal Muscle Response To Aerobic Exercise In Aging  
Presentation Author: Dr. Yori Endo  
Yori Endo, MD\textsuperscript{1}, Bin Li, MD\textsuperscript{1}, Kodi Udeh, MS\textsuperscript{1,2}, Adriana Panayi, MD\textsuperscript{1}, Ronald Neppl, PhD\textsuperscript{1}, Indranil Sinha, MD\textsuperscript{1}  
\textsuperscript{1}Brigham and Women’s Hospital, Boston, MA; \textsuperscript{2}The University of Connecticut School of Medicine, Farmington, CT

MHSRS-19-00215 - Session 2 - #609  
Self-report Insomnia Symptoms Robustly Predicts Posttraumatic Stress across the Deployment Cycle in an Armored Brigade Combat Team  
Presentation Author: CAPT Ashlee McKeon  
Ashlee McKeon, PhD\textsuperscript{1}, Maria St. Pierre, MA\textsuperscript{1}, Lillian Skeiky, BS\textsuperscript{1}, Jake Choynowski, BS\textsuperscript{1}, Julie Merrill\textsuperscript{2}, Walter Sowden, PhD\textsuperscript{1}  
\textsuperscript{1}Walter Reed Army Institute of Research, Silver Spring, MD; \textsuperscript{2}U.S. Army Medical Research Directorate-West, Tacoma, WA

MHSRS-19-00251 - Session 2 - #610  
Adverse Childhood Experiences and Post-deployment Functional Impairment: Evidence for a Mechanistic Role for Sleep Disturbance  
Presentation Author: Dr. Morgan Conway  
Morgan A. Conway, PhD\textsuperscript{1,2}, Hunter K. Yates, BS\textsuperscript{1,2}, Jeffrey M. Osgood, PhD\textsuperscript{1}, Lyndon A. Riviere, PhD, Kristina M. Clarke-Walper, MPH, Hunter K. Yates, BS, Phillip J. Quartana, PhD  
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-00341 - Session 2 - #611  
Getting Ahead of Head Injuries: Sleep Disturbance Predicts Greater Functional Impairment among Soldiers with Self-reported Concussion  
Presentation Author: Ms. Jayne Holzinger  
Morgan A. Conway, PhD\textsuperscript{1,2}, Hunter K. Yates, BS\textsuperscript{1,2}, Jeffrey M. Osgood, PhD\textsuperscript{1}, Lyndon A. Riviere, PhD\textsuperscript{1}, Kristina M. Clarke-Walper, MPH\textsuperscript{1}, Phillip J. Quartana, PhD\textsuperscript{1}  
\textsuperscript{1}Walter Reed Army Institute of Research, Silver Spring, MD; \textsuperscript{2}TechWerks, Silver Spring, MD; \textsuperscript{3}ICON GPHS, Silver Spring, MD

MHSRS-19-00447 - Session 2 - #612  
Treatment of Comorbid Sleep Disorders and PTSD: Self-report Findings  
Presentation Author: Dr. Daniel Taylor  
Daniel J. Taylor, PhD\textsuperscript{1}, Patricia A. Resick, PhD\textsuperscript{2}, Kristi E. Pruiksmas, PhD\textsuperscript{3}, LTC Karin Nicholson, MD\textsuperscript{4}, Jessica Dietch, PhD\textsuperscript{1}, Danica Slavish, PhD\textsuperscript{1}, Katherine A. Dondanville, Psy.D.\textsuperscript{3}, Sophie Wardle, BS\textsuperscript{1}, Jim Mintz, PhD\textsuperscript{3}, Willie Hale, PhD\textsuperscript{3,5}, Brett Litz, PhD\textsuperscript{6,7}, Stacey Young-McCaughan, RN, PhD\textsuperscript{3}, Terence Keane, PhD\textsuperscript{6,7}, Alan L. Peterson, PhD\textsuperscript{3,5,8}  
\textsuperscript{1}University of North Texas, Denton, TX; \textsuperscript{2}Duke University Medical Center, Durham NC; \textsuperscript{3}University of Texas Health Science Center at San Antonio, San Antonio, TX; \textsuperscript{4}Carl R. Darnall Army Medical Center, Fort Hood, TX;
MHSRS-19-00488 - Session 2 - #613

Developing and Testing a Web-based Provider Training for Cognitive Behavioral Therapy of Insomnia

Presentation Author: Dr. Daniel Taylor

Daniel J. Taylor, PhD¹, Brian E. Bunnell, PhD², Casey Calhoun, PhD², Kristi E. Pruiksma, PhD³, Melissa Milanak, PhD², Alyssa Rheingold, PhD², Alan Peterson, PhD³, Charles Morin, PhD⁴, William Brim, PsyD⁵, Kenneth J. Ruggiero, PhD², Allison K. Wilkerson, PhD²

¹University of North Texas, Denon, TX; ²Medical University of South Carolina, Charleston, SC; ³University of Texas Health Science Center, San Antonio, TX; ⁴Laval University, Quebec, Canada; ⁵Center for Deployment Psychology, Bethesda, MD

MHSRS-19-00484 - Session 2 - #614

Comparison of Alternative Scoring Paradigms of Rest-activity Consolidation to Inform a Biomarker of Circadian Disruption after TBI: A VA TBI Model System Study

Presentation Author: Dr. Risa Richardson

Risa Nakase-Richardson, PhD¹,²,5, Marc A. Silva, PhD¹,²,6, William Lapcevic, MPH³, Daniel J. Schwartz, MD⁴,5, Karel Calero, MD⁴,5, Jamie M. Zeitzer, PhD⁷,8

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MHSRS-19-00506 - Session 2 - #615

Exploring the Impact of Sleep Deprivation and Caffeine on Operationally Relevant Complex Cognitive Processes in Medical Professionals

Presentation Author: Dr. Tracy Jill Doty

Tracy Jill Doty, PhD¹, LoniQue Moore, MSPH¹, Robert Shih, MD²,³, Gail H. Kohls, RT(R)(MR)², Miriam A. Roth, MS, PA-C¹, Alexander B. Galifianakis, MD²,³, Jacob F. Collen, MD²,³, Vincent B. Ho, MD²,³, John D. Hughes, MD¹, Thomas J. Balkin, PhD¹, Steven J. Durning, MD, PhD²,³, Vincent F. Capaldi, II, MD¹,²

¹Walter Reed Army Institute of Research, Silver Spring, MD; ²Walter Reed National Military Medical Center, Bethesda, MD; ³Uniformed Services University, Bethesda, MD

MHSRS-19-00585 - Session 2 - #616

In-bed Pose Estimation Using Under Cover Imaging via Thermal Diffusion

Presentation Author: Dr. Eric Guenterberg

Northeastern University, Boston, MA

MHSRS-19-00669 - Session 2 - #617

Event-based Brainwave and Muscle Signal Analysis during Sleep Related to Soldier Operational Readiness

Presentation Author: Dr. Eugene Ren

Eugene Ren, PhD, David Lai, PhD, Steve Eggleston, PhD

LR Technologies, Inc, Rockville, MD

MHSRS-19-00712 - Session 2 - #618

Sleep Extension and Deprivation Alters the Processing of Threat-related Information

Presentation Author: Dr. Sara Alger

Sara E. Alger, PhD, Allison J. Brager, PhD, Michael Andrews, Nora Prindle, Ruthie H. Ratcliffe, Thomas J. Balkin, PhD, Vincent F. Capaldi, MD, Guido Simonelli, MD, Tracy Jill Doty, PhD
A Comparison of Medical-grade Actigraphy Devices with Polysomnography during Inpatient Rehabilitation for Traumatic Brain Injury

Presentation Author: Dr. Risa Nakase-Richardson
Guerrero, G.¹, Schwartz, D.¹,², Silva, M.¹⁻³, Zeitzer, JM.⁵,⁶, Monden, K.⁷, Wittine, L.¹, Bogner, J.⁸, Reljic, T.¹, Kumar, A.¹, Nakase-Richardson, R.¹,³,⁴
¹University of South Florida; ²Medicine; ³MHB; ⁴James A. Haley Veterans Affairs Medical Center, Tampa, FL; ⁵Stanford University, Palo Alto, CA; ⁶VA Palo Alto Health Care System; ⁷Craig Hospital, Englewood, CO; ⁸Ohio State University, Columbus, OH

Optimal Countermeasures to Maximize Warfighter Alertness

Presentation Author: Dr. Francisco Vital-Lopez
Francisco G. Vital-Lopez, PhD¹,², Sridhar Ramakrishnan, PhD¹,², Tracy J. Doty, PhD³, Thomas J. Balkin, PhD³, and Jaques Reifman, PhD¹
¹U.S. Army Medical Research and Development Command, Fort Detrick, MD; ²The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, MD; ³Walter Reed Army Institute of Research, Silver Spring, MD

Pap Adherence in Veterans with Moderate to Severe Traumatic Brain Injury

Presentation Author: Mrs. Leah Drasher-Phillips
Leah Drasher-Phillips, MPH¹, Daniel J. Schwartz, MD²,⁵, William Mc Dowell Anderson, MD⁵, Lara Wittine MD⁵, Marc A. Silva, PhD³,⁴,⁵, Risa Nakase – Richardson, PhD³,⁴,⁵
¹Research; ²Medicine; ³Mental Health and Behavioral Sciences; ⁴James A. Haley Veterans’ Hospital, Tampa, FL; ⁵University of South Florida, FL

2B-alert Web 2.0: An Open-access Tool to Optimize Warfighter Alertness

Presentation Author: Dr. Jaques Reifman
Kamal Kumar, MS¹,², Francisco G. Vital-Lopez, PhD¹,², Sridhar Ramakrishnan, PhD¹,², Tracy J. Doty, PhD³, Thomas J. Balkin, PhD³, Jaques Reifman, PhD¹
¹U.S. Army Medical Research and Development Command, Fort Detrick, MD; ²The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc, Bethesda, MD; ³Walter Reed Army Institute of Research, Silver Spring, MD

Sleep Quality and Sleep Leadership as Predictors of Performance among West Point Cadets

Presentation Author: MAJ Angela Yarnell
Angela M. Yarnell, PhD, Elizabeth Rodriguez, Darnell Brown, Benjamin Adams, MA
U.S. Military Academy, West Point, NY

Fatigue and Clinicopathological Risk Indexes Across Conus Army Installations: Retrospective Analyses of FY17 OTSG Health of the Force

Presentation Author: CPT Allison Brager
Nishitha Hosamane, Vincent Capaldi, MD, Guido Simonelli, MD
MHSRS-19-01447 - Session 2 - #625
Circadian Misalignment through Night Shift Simulation Disrupts Plasma Lipidome
Presentation Author: Dr. Jennifer Kyle
Jennifer E. Kyle1, Lisa M. Bramer1, Daniel Claborne1, Kelly G. Stratton1, Kent J. Bloodsworth1, Justin G. Teeguarden1, Thomas O. Metz1, Shobhan Gaddameedhi2, Hans P.A. Van Dongen2
1Pacific Northwest National Laboratory, Richland, WA; 2Washington State University, Spokane, WA

MHSRS-19-01705 - Session 2 - #626
Sleep Apnea and Duration of Illness Predicts Performance on Telephone-assessed Neuropsychological Test: A VA TBI Model Systems Study
Presentation Author: Ms. Erin Brennan
Erin M. Brennan, MA1-2, Emily T. Noyes, MA1-2, Amanda C. Royer, BA2-3, Risa Nakase-Richardson, PhD1-3, Marc A. Silva, PhD1-3
1University of South Florida, Tampa, FL; 2James A. Haley Veterans’ Hospital, Tampa, FL; 3Defense and Veterans Brain Injury Center, Tampa, FL

MHSRS-19-01773 - Session 2 - #627
Sleep Deficit in Drill Sergeants and Increased Risk of Accidents
Presentation Author: Dr. Toby Elliman
Toby Elliman, PhD, Molly Schwalb
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-01777 - Session 2 - #628
Effects of a Live-fire Military Exercise and Group Membership on Subjective Sleepiness, Fatigue, and Mood
Presentation Author: Ms. Carolyn Mickelson
Carolyn Mickelson, MS1, Tina M. Burke, PhD1, Stephanie Brown2, Jaime K. Devine, PhD1, Kajsa Carlsson, BS1, Jake Choynowski, BS1, Walter J. Sowden, PhD1, John Ramsay, PhD2, Erika Hussey, PhD2
1Walter Reed Army Institute of Research, Silver Spring, MD; 2Combat Capabilities Development Command Soldier Center, Natick, MA

MHSRS-19-01798 - Session 2 - #629
Subjective Sleep Quality Among U.S. Army Tank Crewmen During a Mission Readiness Training Exercise at the National Training Cente.
Presentation Author: Ms. Maria St. Pierre
Maria St. Pierre, MS, Carolyn Mickelson, MS, Walter J Sowden, PhD
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-01811 - Session 2 - #630
Differences in Self-reported Sleep Duration, Sleep Quality, Alertness, Fatigue, and Mood Across a 72-hour Mission Training Exercise
Presentation Author: Dr. Tina Burke
Tina M. Burke, PhD1, Carolyn Mickelson, MS1, Stephanie Brown, MS2, Jaime K Devine, PhD1, Kajsa Carlsson, BS1, Jake Choynowski, BS1, Vincent Capaldi, MD1, John Ramsay, PhD2, Erika Hussey, PhD2, Walter J Sowden, PhD1
1Walter Reed Army Institute of Research, Silver Spring, MD; 2Combat Capabilities Development Command Soldier Center, Natick, MA
Fatigue Recovery Enhancement in Extreme Conditions Using Noninvasive Neuromodulation Technology
Presentation Author: Mr. Richard Hanbury
Richard Hanbury, MBA, Dip Law, BA¹, Brad Chedister, BS, MS, MS², Philippe A. Souvestre, MD, CES, CEA, PhD, FAsMA³
¹Sana Health Inc, Boulder CO; ²Draper Laboratory; ³Medical Center, Vancouver, BC, Canada

Fatigue Recovery Enhancement Using Noninvasive Neuromodulation Technology
Presentation Author: Mr. Richard Hanbury
Richard Hanbury, MBA, Dip Law, BA¹, Brad Chedister, BS, MS, MS², Philippe A. Souvestre, MD, CES, CEA, PhD, FAsMA³
¹Sana Health Inc, Boulder CO; ²Draper Laboratory; ³Medical Center, Vancouver, BC, Canada

Evaluation of Sleep Quality in a Military Population: The Military Service Sleep Assessment
Presentation Author: MAJ Matthew Brock
Sharon R. Hasslen, MS¹, COL Vincent Mysliwiec, MD², Kristi E. Pruksma, PhD¹, Alan L. Peterson, PhD¹,³,⁴, F. Alex Carrizales, BA¹, Antoinette Brundige, MS¹, Daniel J. Taylor, PhD², Lt Col Robert Vanecek, PhD², Lt Col Shana Hansen, MD², MAJ Shannon N. Foster, DO², Stacey Young-McCaughan, RN, PhD¹, Jessica Gill, RN, PhD⁶, Panagiotis Matsangas, PhD¹, Jim Mintz, PhD¹, Maj Matthew S. Brock, MD²
¹University of Texas Health Science Center at San Antonio, San Antonio, TX; ²San Antonio Military Healthcare System, San Antonio, TX; ³South Texas Veterans Health Care System, San Antonio, TX; ⁴University of Texas at San Antonio, San Antonio, TX; ⁵University of North Texas, Denton, TX; ⁶National Institutes of Health, Bethesda, MD; ⁷Naval Postgraduate School, Monterey, CA

Features of Nightmares during In-lab Video Polysomnography
Presentation Author: MAJ Matthew Brock
Matthew S. Brock, MD; Jinsong Wu, DO¹; Shannon N. Foster, DO; William C. Frey, MD; Vincent Mysliwiec, MD
San Antonio Military Health System, San Antonio, TX

Findings from a U.S. Army Aviator Survey on Energy Drink Usage
Presentation Author: Lt Col Claire Goldie
Claire Goldie, MB ChB, Amanda Kelley, PhD
U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL

Enhancing Crew Endurance in the U.S. Navy: Progress from the First Year of a 3-year Training Project
Presentation Author: Dr. Nita Shattuck
Nita Lewis Shattuck, PhD¹, Panagiotis Matsangas, PhD¹, Zechariah Chawinga, BA¹, Heather Clifton, PhD¹, Lisa Geiger, BA¹, Jennifer Hart, BSc², Matthew Weaver, PhD³, Charles Czeisler, PhD³, Laura Barger, PhD³
¹Naval Postgraduate School, Monterey, CA; ²Middlebury Institute of International Studies, Monterey, CA; ³Brigham and Women’s Hospital/Harvard Medical School, Boston, MA

Integrated Proteomic and Metabolomic Network Analysis of Circadian Misalignment Following
Simulated Night Shift Work
Presentation Author: Dr. Jason McDermott
Jason E McDermott¹,2, Osama Arshad¹, Hugh Mitchell¹, Jon Jacobs¹, Shobhan Gaddameedhi³, Debra Skene⁴, Hans van Dongen³
¹Pacific Northwest National Laboratory, Richland, WA; ²Oregon Health and Sciences University, Portland, OR; ³Washington State University, Spokane, WA; ⁴University of Surrey, UK

MHSRS-19-02232 - Session 2 - #638
Electrooculogram-based Wearable Eye Tracking for Objective Fatigue Assessment
Presentation Author: Dr. Paul Calamia
Paul Calamia, PhD¹, LCDR Cheryl Griswold¹,², Lara Weed¹, Jim Williamson, PhD¹, Hrishikesh M. Rao, PhD¹
¹MIT Lincoln Laboratory; ²Navy Medicine Professional Development Program

MHSRS-19-02268 - Session 2 - #639
Posttraumatic Stress Disorder Severity and Insomnia-related Sleep Disturbances: Longitudinal Associations in a Large, Gender-balanced Cohort of Combat Exposed Veterans
Presentation Author: Mrs. Ashley Magnavita
Raymond C. Rosen, PhD¹, Bryanna Cikesh, MPH¹, Felicia Trachtenberg, PhD¹, Ashley Magnavita, MPH¹, Shona Fang, PhD², Karen Seal, MD, MPH³, Don Bliwise, PhD⁴, Jonathan Green, PhD²,⁶, Michelle Bovin, PhD²,⁵,⁶, Brian P. Marx, PhD²,⁵,⁶, Terence M. Keane, PhD²,⁵,⁶
¹New England Research Institutes; ²National Center for PTSD; ³San Francisco VA Health Care Systems and University of California; ⁴Emory University School of Medicine; ⁵VA Boston Healthcare System; ⁶Boston University School of Medicine; ⁷O'Connor Professional Group

MHSRS-19-02438 - Session 2 - #640
Using Multiple Stimuli to Promote Rapid Circadian Acclimatization
Presentation Author: Dr. Shawn Youngstedt
Shawn D. Youngstedt, PhD¹,², Jeffrey A. Elliott, PhD³, Daniel F. Kripke, MD³, Evan E. Raiewski, PhD³
¹Arizona State University, Phoenix, AZ; ²Phoenix VA Health Care System, Phoenix, AZ; ³University of California San Diego, La Jolla, CA

MHSRS-19-02448 - Session 2 - #641
Daily Administered Blue Light Therapy Reduces Daytime Sleepiness and Improves Somatic Symptoms Following Mild Traumatic Brain Injury
Presentation Author: Dr. Adam Raikes
Adam C. Raikes, Brieann C. Satterfield, Sahil Bajaj, Michael A. Grandner, William D. S. Killgore
University of Arizona, Tucson, AZ

MHSRS-19-02452 - Session 2 - #642
Sleep Problems Associated with Posttraumatic Stress Disorder and Depression Following Mild Traumatic Brain Injury in U.S. Military Service Members
Presentation Author: Dr. Lisa Lu
Lisa H Lu, PhD¹,², Jan E Kennedy, PhD¹,², Matthew W Reid, PhD¹,²
¹Defense and Veterans Brain Injury Center, San Antonio, TX; ²General Dynamics Information Technology, San Antonio, TX

MHSRS-19-02455 - Session 2 - #643
The Relationship Between Sleep Onset Latency and Gratitude
Presentation Author: Ms. Anna Burns
“Early to Bed and Early to Rise Makes a Man Healthy, Wealthy and Wise”: The Impact of Sleep on Health, Income and Education
Presentation Author: Dr. Cristobal S. Berry-Caban
Sharon P. McKiernan, MD, Cristobal S. Berry-Caban, PhD, Thomas Beltran, MA
Womack Army Medical Center, Fort Bragg, NC

Inadequate Sleep Quality and Duration Predicts Disinhibited Shooting on a “Shoot/no Shoot” Task
Presentation Author: Mr. Kyle LaFollette
Kyle J. LaFollette¹, Brieann C. Satterfield¹, Simon Esbit¹, Michael Lazar¹, William D. S. Killgore¹
University of Arizona, Tucson, AZ

Sleep Characteristics in Active Duty Service Members with PTSD: Novel Findings and Implications
Presentation Author: Capt Brent Jacobus
Capt Brent Jacobus, MD, Maj Adam M. Willis, MD, COL Vincent Mysliwiec, MD, Maj Matthew S. Brock, MD
San Antonio Military Healthcare System, San Antonio, TX

Effects of Cooled Compression Exercise Technology on Health, Sleep, and Quality of Life in Veterans
Presentation Author: Ms. Chloe Wernecke
Chloe Wernecke, BA¹, Pat Marques, MS², Grove Higgins, DC²
¹Vasper Systems, Moffett Field, CA; ²Colorado Springs Human Performance and Rehabilitation Center, Colorado Springs, CO

Use Of High Energy Visible Light-emitting Glasses to Improve Sleep and Mood during 24-hour Military Operations
Presentation Author: Dr. Heather Clifton
LT Kelly N Moon BS¹, Heather L Clifton, PhD¹, Megan D Rock, BBA¹, Michael Curtis, PhD(c)², Panagiotis Matsangas, PhD¹, Nita Lewis Shattuck, PhD¹
¹Naval Postgraduate School, Monterey, CA; ²Strategic Weapons Facility Pacific, Bangor, WA

Stressor Reactivity in Sleep-deprived Normal Sleepers and Sleep-onset Insomniacs
Presentation Author: Dr. Devon Hansen
Brieann C. Satterfield, PhD², Matthew E. Layton, MD, PhD¹, Hans P.A. Van Dongen, PhD¹
¹Washington State University, Spokane, WA; ²University of Arizona, Tucson, AZ

Patients’ Perception of a Behavioral Intervention for CPAP Treatment Adherence in a Military Treatment Facility
Presentation Author: Dr. Juliana Ee
Juliana S. Ee, PhD, MAJ Christopher K. Pham, DO, CPT David P. Shaha, MD, Mary C. Rogers, RN
Womack Army Medical Center, Fort Bragg, NC
MANAGING PHYSIOLOGIC EVENTS IN MILITARY AVIATION

MHSRS-19-01976 - Session 2 - #651
Descriptive Epidemiology of U.S Air Force Aviators Referred for Evaluation of Obstructive Sleep Apnea
Presentation Author: Lt Col Dara Regn
Maj Melissa Gear, Jared Haynes, Linda Alvarado
U.S. Air Force School of Aerospace Medicine

MHSRS-19-01978 - Session 2 - #652
Pulmonary Function in U.S. Aviators: Past and Present
Presentation Author: Lt Col Dara Regn

MHSRS-19-00156 - Session 2 - #653
Global Evaluation and Rapid Upward Reporting Application for Pilot Breathing Air Contamination Data Using Open-Source Software
Presentation Author: Mr. Converse Griffith
Converse Griffith, PhD, Daniel Cowan, PhD, Christin Duran, PhD
¹UES Inc, Dayton, OH; ²711th HPW Exposure Assessment Team, Wright-Patterson AFB, OH

MHSRS-19-00171 - Session 2 - #654
Effects of Altitude/barometric Pressure and G-forces on Adult Human Blood Flow and Breathing Rates: Literature Review, Meta Analysis, and Data Gaps
Presentation Author: Dr. Lisa Sweeney
Lisa Sweeney, PhD
UES, Inc, Dayton, OH

MHSRS-19-01053 - Session 2 - #655
Development of a New Research Capability and a First-of-its-kind Human Subject Research Study: Manned Testing of Rapid Pressure Fluctuation Physiological Episodes Associated with Naval Aviation Physiological Events
Presentation Author: Lt Travis Doggett
LT Travis Doggett, PhD, MSC, CDR Bradley Hickey, MD, MC, LT Jennifer Jewell, PhD, MSC
Navy Experimental Diving Unit, Panama City, FL

MHSRS-19-01164 - Session 2 - #656
Effects of Occupational Hypobaric Exposure on White Matter Integrity in a Cohort of U-2 Pilots and Air Force Chamber Technicians
Presentation Author: Col John Sladky
Bianca Cerqueira, PhD; Ms. Holly Chapapas, MS; Col (ret) Paul M. Sherman, MD
¹U.S. Air Force School of Aerospace Medicine, Wright-Patterson AFB, OH; ²59th Medical Wing, Joint Base San Antonio-Lackland AFB, TX; ³KBRWyle Aerospace Neurology Research, Joint Base San Antonio-Lackland AFB, TX

MHSRS-19-01791 - Session 2 - #657
Facial Neuropraxis and Alternobaric Vertigo: Rare Manifestations of Eustachian Tube Dysfunction
Presentation Author: MAJ Matthew Wimmer
Cope-fighter Summit: Characterizing and Optimizing the Physiologic Environment in Fighter Aircraft
Presentation Author: Dr. Ryan Mayes

Impact of Hypoxia on Cognitive Functioning and Efficacy of Hypoxia Training
Presentation Author: Ms. Sabrina Drollinger
Sabrina Drollinger, MS¹, Lee Sciarini, PhD², MS, Dallas Snider, PhD³, Jeffrey Phillips, PhD⁴, Steve Linnville, PhD¹, Brittany Neilson, MS⁴, Luke Scripture², Chris Gilg², Tim Addison²
¹Naval Aeromedical Institute, Pensacola, FL; ²Naval Survival Training Institute, Pensacola, FL; ³Univ of West Florida, Pensacola, FL; ⁴Institute for Human and Machine Cognition, Pensacola, FL

SECURING WARFIGHTER DOMINANCE IN THE FUTURE AIR BATTLESPACE

Human Factors in Maintainer Mishaps
Presentation Author: Lt Aditya Prasad
Jennifer Johnson, LCDR, Aditya Prasad, LT
Naval Air Systems Command, NAS Patuxent River, MD

Enhanced Capabilities for Navy Aviation Hypoxia Training: System Design and End User Testing to Validate System Capabilities
Presentation Author: Mr. Matthew Pierce
Matthew Pierce, MS, Jacob Entinger, MA, Mitchell Tindall PhD, Beth Atkinson MA,
Naval Air Warfare Center Training Systems Division, Orlando, FL

Presentation Author: COL Steven Hadley
Marc Winterbottom, PhD
711 HPW, AFRL, WPAFB, PH

SPINAL MUSCULOSKELETAL INJURY PREVENTION IN FIXED AND ROTARY WING ENVIRONMENTS

Pilot Questionnaire to Characterize Neck Pain Related to Forward Helmet Center of Gravity (A Pilot Venture Focused on the Air National Guard)
Presentation Author: Mr. Anthony Turner
Anthony M. Turner, MPH¹, Ryan S. Mayes, PhD², Benjamin A. Clapp, MS³, Eric Ennis, MS³
¹USAF School of Aerospace Medicine, Muskegon, MI; ²USAF School of Aerospace Medicine, Upper Arlington, OH; ³USAF School of Aerospace Medicine, Dayton, OH

A Novel Application of Head Tracking Data in the Analysis and Assessment of Cervical Spine Range of
Motion for Army Aviators
Presentation Author: Mr. Steven Williams
Steven T. Williams1,2, Fred Brozoski1, Adrienne Madison1,3, and V. Carol Chancey1
1U.S. Army Aeromedical Research Laboratory, Ft. Rucker, AL; 2Laulima Government Solutions, Orlando, FL;
3Katmai Government Services, Anchorage, AK

MHSRS-19-01544 - Session 2 - #665
Global-local Finite-element Modeling during Neck Tension
Presentation Author: Dr. Harsha T. Garimella
Harsha T. Garimella, PhD1, Vikram Subramani2, Reuben Kraft, PhD2, Phillip Whitley, PhD1
1CFD Research Corporation, Huntsville, AL; 2Pennsylvania State University, State College, PA

MHSRS-19-02123 - Session 2 - #666
Comparative Finite Element Modeling Study of Anterior Cervical Arthrodesis versus Cervical Arthroplasty with Bryan or Prodisc C
Presentation Author: Dr. Hoon Choi
Hoon Choi, MD1, Jamie Baisden, MD1, Yuvaraj Purushothaman, MS2, Deepak Rajasekaran, MS2, Vicky Varghese, PhD1, Davidson Jebaseelan, PhD2, Narayan Yoganandan, PhD1
1Medical College of Wisconsin, Milwaukee, WI; 2VIT University, Chennai Campus, India

MHSRS-19-02512 - Session 2 - #667
Osteoactivin and BMP2, Orthobiologics Comparison for Efficacy and Safety in Spinal Fusion
Presentation Author: Dr. Fayez Safadi
Scott McDermott, MD1, Bryson Cook, BS2, Matthew DeSanto, BS2, Omar Azem, BS2, Mark Obri, BS2, Alex Miller, BS2, Andrew Olier, BS2, Kevin Budge, MS2, Fayez Safadi, PhD1,2,3,4
1SUMMA Health System, Akron, OH; 2Northeast Ohio Medical University, Rootstown, OH; 3Kent State University, Kent, OH; 4Akron Children’s Hospital, Akron, OH

ANCILLARY TOPICS

DELIVERING AND APPLYING ARTIFICIAL INTELLIGENCE FOR WARFIGHTER HEALTH & READINESS - A COMBAT MULTIPLIER

MHSRS-19-02107 – Poster Session 2 - #668
mTBI Detection using Coordination of Vocal Dynamics in a Deep Learning Context
Presentation Author: Ms. Sophia Yuditskaya
Sophia Yuditskaya, James Williamson, Adam Lammert, Daniel Hannon, Richard DeLaura, Doug Sturim, Gregory Ciccarelli, Jeffrey Palmer, Thomas Quatieri
MIT Lincoln Laboratory, Lexington, MA

EXPEDITIONARY NURSING

MHSRS-19-00072 – Poster Session 2 - #669
Perioperative Deployment Readiness Guide
Presentation Author: CPT Julia Catanese
Major David Bradley, MSN, RN, AGCNS-BC, CNOR1; Captain Eric Becker BSN, RN, CNOR1; Captain Sayjai Boonmee, MSN, RN, CNOR1; Captain Jeremy Etzkin, MSN, RN, CNOR2; Major Corey Campbell, MSN, RN, CNOR3;
Staff Sergeant Cedric Martin, BS; Captain Brian King, BSN, RN, CNOR; Technical Sergeant Bojana Revenge, BS; Wendell Foreman, CST

1Brooke Army Medical Center, San Antonio, TX; 235th Medical Group, Misawa Air Base, Japan; 3U.S. Army Institute of Surgical Research, San Antonio, TX

MHSRS-19-00785 – Poster Session 2 - #670
Nonbattle-related Deaths among U.S. Service Members Deployed in Iraq and Afghanistan: Etiology and Trends
Presentation Author: Dr. Tuan Le
Tuan D. Le, MD, DrPH1, Jennifer M. Gurney, MD1,2,3, Melissa A. Kottke, PhD1, Kevin K. Chung, MD3, Karan P. Singh, PhD4, Kevin S. Akers, MD1, Shawn C. Nessen, DO5, Anthony E. Pusateri, PhD1
1U.S. Army Institute of Surgical Research, Fort Sam Houston, TX; 2Joint Trauma System, Fort Sam Houston, TX; 3Uniformed Services University of the Health Sciences, Bethesda, MD; 4University of Texas Health Science at Tyler, Tyler, TX; 5Brooke Army Medical Center, Fort Sam Houston, TX

MHSRS-19-00941 – Poster Session 2 - #671
Evaluation of Clinical Nurse Transition Program at United States Army Hospitals
Presentation Author: LTC Pedro Oblea
LTC Pedro N. Oblea, Jr., PhD1, Cristobal S. Berry-Caban, PhD1, Ashely R. Adams, BA2, Thomas A. Beltran, MS1, Joseph Y. Dumayas, MS2
1Womack Army Medical Center, Fort Bragg, NC; 2The Geneva Foundation, Tacoma, WA

MHSRS-19-00965 – Poster Session 2 - #672
Military Surgical Team Communication: Implications for Safety
Presentation Author: LTC Christopher Stucky
1Christopher H. Stucky, PhD, 2Marla J. De Jong, PhD, 3Felicism W. Kabo, PhD
1Womack Army Medical Center, Fort Bragg, NC; 2University of Utah College of Nursing, Salt Lake City, UT; 3University of Michigan, Ann Arbor, MI

MHSRS-19-01362 – Poster Session 2 - #673
Combat Casualty Care Readiness Achieved Following Level 1 Trauma/burn Clinical Exposure
Presentation Author: Mrs. Krystal Valdez-Delgado
Krystal Valdez-Delgado, BSN; Jennifer Trevino, MBA; CPT Julliet Thomas; CPT Cassandra Bullock; LTC Christopher VanFosson, PhD
U.S. Army Institute of Surgical Research, San Antonio, TX

MHSRS-19-01832 – Poster Session 2 - #674
A Theory for Expeditionary Nursing Practice – Service Beyond Self
Presentation Author: Dr. Mona Pearl Treyball

MHSRS-19-01842 – Poster Session 2 - #675
Practical Obesity Management Course Improves Obesity Treatment Skills in Healthcare Providers
Presentation Author: Dr. Magdalena Pasarica
Magdalena Pasarica, MD, PhD1, Emily J. Dhurandhar, PhD2, Nikhil Dhurandhar, PhD2, Leah Whigham, PhD3
1Univ of Central Florida, Orlando, FL; 2Texas Tech Univ, Lubbock, TX; 3Univ of Texas El Paso, El Paso, TX

MHSRS-19-02109 – Poster Session 2 - #676
Antibiotics in Active Duty Appendicitis Population Trial
Presentation Author: LCDR Mary Arbuthnot
MHSRS-19-02608 - Poster Session 2 - #677
Options for Maintaining Clinical Proficiency during Peacetime
Presentation Author: Dr. Heather Krull
Edward Chan¹, Heather Krull¹, Sangeeta Ahluwalia¹, James Broyles¹, Daniel Waxman¹, John Gurvey¹, Paul Colthirst³, JoEllen Schimmeľs⁴, Anthony Marinos⁵
¹RAND Corporation, Santa Monica, CA; ²UCLA Department of Emergency Medicine, Los Angeles, CA; ³U.S. Army, Fort Polk, LA; ⁴Uniformed Services University, Bethesda, MD; ⁵U.S. Army, Louisville, KY

MHSRS-19-02646 - Poster Session 2 - #678
Risk Factors for Pressure Injury Development in Non-critical Aeromedical Evacuation Trauma Patients
Presentation Author: Ms. Darcy Mortimer

UPDATES ON MILITARY WOMEN’S HEALTH

MHSRS-19-00120 - Poster Session 2 - #679
The Impact of Safe Passages Training on the Incidence of Perineal Trauma During Childbirth
Presentation Author: Col Barton Staat
Barton Staat, MD¹, M. Bardett Fausett MD², Jamie Crosiar³, Jason Massengill MD⁴
¹Uniformed Services University, Bethesda, MD; ²Rocky Mountain Perinatal Institute, Missoula, MT; ³Air Force Medical Service Perinatal Program, San Antonio, TX; ⁴Wright Patterson AFB, Dayton, OH

MHSRS-19-00236 - Poster Session 2 - #680
Long-term Health Consequences of Preeclamptic Pregnancies in the United States Armed Forces: A Case-control Study in Progress
Presentation Author: Dr. Andrea Loewendorf
Andrea Loewendorf, PhD¹, Emily A. Stone, PhD¹, Lee Ann Zarzabal², Thornton S. Mu, MD³, Amelia Duran-Stanton, PhD⁴
¹ImmunoVation, Pasadena, CA; ²Defense Health Agency, San Antonio, TX; ³Brooke Army Medical Center, San Antonio, TX; ⁴Installation Management 6Command (IMCOM), JBSA-Fort Sam Houston, TX

MHSRS-19-00258 - Poster Session 2 - #681
Germline Testing in African American Women with Invasive Breast Cancer
Presentation Author: Dr. Rachel Ellsworth
Germline testing in African American women with invasive breast cancer
Leann A. Lovejoy¹, Seth K. Rummel¹, Craig D. Shriver²,³, Rachel E. Ellsworth²,⁴
¹Chan Soon-Shiong Institute of Molecular Medicine at Windber; ²Murtha Cancer Center Research Program, ³Uniformed Services University of the Health Sciences; ⁴Henry M. Jackson Foundation for the Advancement of Military Medicine

MHSRS-19-00260 - Poster Session 2 - #682
Evaluation of Surgical Disparities between African American and European American Women Treated for Breast Cancer within an Equal-access Military Health Care System
Presentation Author: Dr. Rachel Ellsworth
Leann A. Lovejoy¹, Matthew T. Hueman², Craig D. Shriver²,³, Rachel E. Ellsworth²,⁴
MHSRS-19-00261 - Poster Session 2 - #683
Pathology and Survival of Breast Cancer within the Active Duty Servicewoman Population
Presentation Author: Dr. Rachel Ellsworth
Yvonne Eaglehouse¹,², Paul Davis¹,², Craig D. Shriver¹,³, Rachel E. Ellsworth¹,²
¹Uniformed Services University of the Health Sciences; ²Henry M. Jackson Foundation for the Advancement of Military Medicine; ³Walter Reed National Military Medical Center

MHSRS-19-00266 - Poster Session 2 - #684
Pathologic Characteristics of African American Women with Breast Cancer Treated at the DoD’s Murtha Cancer Center: Understanding Why Survival Cancer is not Disparate to European American Women When Treated Within the U.S. Military Healthcare System
Presentation Author: Dr. Rachel Ellsworth
Leann A. Lovejoy¹, Craig D. Shriver²,³, Rachel E. Ellsworth²,⁴
¹Chan Soon-Shiong Institute of Molecular Medicine at Windber; ²Murtha Cancer Center Research Program; ³Uniformed Services University of the Health Sciences; ⁴Henry M. Jackson Foundation for the Advancement of Military Medicine

MHSRS-19-00385 - Poster Session 2 - #685
An Analysis of Concussion Injuries During the First Three Years of Mandatory Boxing for Female Cadets at the U.S. Air Force Academy
Presentation Author: Dr. Joel Robb
Joel Robb, PT, Christopher D’Lauro, PhD, Gerald McGinty, PT, Matthew Weirath, DO, Bonita Anderson, ATC, Jonathan Jackson, MD
USAFA, CO

MHSRS-19-00442 - Poster Session 2 - #686
Relationship of Prenatal Anxiety and Deployment on Maternal Inflammatory Cytokines: Machine Learning Provides Insight to Highly Dimensional Data
Presentation Author: Dr. Karen Weis
Karen L. Weis, PhD, RN¹, Andrea Loewendorf PhD²
¹University of the Incarnate Word, San Antonio, TX; ²ImmunoVation, Pasadena, CA

MHSRS-19-00452 - Poster Session 2 - #687
Differentiating Compensatory Mechanisms Associated to Low Tolerance to Central Hypovolemia in Women
Presentation Author: Dr. Taylor Schlotman
Taylor E. Schlotman, PhD; LTC Kevin S. Akers, MD; COL Shawn C. Nessen, DO; Victor A. Convertino, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX 78234

MHSRS-19-00591 - Poster Session 2 - #688
Peptide-based Nanohydrogels for Urinary Incontinence in Women
Presentation Author: Dr. Eun Ji Chung
Eun Ji Chung, PhD, Larissa Rodriguez, MD, Rong Zhang, PhD, Jihchao Yeh, PhD
University of Southern California, Los Angeles, CA
**MHSRS-19-00699 - Poster Session 2 - #689**

Female Military Officers Report a Desire for Menstrual Suppression During a 6-month Military Training Course

Presentation Author: Dr. Emily Southmayd
Emily A. Southmayd\(^1,2\), Amelia S. Barrett\(^1,2\), Carl W. Goforth\(^2,3\), Sarah J. de la Motte\(^2\)
\(^1\)Henry M Jackson Foundation for the Advancement of Military Medicine; \(^2\)Uniformed Services University, Bethesda, MD; \(^3\)Naval Medical Research Center, Silver Spring, MD

**MHSRS-19-00703 - Poster Session 2 - #690**

Interrelationship between Sex, Age, Blood Volume and VO2max

Presentation Author: Dr. Mithun Suresh
Natalie J. Koons, BS, Mithun R. Suresh, MD, Taylor E. Schlotman, PhD, and Victor A. Convertino, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX 78234

**MHSRS-19-00704 - Poster Session 2 - #691**

Capacity to Compensate for Central Hypovolemia and Effects of Menstrual Cycle Phases

Presentation Author: Dr. Taylor Schlotman
Victor A. Convertino, PhD; Taylor E. Schlotman, PhD; Winfred Stacey, PhD; Carmen Hinojosa-Laborde, PhD
U.S. Army Institute of Surgical Research, JBSA Fort Sam Houston, TX 78234

**MHSRS-19-00901 - Poster Session 2 - #692**

Sex Differences on Postconcussion Symptom Reporting in Military Service Members Following Mild Traumatic Brain Injury are Moderated by Post Traumatic Stress Symptoms

Presentation Author: Dr. Rael Lange
Rael Lange, PhD\(^1,2,3,4\), Tracey Brickell, DPsych\(^1,2,3,5\), Louis French, PsyD\(^1,2,3,5\), Jason Bailie, PhD\(^1,6\), Angela Driscoll, MS\(^1,2,3\), Megan Wright, MA\(^1,2,3\), Rachel Gartner, MS\(^1,2,3\), Jamie Sullivan, BA\(^1,2,3\), Nicole Varbedian, BS\(^1,2,3\), Elizabeth Barnhart, BA\(^1,2,3\), Daniel Ramin, BA\(^1,2,3\), Yasmine Eshera, BS\(^1,2,3\), Gabrielle Robinson, BA\(^1,2,3\), Samantha Braatz, MS\(^1,2,3\), Claire Kostelnik, BA\(^1,2,3\), Kelly Gillow, MS\(^1,2,3\), Jessie Verive, BS\(^1,2,3\), Megan Glazer, MS\(^1,2,3\), Sara Lippa, PhD\(^1,2,3\)
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**MHSRS-19-00935 - Poster Session 2 - #693**

Time to Surgery and Overall Survival after a Breast Cancer Diagnosis in the Military Health System

Presentation Author: Dr. Yvonne Eaglehouse
Yvonne L. Eaglehouse, PhD, MPH\(^1,2\); Matthew W. Georg, MPH\(^1,2\); Craig D. Shriver MD, FACS, COL, USA (Ret.)\(^1,3\); Kangmin Zhu, MD, PhD\(^1,2\)
\(^1\)Uniformed Services University of the Health Sciences, Bethesda, MD; \(^2\)Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; \(^3\)Walter Reed National Military Medical Center, Bethesda, MD

**MHSRS-19-01621 - Poster Session 2 - #694**

Implementation of Obstetrical Emergency in-situ Team Simulation Drills with Novel Reporting and Analytical System for all United States Military Hospitals

Presentation Author: Col Barton Staat
Barton Staat, MD\(^1\), Shad Deering\(^1\), Tracey Koehlmoos PhD\(^1\), J Schaefer\(^2\), R. Harvey\(^2\), L Hebbar\(^2\), Jerry Reves\(^2\)
Menstrual Practices in Operational Military Women
Presentation Author: MAJ Angela K. Phillips

Evaluation of Laser Microdissected Primary Breast Tumors for RNA-seq Over Bulk Processing
Presentation Author: Dr. Praveen-Kumar Raj-Kumar
Praveen-Kumar Raj-Kumar, PhD¹, Lori A. Sturtz, PhD¹, Albert J. Kovatch, MS²,³, Brenda Deyarmin, HT(ASCP)QIHC¹, Jeffrey A. Hooke, MD²,³, Leigh Fantacone-Campbell, MD²,³, Anupama Praveen-Kumar, MS¹, Jianfang Liu, MS¹, James Craig, PhD¹, Leonid Kvecher, MS³, Jennifer Kane, BS¹, Jennifer Melley, BS¹, Stella Somiari, PhD¹, Stephen C. Benz, PhD⁴, Justin Golovato, MS⁴, Shahrooz Rabizadeh, PhD⁴,⁵, Patrick Soon-Shiong, MD⁴,⁵, Richard J. Mural, PhD¹, Craig D. Shriver, COL (Ret), MD², Hai Hu, PhD¹
¹Chan Soon-Shiong Institute of Molecular Medicine at Windber, Windber, PA; ²Uniformed Services University/Walter Reed National Military Medical Center, Bethesda, MD; ³Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; ⁴NantOomics, Culver City, CA; ⁵NantWorks, Culver City, CA

Survival Outcomes in Epithelial Ovarian Cancer Patients in an Equal Access Health System Compared with the National Surveillance, Epidemiology, and End Results Program
Presentation Author: MAJ David Anderson
David M. Anderson, MD¹, Kathleen M. Darcy, PhD¹,², Matt Georg, MS¹,², Chunqiao Tian, PhD¹,², Jie Lin, PhD, MPH¹,², Craig D. Shriver, MD¹, Yovanni Casablanca, MD¹, Kangmin Zhu, MD, PhD¹,²
¹Uniformed Services University of the Health Sciences, Walter Reed National Military Medical Center, Bethesda, MD; ²Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD

Gender Differences in Gulf War Illness: A Re-analysis of Data from the CDC Air Force Study Using CDC and Kansas Case Definitions
Presentation Author: Dr. Vahe Heboyan
Maxine H. Krengel, PhD¹, Kimberly Sullivan, PhD², Nancy Klimas, MD³, Candy Wilson, PhD, APRN, WHNP-BC, FAAN⁴, Steven S. Coughlin, PhD⁵,⁶
¹Boston Veterans Administration Healthcare System, Boston, MA; ²Boston University School of Medicine, Boston, MA; ³Boston University School of Public Health, Boston, MA; ⁴Nova Southeastern University, Ft. Lauderdale, FL; ⁵Uniformed Services University Graduate School of Nursing, Bethesda, MA; ⁶Medical College of Georgia, Augusta University; ⁷Charlie Norwood VA Medical Center, Augusta, GA

Sex Differences in Risk-taking Behavior and Brain Morphometry in Healthy Individuals
Presentation Author: Dr. Sahil Bajaj
Sahil Bajaj, PhD, William D. S. Killgore, PhD
College of Medicine, University of Arizona, Tucson, AZ

Frequency of Symptoms among Female Veterans of the 1991 Gulf War Era: Results from the Cooperative Studies Program 585 Gulf War Era Cohort and Biorepository
Presentation Author: Dr. Stacey Iobst
Stacey Iobst, PhD, RN\textsuperscript{1}, Steven S. Coughlin, PhD\textsuperscript{2,3}, Vahe Heboyan, PhD\textsuperscript{4}, Kimberly Sullivan, PhD\textsuperscript{5}, Maxine Krengel, PhD\textsuperscript{6}, Col Candy Wilson, PhD, APRN\textsuperscript{7}, Nancy Klimas, MD\textsuperscript{8,9}
\textsuperscript{1}Henry M. Jackson Foundation, Bethesda, MD; \textsuperscript{2}Medical College of Georgia, Augusta University, Augusta, GA; \textsuperscript{3}Charlie Norwood Veterans Administration Medical Center, Augusta, GA; \textsuperscript{4}Augusta University, Augusta, GA; \textsuperscript{5}Boston University School of Public Health, Boston, MA; \textsuperscript{6}VA Boston Healthcare System, Boston, MA; \textsuperscript{7}Uniformed Services University Graduate School of Nursing, Bethesda, MD; \textsuperscript{8}Miami VA Healthcare System, Miami, FL; \textsuperscript{9}Nova Southeastern University, Fort Lauderdale, FL

\textbf{MHSRS-19-02408 - Poster Session 2 - #701}
\textbf{Age, Histology and Stage Predict Survival Following Adjuvant Chemotherapy and Radiation versus Radiation Therapy Alone in High-risk Endometrial Cancer: An Observational Study of 20,015 Patients Based on PORTEC-3 Criteria}
Presentation Author: Lt Col Yovanni Casablanca
Yovanni Casablanca, MD\textsuperscript{1}, Chunqiao Tian, PhD\textsuperscript{1,2}, Matthew Powell, MD\textsuperscript{3}, Boris Winterhoff, MD, MS\textsuperscript{4}, John K. Chan\textsuperscript{5}, Craig D. Shriver, MD\textsuperscript{1}, Chad A. Hamilton, MD\textsuperscript{1,6,7}, G. Larry Maxwell, MD\textsuperscript{1,6,7}, Kathleen M. Darcy, PhD\textsuperscript{1,3}
\textsuperscript{1}Uniformed Services University of the Health Sciences, Walter Reed National Military Medical Center, Bethesda, MD; \textsuperscript{2}The Henry M Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; \textsuperscript{3}Washington University, St Louis, MO; \textsuperscript{4}University of Minnesota, Minneapolis, MN; \textsuperscript{5}California Pacific Medical Center, Sutter Health, San Francisco, CA; \textsuperscript{6}Inova Fairfax Hospital, Falls Church, VA; \textsuperscript{7}Inova Center for Personalized Health, Falls Church, VA

\textbf{MHSRS-19-02475 - Poster Session 2 - #702}
\textbf{Perceptions of Race and Gender Equality in Leadership and Career Advancement among Military Family Physicians}
Presentation Author: COL John Barrett
John Barrett, COL, MC\textsuperscript{1}, Mariama Massaquoi, CPT, MC\textsuperscript{2}, Tyler Reese, MAJ, MC\textsuperscript{3}
\textsuperscript{1}Uniformed Services University, Bethesda, MD; \textsuperscript{2}71st Explosive Ordnance Group (EOD), Fort Carson, CO; \textsuperscript{3}Madigan Army Medical Center, Tacoma, WA

\textbf{MHSRS-19-02522 - Poster Session 2 - #703}
\textbf{Factors to Explain Racial Disparity in Survival for Women with Uterine Cancer: Further Investigations by Histologic Subtype}
Presentation Author: Dr. Kathleen Darcy
Cassandra Presti, MD\textsuperscript{1}, Chunqiao Tian, PhD\textsuperscript{2,3}, Kate Oliver, MD\textsuperscript{2,4}, Matthew Powell, MD\textsuperscript{5}, Craig D. Shriver, MD\textsuperscript{2}, Lana Bijelic, MD\textsuperscript{1,6}, Nicholas W. Bateman, PhD\textsuperscript{2,3}, Thomas P. Conrads, PhD\textsuperscript{2,6}, Chad A. Hamilton, MD\textsuperscript{1,2,6}, Yovanni Casablanca, MD\textsuperscript{2}, G. Larry Maxwell, MD\textsuperscript{1,2,6}, Kathleen M. Darcy, PhD\textsuperscript{2,3}
\textsuperscript{1}Inova Fairfax Hospital, Falls Church, VA; \textsuperscript{2}Uniformed Services University of the Health Sciences, Walter Reed National Military Medical Center, Bethesda MD; \textsuperscript{3}The Henry M Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; \textsuperscript{4}Naval Medical Center Portsmouth, Portsmouth VA; \textsuperscript{5}Washington University, St Louis, MO; \textsuperscript{6}Inova Center for Personalized Health, Falls Church, VA

\textbf{MHSRS-19-02536 - Poster Session 2 - #704}
\textbf{Histology Matters in Developing a Framework For Explaining Racial Disparity in Cervical Cancer Survival}
Presentation Author: Dr. Kathleen Darcy
Nicole P. Chappell, MD\textsuperscript{1}, Chunqiao Tian, PhD\textsuperscript{2,3}, Christine Rojas, MD\textsuperscript{2}, Craig Shriver, MD\textsuperscript{2}, Charles Leath III, MD\textsuperscript{4}, Lari Wenzel, PhD\textsuperscript{5}, Nicholas W. Bateman, PhD\textsuperscript{2,3}, Thomas P. Conrads, PhD\textsuperscript{2,6}, Chad A. Hamilton, MD\textsuperscript{2,6,7}, G. Larry Maxwell, MD\textsuperscript{2,4,6,7}, Yovanni Casablanca, MD\textsuperscript{2}, Kathleen M. Darcy, PhD\textsuperscript{2,3}
\textsuperscript{1}Brooke Army Medical Center, Fort Sam Houston, TX; \textsuperscript{2}Uniformed Services University of the Health Sciences, Walter Reed National Military Medical Center, Bethesda, MD; \textsuperscript{3}Henry M Jackson Foundation for the
Advancement of Military Medicine, Inc, Bethesda, MD; 4University of Alabama at Birmingham, Birmingham, AL; 5University of California Irvine, Irvine, CA; 6Inova Center for Personalized Health, Falls Church, VA; 7Inova Fairfax Hospital, Falls Church, VA

MHSRS-19-02526 - Poster Session 2 - #705
Contraceptive Use and Childbirth Rates by Service Branch During the First 24 Months on Active Duty in the United States Military from 2013 To 2018: A Retrospective Cohort Analysis
Presentation Author: MAJ Joshua Smalley
Timothy Roberts, MD1, Joshua Smalley, DO2, Larissa Weir, MD2, William Adelman, MD1
1Children's Mercy Hospital, Kansas City, MS; 2San Antonio Military Medical Center, JBSA Ft Sam Houston, TX

MHSRS-19-02571 - Poster Session 2 - #706
Longitudinal Influence of Military Policy on Contraceptive Use and Childbirth among Female Recruits
Presentation Author: MAJ Joshua Smalley
Timothy A Roberts, MD, MPH1; Joshua M Smalley, DO2; Laura L Baker, PA3; Larissa F Weir, MD2; William Adelman, MD1
1Children’s Mercy, Kansas City, MO; 2San Antonio Military Medical Center, Joint Base San Antonio-Ft Sam Houston, TX; 3Captain James A. Lovell Federal Health Care Center, North Chicago, IL

PREDICTIVE ANALYTICS WITHIN THE MILITARY HEALTH SYSTEM

MHSRS-19-00027 - Poster Session 2 - #707
Factors Related to Re-excision Following Primary Breast Conserving Surgery for Women with Breast Cancer in the U.S. Military Health System
Presentation Author: Dr. Yvonne Eaglehouse
Yvonne L. Eaglehouse, PhD, MPH1,2; Matthew W. Georg, MPH1,2; Craig D. Shriver MD, FACS, COL, USA (Ret.)1,3; Kangmin Zhu, MD, PhD1,2
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MHSRS-19-00927 - Poster Session 2 - #708
Racial Comparisons in Receipt of Recommended Colon Cancer Treatment in an Equal-access Health System
Presentation Author: Dr. Yvonne Eaglehouse
Yvonne L. Eaglehouse, PhD, MPH1,2; Matthew W. Georg, MPH1,2; Craig D. Shriver MD, FACS, COL, USA (Ret.)1,3; Kangmin Zhu, MD, PhD1,2
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MHSRS-19-00151 - Poster Session 2 - #709
Evaluation of a High-utilizer Case Management Pilot Program
Presentation Author: Ms. Shing Lai Cheng

MHSRS-19-00176 - Poster Session 2 - #710
Genetic Testing to Reduce Musculoskeletal Injuries in SOF
Presentation Author: Dr. Stuart Kim
Stuart K. Kim
MHSRS-19-00453 - Poster Session 2 - #711
Presentation Author: Dr. Yll Agimi
Yll Agimi, PhD1,3, Lauren Earyes, RN, MS1,3, Tesfaye Deresa, MS2,3, Emmanuel Baah, MS2,3, Katharine Stout, PhD, MBA3,
1Salient CRGT, Springfield, VA; 2General Dynamics Information Technology, Falls Church, VA; 3Defense and Veterans Brain Injury Center, Silver Spring, MD

MHSRS-19-01796 - Poster Session 2 - #712
Estimates of Long-term Disability among U.S. Service Members with Traumatic Brain Injuries
Presentation Author: Dr. Yll Agimi
Yll Agimi, PhD1,2, Donald Marion, MD1,3, Karen Schwab, PhD1,2
1Defense and Veterans Brain Injury Center, Silver Spring, MD; 2Salient CRGT, Fairfax, VA; 3General Dynamics Information Technology, Fairfax, VA

MHSRS-19-00509 - Poster Session 2 - #713
Artificially Genetic: Using Precision Operational Health and Performance Principles to Predict Risk, Outcomes, and Utilization in the Military Health System
Presentation Author: Dr. Richard Chapleau
Richard R Chapleau, PhD
USAF School of Aerospace Medicine, 711th Human Performance Wing, Wright Patterson AFB, OH

MHSRS-19-00808 - Poster Session 2 - #714
Proportion of Non-adenomatous Pathology on Colonoscopic Biopsy among Patients Treated in a Military Treatment Facility
Presentation Author: ENS Samuel Billingslea
ENS Sam Billingslea, MC, USN, OMSIII1, LT Emily Norris, MD, MC, USN2, LT Christian S. McEvoy, MD, MPH, MC, USN2, LT Jenny M. Held, MD, MC, USN2, CDR Christopher R. Oxner, MD, MC, USN2
1Pacific Northwest Univ of Health Science, Yakima, WA; 2Naval Medical Center Portsmouth, Portsmouth, VA

MHSRS-19-00920 - Poster Session 2 - #715
Prevalence of Sleep Disorders and Medication Use Among Active Duty Army for Fiscal Year 2018: Impact on Deployability
Presentation Author: Dr. Jaime Devine
Jaime K Devine, Jake Choynowski, Jacob Collen, Vincent Capaldi
Walter Reed Army Institute of Research, Silver Spring, MD

MHSRS-19-00925 - Poster Session 2 - #716
Determining the Appropriate Follow-up Times for Apollo Studies from TCGA Data
Presentation Author: Mr. Jianfang Liu
Jianfang Liu, MS1, Jerry S.H. Lee, PhD2, Matthew D. Wilkerson, PhD3, The APOLOLO Research Network, Craig D. Shriver, COL(Ret.), MD4, and Hai Hu, PhD1
1Chan Soon-Shiong Institute of Molecular Medicine at Windber, Windber, PA; 2University of Southern California, Los Angeles, CA; 3Uniformed Services University of the Health Sciences, Bethesda, MD; 4Uniformed Services University of the Health Sciences / Walter Reed National Military Medical Center, Bethesda, MD
MHSRS-19-00948 - Poster Session 2 - #717
Individualized Avatar with Complete Anatomy: Repositioning and Animating
Presentation Author: Dr. Zhiqing Cheng
Zhiqing Cheng, PhD1, Jingwen Hu, PhD2, James Yang, PhD3, Diana Sanford, PhD4, Reed W. Hoyt, PhD4, and Gary P. Zientara, PhD4
1Innovision, LLC., Dayton, OH; 2University of Michigan, Ann Arbor, MI; 3Texas Tech University, Lubbock, TX; 4U.S. Army Research Institute of Environmental Medicine, Natick, MA

MHSRS-19-00949 - Poster Session 2 - #718
Brain Cancer Incidence: A Comparison of ACTUR and SEER Populations
Presentation Author: Ms. Julie Bytnar
Julie A. Bytnar1,3; Jie Lin1,2,3, Yvonne L. Eaglehouse1,2,3, Craig D. Shriver1,2, Kangmin Zhu1,2,3
1Uniformed Services University of the Health Sciences and Walter Reed National Military Medical Center, Bethesda, MD; 2Uniformed Services University of the Health Sciences, Bethesda, MD; 3Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD

MHSRS-19-00991 - Poster Session 2 - #719
Comparative Study of Survival, Diagnosis and Treatment among Small Cell Lung Cancer Cases in the U.S. Military Health System and Cases from the U.S. National Surveillance, Epidemiology, and End Results Program
Presentation Author: Dr. Jie Lin
Jie Lin, PhD, MPH1,2,3, Christine Kamamia, MPH1,3, Derek Brown, MS1,3, Stephanie Shao, MPH1,3, Katherine A. McGlynn, PhD4, Joel A. Nations, MD1, Corey A. Carter, MD1, Craig D. Shriver, MD1,2, Kangmin Zhu, MD, PhD1,2,3
1Uniformed Services University of the Health Sciences and Walter Reed National Military Medical Center, Bethesda, MD; 2Uniformed Services University of the Health Sciences, Bethesda, MD; 3Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD

MHSRS-19-00995 - Poster Session 2 - #720
Comparison of Survival among Colon Cancer Cases in the U.S. Military Health System and Cases from the U.S. General Population in the National Surveillance, Epidemiology, and End Results Program
Presentation Author: Dr. Jie Lin
Jie Lin, PhD, MPH1,2,3, Katherine A. McGlynn, PhD4, Craig D. Shriver, MD1,2, Kangmin Zhu, MD, PhD1,2,3
1Uniformed Services University of the Health Sciences and Walter Reed National Military Medical Center, Bethesda, MD; 2Uniformed Services University of the Health Sciences, Bethesda, MD; 3Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; 4Division of Cancer Epidemiology and Genetics, National Cancer Institute, Bethesda, MD

MHSRS-19-01141 - Poster Session 2 - #721
The Burden of Skin Disease on Deployed Servicemembers
Presentation Author: CPT Elizabeth Taylor
LCDR Jennifer F. Gregory, MC(FS), USN1, CPT Elizabeth A. Taylor, MC, USA1, Capt Yizhen E. Liu, MC, USAF2, MAJ Tracy V. Love, MC, USA3, Sorana Raciuculescu, M.Sc4, COL Jon H. Meyerle, MC, USA4
1National Capital Consortium, Bethesda, MD; 2Tinker Air Force Base, Oklahoma City, OK; 3Kimbrough Ambulatory Care Center, Fort Meade, MD; 4Uniformed Services University of the Health Sciences, Bethesda, MD

MHSRS-19-01227 - Poster Session 2 - #722
Predicting Day Length of Duty Restriction Using Text Mining and Machine Learning Algorithms
Presentation Author: Mr. Aron Trevino
Matthew Barnes, MD, Steven Prentiss
MHSRS-19-01283 - Poster Session 2 - #723
Predictive Analytics to Identify Patients with Rising Risks of Chronic Conditions for Disease Management
Presentation Author: Mr. Lemma Regasa

MHSRS-19-01309 - Poster Session 2 - #724
Predictive Analytics to Identify Patients with Rising Risks of Chronic Conditions for Disease Management
Presentation Author: Mr. Lemma Regasa

MHSRS-19-01339 - Poster Session 2 - #725
Development of a Predictive Healthcare Tool Using Electronic Health Record Bioinformatics to Inform Personalized Evidence-based Pressure Injury Management for Veterans With Spinal Cord Injury
Presentation Author: Dr. Kath Bogie
Kath M Bogie, D.Phil, M Kristi Henzel, MD, PhD, GQ Zhang, PhD, Steve Roggenkamp, MS, Ningzhou Zeng BS, Jiayang Sun, PhD, Arielle Bloostein, BS, Jacinta M Seton, DPN, RN, ACNS-BC, Mary Ann Richmond, MD, Monique Washington, DPN, MS, Jennifer K Zindle, BS, David P Lemmer, BS, Katie A Schwartz, MPH
1Louis Stokes Cleveland VA Medical Center, Cleveland, OH; 2Case Western Reserve University, Cleveland, OH; 3University of Kentucky, Lexington, TN

MHSRS-19-01375 - Poster Session 2 - #726
External Validation of PATHFx Version 3.0 in Patients Treated Surgically and Non-surgically for Symptomatic Skeletal Metastases
Presentation Author: Lt Ashley Anderson
1Walter Reed National Military Medical Center, Bethesda, MD; 2Johns Hopkins University, Baltimore, MD; 3Memorial Sloan-Kettering Cancer Center, New York, NY; 4Karolinska Institutet, Stockholm, Sweden

MHSRS-19-01383 - Poster Session 2 - #727
Racial and Service Connected Disability Disparities in Civilian Assault and Firearm TBI Injury and Costs among U.S. Military Veterans: Evidence from a Level One Trauma Center
Presentation Author: Dr. Clara Dismuke-Greer
Dismuke-Greer CE, Fakhry S, Horner M, Pogoda T, Pugh MJ, Gebregziabher M, Hall C, Taber D
1VA Palo Alto Healthcare System, Palo Alto, CA and Medical University of South Carolina, Charleston, SC; 2Medical University of South Carolina, Charleston, SC; 3Medical University of South Carolina, Charleston, SC; 4VA Boston Healthcare System, Boston, MA and Boston University School of Public Health, Boston, MA; 5Salt Lake City VA Healthcare System and University of Utah, Salt Lake City, UT; 6Ralph H. Johnson VA Medical Center, Charleston, SC

MHSRS-19-01393 - Poster Session 2 - #728
Clarity Bioanalytics: Applications of Machine Learning for Biological Cell Image Analysis
Presentation Author: Dr. Patrick McLendon
Patrick M. McLendon, Daniel W. Cowan, Kevin Kapner, Steven Kawamoto, Thomas Lamkin, Darrin K. Ott, Dirk P. Yamamoto, Heather A. Pangburn
1U.S. Air Force School of Aerospace Medicine, Wright-Patterson AFB, Dayton, OH; 2UES Inc., Dayton, OH; 3711th Human Performance Wing, Wright-Patterson AFB, OH
Pharmacogenomics and Readiness in the Military Health System

Presentation Author: Ms. Lydia Hellwig
Lydia D. Hellwig, ScM, CGC, Tom Oliver, MD, Jeffrey Livezey, MD, Hyun Cho, PharmD, Jesse Deluca, DO, Lucas Poon, PharmD, Teri Manolio, MD, PhD, Robb Rowley, MD, Mark Haigney, MD, Mauricio J. DeCastro, MD, Adrian T Kress, MD, Dhritiman V. Mukherjee, PhD, Clesson Turner, MD

Pharmacogenomics and Readiness in the Military Health System

Five Year Risk of Hypertension after Combat Injury: A Predictive Model

Presentation Author: Lt Col Ian Stewart
Ian Stewart MD, Eduard Poltavskiy PhD, Ying Suo MS, Andrew Redd PhD, Jeffrey Howard PhD, Jud Janak PhD, Lee Ann Zarzabal MS, Lauren Walker MSSW, Carl Beyer MD, Alan Sim PhD, Warren Pettey MPH, Adi Gundlapalli MD, PhD

Identification of Candidate Biomarkers for Head and Neck Cancer Using Targeted Proteomics and Longitudinal Samples from the DoD Serum Repository

Presentation Author: Dr. Tao Liu
Tao Liu, PhD, Ju Yeon Lee, Tujun Shi, Vladislav Petyuk, Athena Schepmoes, Thomas Fillmore, Wayne Cardoni, George Coppit, Joseph Goodman, Shiv Srivastava, Craig Shrives, Karin Rodland

Predictors of Overdose, Chronic Opioid Use and Suicide Related Behaviors in Veterans: Why We Need DoD Data to Understand the DoD-VA Transition

Presentation Author: Dr. Mary Jo Pugh
Mary Jo Pugh, Gerald Cochran, Sagiraju R, Megan Amuan, Ahay Manhapra, Stephan Kertesz, Adam J. Gordon

Medical Utilization as a Measure of Return on Investment for Traumatic Brain Injury Care in Europe

Presentation Author: Dr. Stephanie Maxfield-Panker
Kendra Jorgensen-Wagers, PhD, Dawn Collins, MA; Ruby Kitchen; Stephanie Maxfield Panker, PhD, DPT

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Medical Utilization as a Measure of Return on Investment for Traumatic Brain Injury Care in Europe

Presentation Author: Dr. Stephanie Maxfield-Panker
Kendra Jorgensen-Wagers, PhD; Dawn Collins, MA; Ruby Kitchen; Stephanie Maxfield Panker, PhD, DPT
Clinical Utility of Heart Chest Pain Protocol at NMCP
Presentation Author: Lt Michael Lloyd
LT Michael Lloyd, MD1, LCDR William Bylund, MD2, CDR Micah Gaspar, MD1, CDR Peter Cole, MD1, LT Anastasia Kazimirova, MD1, Amanda Osit, MS1, Sarah Wilder-Hussain1, Gregory Zarow, PhD1, CDR Matthew Lawrence, MD3
1Naval Medical Center Portsmouth, Portsmouth, VA; 2Naval Hospital Okinawa, Japan; 3Walter Reed National Military Medical Center, Bethesda, MD

Predictors of Attrition from Combat Training- The IDF Perspective
Presentation Author: CPT Avishai Tsur
Sami Gendler MD, Michael Shapira MD, Dorit Tzur MBA, Konstant Zubkov MD
Israeli Defense Force Medical Corps Headquarters, Tel Hashomer, Ramat Gan

Predictive Modeling for Cardiovascular Event Prevention
Presentation Author: Ms. Patricia Nguyen

Predictive Modeling for Cardiovascular Event Prevention
Presentation Author: Mrs. Patricia Nguyen
James Neville, MD, MPH, FACP1, Agustin Moren, CTR2
1Defense Health Agency, Falls Church, VA; 2Enterprise Intelligence & Data Solutions Program Management Office, San Antonio, TX

Developing Models To Predict Performance on Selected HEDIS® Diabetes Quality of Care Measures in the MHS Population
Presentation Author: Mrs. Brooke Asbury
Brooke L. Asbury, MPH

Developing Models to Predict Performance on Selected HEDIS® Diabetes Quality of Care Measures in the MHS Population
Presentation Author: Ms. Brooke Asbury

Non-invasive Measurement of Carotid Plaque Composition to Improve Risk Assessment of Stroke
Presentation Author: Dr. Russell Fedewa
Russell Fedewa, PhD, Sheronica James, PhD, Sean Lyden, MD, D. Geoffrey Vince, PhD
Cleveland Clinic Foundation, Cleveland, OH

Contribution of Department of Defense Cancer Information to the Oncology Research Information Exchange Network Avatar Research Program
Presentation Author: Ms. Kimberly Murtha
Kimberly N Murtha1, Leonid Kvecher, MS1, Bradley J. Mostoller, MS1, Justin M. Wells, LTC, MD2, Margaret Kildee2, Stella Brockett2, J. Leigh Campbell2,3, Brenda Deyarmin1, Craig D. Shriver, COL (Ret), MD2, Hai Hu, PhD1
MHSRS-19-01874 - Poster Session 2 - #742
Predicting the Future Occurrence of Hemorrhage Using a Noninvasive Approach
Presentation Author: Mr. Navid Rashedi
Navid Rashedi, MS1, Yifei Sun, BS1, Vikrant Vaze, PhD1, Norman A. Paradis, MD1, Parikshit Shah, PhD2, Ryan Halter, PhD1, Jonathan T. Elliott, PhD1
1Dartmouth College, Hanover, NH; 2Insight Research, Redwood City, CA

MHSRS-19-01954 - Poster Session 2 - #743
Homeland Explosive Consequence Assessment Tool Medical Mitigation Model: Assessing the Benefits of the Public Health Response to an Explosive Terrorism Attack
Presentation Author: Mr. Kevin Wegman
Kevin Wegman, MS1, Ryan Pease, MS1, Scott Rohrer, BS1, Rachel Gooding, MS2, David Bradley, PhD2,3, Patrick Wilson, MS1, Brian Hawkins, PhD1
1 Battelle Memorial Institute, Columbus, OH; 2 Department of Homeland Security Science and Technology Chemical Security Analysis Center, Aberdeen Proving Grounds, MD; 3 Leidos, Reston, Virginia

MHSRS-19-01972 - Poster Session 2 - #744
Utilization, Cost and Clinical Outcomes Before and After Implementation of Separate Pediatric Protocols for Care of the Febrile Child Younger than 160 Days
Presentation Author: LT Megan Halliday
LT Megan Halliday, MD1, LT Katherine Biggs, DO1, CDR Jonathan Auten, DO2, LT Michelle Caskey, MD1, LT Tyler Lopachin, MD1, Amanda Osit, MS1, CDR Micah Gaspery, MD1, CDR Matthew Lawrence, MD3
1 Naval Medical Center Portsmouth, Portsmouth, VA; 2 Naval Medical Center San Diego, San Diego, CA; 3 Walter Reed National Military Medical Center, Bethesda, MD

MHSRS-19-01990 - Poster Session 2 - #745
The Establishment and Implementation of Murtha Cancer Center Biobank as a Participating Member of the Oncology Research Information Exchange Network
Presentation Author: Ms. Nicole Wolf
Nicole L. Wolf, MS1, Margaret M. Kildee, BSN3, Sara D. Sakura, PsyD3, Justin M. Wells, MD2, Craig D. Shriver, MD1
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MHSRS-19-02052 - Poster Session 2 - #746
Discrete Event Simulation for Modeling of Military Medical Center Response to a Mass Casualty Incident
Presentation Author: CPT Christopher Marenco
Christopher Marenco, MD, Matthew Eckert, MD, Eric Roberge, MD
Madigan Army Medical Center, Tacoma, WA

MHSRS-19-02089 - Poster Session 2 - #747
Noninvasive Enabling Technology, New Physiological Monitoring, and Big Data
Presentation Author: Dr. Joseph Chaiken
Seth Fillioe, MS1, Charles M. Peterson, MD1, Dave Rice, MS2, John Fayos, MS2, Jeff Bebernies, MS2
1 Syracuse University, Syracuse, NY; 2 Critical Link, LLC
MHSRS-19-02206 - Poster Session 2 - #748
An Informatics Infrastructure Task Force for the Applied Proteogenomics Organizational Learning and Outcomes Consortium as Part of the Cancer Moonshot Program
Presentation Author: Mr. Leonid Kvecher
Leonid Kvecher, MS¹, Kimberly N. Murtha¹, Justin M. Wells, LTC, MD²,³, Kathleen M. Darcy, PhD³,⁴, Bradley J. Mostoller, MS¹, John E. Campos, MS¹, Alex Seagal⁵, Stella Somiari, PhD¹, Lori Sturtz, PhD¹, Thomas Conrads, PhD³,⁶, Matthew Wilkerson, PhD³,⁴, J. Leigh Campbell, MS³,⁴, Brenda Deyarmin¹, The APOLLO Research Network, Craig D. Shriver, COL (Ret), MD³, Hai Hu, PhD¹
¹Chan Soon-Shiong Institute of Molecular Medicine at Windber, Windber, PA; ²Walter Reed National Military Medical Center, Bethesda, MD; ³Uniformed Services University of the Health Sciences, Bethesda, MD; ⁴The Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, MD; ⁵Seagal Solutions, Inc. Philadelphia, PA; ⁶Inova Schar Cancer Institute, Falls Church, VA

MHSRS-19-02240 - Poster Session 2 - #749
Predictors of Psychological Well-Being among Junior Enlisted Sailors in the Navy Nuclear Propulsion Training Pipelines
Presentation Author: Dr. Justin Handy
Justin D. Handy, PhD¹, LT Chad Peltier, PhD¹, Andrea Bizarro, PhD², LCDR F. J. Haran, PhD³
¹Naval Submarine Medical Research Laboratory, Groton, CT; ²Leidos, New London, CT; ³Naval Medical Research Center, Silver Spring, MD

MHSRS-19-02322 - Poster Session 2 - #750
Presentation Author: Mr. Benjamin Clapp
Benjamin Clapp, Dr. Roger Erich, Eric Ennis
U.S. Air Force School of Aerospace Medicine, Dayton, OH

MHSRS-19-02323 - Poster Session 2 - #751
Utilization of the Emergency Department in a Universally Covered Population
Presentation Author: Dr. Tomas Andriotti
Tomas Andriotti, MD MPH¹, Molly P. Jarman, PhD MPH¹, Stuart Lipsitz ScD¹, Muhammad A. Chaudhary, MD¹, Laura Tilley, MD², Peter Learn, MD MS², Andrew Schoenfeld, MD MSc¹, Eric Goralnick, MD MS¹,³
¹Center for Surgery and Public Health, Brigham and Women’s Hospital, Harvard Medical School and Harvard T.H. Chan School of Public Health, Boston, MA; ²Uniformed Services University of the Health Sciences, Bethesda, MD; ³Brigham and Women’s Hospital, Harvard Medical School, Boston, MA

MHSRS-19-02368 - Poster Session 2 - #752
Admissions from the Emergency Department in a Universally Covered Population
Presentation Author: Dr. Tomas Andriotti
Tomas Andriotti, MD, MPH¹, Molly P. Jarman, PhD, MPH¹, Stuart Lipsitz, ScD¹, Muhammad A. Chaudhary, MD¹, Laura Tilley, MD², Peter Learn, MD, MS², Andrew Schoenfeld, MD, MSc¹, Eric Goralnick, MD, MS¹,³
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MHSRS-19-02373 - Poster Session 2 - #753
Identifying Risk Factors for Opioid Abuse and Misuse in Outpatient Active Duty Air Force
Presentation Author: Dr. Paul Schroeder III
Jianxiang Zou, MD, PhD, MPH\(^1\), Paul J. Schroeder, PhD\(^1\), Joshua R. Duncan, MD, MPH\(^2\), Helen Phipps, PhD\(^1\)
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MHSRS-19-02409 - Poster Session 2 - #754
Developing an Asplenic Patient Registry for Air Force Readiness
Presentation Author: Dr. Paul Schroeder III
Philomene Balihe, MPH\(^1\), Qi Luo, MD, MPH\(^1\), Joshua R. Duncan, MD, MPH\(^2\)
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MHSRS-19-02416 - Poster Session 2 - #755
Predicting Deployability from Modifiable Behaviors in Active Duty Air Force Service Members
Presentation Author: Dr. Paul Schroeder III
Barry Woitena\(^1,3\), Jianxiang Zou, MD, PhD, MPH\(^2,3\), Paul J. Schroeder, PhD\(^2,3\), Joshua R. Duncan, MD, MPH\(^3\)
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MHSRS-19-02383 - Poster Session 2 - #756
AMSARA/DSAR: Leveraging Epidemiological Research and Predictive Analytics for Military Stakeholders
Presentation Author: Mrs. Caitlin Rushin
Caitlin Rushin, MPH\(^1\), Amanda Kelley, MPH\(^1\), Natalya Weber, MD, MPH\(^4\), William Washington, MD, MPH\(^1\)
\(^1\)Walter Reed Army Inst of Research, Silver Spring, MD; \(^2\)ManTech International Corporation, Herndon, VA

MHSRS-19-02384 - Poster Session 2 - #757
Trends in Prediabetes Prevalence in the U.S. Active Duty Military Population
Presentation Author: Capt Courtney Clutter
Courtney Clutter, MD\(^1\), Alex Rittel, PhD\(^2\), Whitney Forbes, PhD\(^2,3\), Jana Wardian, PhD\(^3\)
\(^1\)San Antonio Uniformed Services Health Education Consortium, JBSA, TX; \(^2\)Enterprise Intelligence and Data Solutions PMO, DHA, San Antonio, TX; \(^3\)Wilford Hall Ambulatory Surgical Center, San Antonio, TX

MHSRS-19-02401 - Poster Session 2 - #758
Predictive Modeling for Differential Diagnosis and Mortality Risk Assessment
Presentation Author: Dr. Tony Lindsey
Tony Lindsey PhD\(^1\), Sena Veazey MS\(^2\), Saul Vega BS\(^2\), Jose Salinas PhD\(^2\)
\(^1\)NASA Ames Research Center, Moffett Field, CA; \(^2\)U.S. Army Institute of Surgical Research, San Antonio, TX

MHSRS-19-02631 - Poster Session 2 - #759
Does Objective, Adjunctive Information from EEG Change Prescribing in Depression?
Presentation Author: Mr. George Carpenter
George Carpenter, MBA, Brian MacDonald, MBA
MYND Analytics, Mission Viejo, CA and Minneapolis, MN

MHSRS-19-02634 - Poster Session 2 - #760
Centralization of Pathology Consultations at the Joint Pathology Center Permits the Tracking and