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Summary of the Military Health System Research Symposium (MHSRS)



Questions?

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Summary of the Military Health System Research Symposium (MHSRS) August 26-29, 2024 in Kissimmee, FL

OVERVIEW

Below is an overview of key takeaways from the 2024 Military Health System Research Symposium (MHSRS). This includes highlights from the opening plenary, sessions on specific military medical challenges, and several of G2G's meetings with Defense leaders, program managers, and directors. The conference is the military's largest scientific meeting, and this year was centered on the theme of **'Meeting the Changing Threat Through Military Medical Research'**. It featured over 500 oral and 1,470 poster presentations spanning 72 scientific topic areas, and more than 100 vendor exhibit booths, including G2G's. The meeting was attended by ~4300 affiliates of the Department of Defense (DoD), and Department of Veterans Affairs (VA), researchers, industry, and academia. If you have any questions or would like additional information, please reach out by contacting Liz Powell (lpowell@G2Gconsulting.com), Greg Kapcar (gkapcar@G2Gconsulting.com), Aditya Girish (agirish@G2Gconsulting.com) or Andrea Harless (aharless@G2Gconsulting.com)

KEY SESSIONS AND TOPICS

Plenary Session:

The featured presenters were from the Defense Health Agency (DHA), Military Health System (MHS), and the White House and included:

- **Hon. Lester Martínez López, MD, MPH, Assistant Secretary of Defense for Health Affairs** – He discussed three high level priorities:
 - 1) Anticipating the Future of Trauma Care: Future conflicts will be characterized by increased weapon lethality, difficult air evacuation, and injuries requiring long-term complex care in the battlefield. **Blood products continue to be a DoD priority**, and the Food and Drug Administration (FDA) **emergency use authorization (EUA) for freeze-dried plasma** is a major milestone. Mitigating and delaying inflammatory responses post injury is a major medical gap for the military and an area of focus for companies to provide innovative solutions.
 - 2) Brain Health: Priority DoD research area with a particular focus on **traumatic brain injury (TBI)**, and mitigating both **causal factors** (e.g. blast overpressure) and **downstream impacts** (e.g. chronic traumatic encephalopathy)
 - 3) Mental Health: Focus of care is on ensuring that service members can seek help without stigma. Research in this space at DoD focuses on **identifying those at risk and addressing underlying public health factors driving mental illness**.
- **Carolyn Mazure, PhD, Chair, White House Initiative on Women's Health Research** – Dr. Mazure shared updates on progress made in women's health. She discussed the overarching goals of the Initiative, and the Executive Order (EO) on Women's Health signed by President Biden in



March. DoD and VA are major players in this space, given the growing number of female Warfighters and Veterans. Accomplishments coming from the EO include:

- Mandating consideration of ***sex as a biological variable (SABV)*** in study design for ***DoD-funded clinical trials***
- Establishment of a ***new Military Women's Health Research Program*** at Uniformed Services University (USU)
- Establishment of a ***Work group on Women's Health at the VA***
- **Terry Rauch, PhD, Acting Director of Research and Development for Health Readiness Policy and Oversight, MHS and John Holcomb, MD, former Commander, Army Institute of Surgical Research and Trauma** – They moderated a panel of combat casualty care and operational medicine experts on *'Penetrating Traumatic Brain Injury and Repeated Concussive Events'* across the continuum of care including:
 - COL Valerie Sams MD, Critical Care Air Transport Team (CCAT) Training Cadre and Director, Center for Sustainment of Trauma and Readiness Skills (C-STARS)
 - COL (Ret) Rocco Armonda, MD, Director of Neuroendovascular Surgery at MedStar Hospitals and Director of Neurosurgery at USU
 - Louis French, PsyD, Walter Reed National Military Medical Center
 - Geoffrey Ling, MD, PhD, Founding Director of the Biological Technologies Office, Defense Advanced Research Projects Agency (DARPA)
 - Paul Pasquina, MD, Chair, Department of Physical Medicine & Rehabilitation, USU and Department Chief of Rehabilitation at Walter Reed National Military Medical Center
 - MSG Jonathan Lopienski, Combat Medic

Panelists discussed how changes in the conflict paradigm have impacted and challenged their ability to provide care for Warfighters who have suffered TBI, concussive events and related issues across their respective Roles of Care. **Major points of need include:**

- Stable, minimally invasive tests for point of injury care
- Continuous monitoring technologies for cerebral perfusion pressure and transcutaneous brain tissue
- Reciprocal learning – training neurosurgeons closer to the front lines (e.g. lessons from Ukraine), to learn how to perform complex procedures with fewer resources
- Prevention of secondary complications, and better screening for PTSD
- Better clinician understanding of the consequences that even mild TBI can have on Warfighters
- Awareness of how prolonged care situations can detrimentally impact outcomes from TBI/brain injury, including increased mortality and disability
- Integration of care and early rehabilitation for polytrauma cases with TBI across the DoD and VA systems

Breakout Sessions:

Key highlights from some of the sessions G2G attended are as follows:

- Advances in Regenerative Medicine from Point of Injury to Definitive Care and Beyond: Presentations centered on the skin – including cell therapies to improve the quality of skin at stump sites among amputees to facilitate more comfortable prosthetic placement and new



dermal templates to allow for reconstruction of skin across full thickness wounds in a single surgical step

- Big Data, Artificial Intelligence (AI) and Machine Learning (ML) for Military Health Readiness, Performance and Care: Researchers shared their work on prediction of post fracture pulmonary and renal complications, osteoarthritis and sepsis. The anticipated role of AI/ML in military healthcare is on reducing burdens faced by providers with repetitive or long-term tasks like notetaking, data entry or repeatedly examining vital signs monitors. This can allow providers to be more attentive to each individual patient, even in resource and time constrained settings. This is expected to be a gamechanger for management of traumatic injuries in prolonged care environments and for delivery of mental healthcare.
- Technologies for the Treatment of Battlefield Hemorrhage and Management of Vascular Dysfunction: This session explored innovations such as a biosynthetic whole blood analogue for treating hemorrhagic shock, a silicone-based polymer universal combat matrix for treating arterial injuries, hemostatic pressure dressings tested in simulated extreme cold conditions, and inorganic nanomaterial-based expandable shape-memory hemostats, among others.
- Female Warfighter Health & Performance: Researchers showcased their work on topics concerning female service members such as improving education about infertility issues and reducing STD risks. Mental health was also an overarching topic of concern. **Despite the growing percentage of female warfighters (18%), one study found that 70% of women in the military said they 'felt unwelcome' in the institution, which directly impacted their mental health.**
- Clinical Studies of Combat Casualty Care: This session provided insights on the benefits of the pre-oxygenation of patients prior to emergency intubation, targeted use of novel opioids for burn injury pain management, miniaturizing vitals monitoring devices, and the enhanced capacity of mobile health applications in diagnosing mild TBI. This session also highlighted the global institutional footprint of military medical research in the infectious diseases space, such as the Armed Forces Research Institute of Medical Science in Thailand, and the Army Medical Research Directorate-Africa based in Kenya.
- Managing Fatigue – Methodologies for Sleep and Circadian Measurement: Sleep is a constant concern for warfighters as they tend to get significantly less sleep than needed but are always expected to maintain peak performance. Insomnia is prevalent, affecting 40-70% of warfighters, and costs \$1.8B a year. It is treatable and improvements can lead to better outcomes for the military. Research shows 24 hours of sleep loss or 5 consecutive days of 5 hours of sleep leaves you functioning as though you are legally intoxicated. **Research on warfighter sleep health challenges and therapeutics and technologies to enhance sleep is a priority area for DoD.**
- U.S. Army Medical Materiel Development Activity (USAMMDA): This division supports development of new drugs, vaccines, devices, and medical support equipment to enhance Warfighter readiness. The product development lifecycle is driven by requirements (medical gaps and priority needs) from the Medical Capability Development Integration Directorate (MED CDID) and by engaging U.S. Forces, industry, and academia in early science and testing. This allows for a product to achieve FDA approval or licensing so that it can be fielded or produced for the benefit of active-duty personnel and veterans. USAAMMDA has five Project Management Offices (PMOs) that cover distinct product portfolios.
- DoD Tech Transfer: Valuable information about Cooperative Research & Development Agreements (CRADA) was shared. CRADAs are a way to do business with DoD intramural



partners and build a mutually beneficial relationship. CRADAs do not require competition and allow for a DoD lab or military treatment facility (MTF) to receive and provide resources, (e.g., personnel, services, equipment, facilities, IP). The Lab/MTF can receive funds from a non-federal collaborator or the awarding program office. The collaborator has an option for an exclusive license to any government invention or co-invention.

Other Key Topics for Breakout Sessions Included:

- Cellular Therapeutics for Shock and Trauma
- Advances in the Diagnosis of TBI
- Organ Support in Trauma
- Far Forward Battlefield Diagnostic Imaging
- Prevention of Infectious Disease Outbreaks in Military Settings
- Casualty Care During Complex Multi-Domain Operations
- Novel Pain Therapeutics
- New Technologies for Wound Management and Infection Control

G2G'S MEETINGS WITH PROGRAM MANAGERS AND DIRECTORS

G2G met with several program managers who discussed their portfolio priorities and high-level DHA leaders explaining policy priorities within DoD, future agency structural changes, and future research funding outlook. Some key meetings include:

Principal Deputy Assistant Secretary for Health Affairs: She oversees health-related DoD programs and agencies critical for shaping federal policy. Women's health is a priority and expansion in access to contraceptive services for servicewomen, plus tackling issues related to ovarian health, osteoporosis and menopause are among the priorities. A roundtable focused on health issues pertinent to female service members is expected to be convened in the near term. Tackling health issues related to service-related exposures is another priority for her team. In cooperation with the VA, an individual longitudinal exposure record (ILER) has been developed and will be part of the medical record of all service members. This is expected to assist in streamlining data collection and analysis, and patient care.

Deputy Director of DHA Research and Engineering: He indicated that flagship research groups in the US Army Medical Research and Development Command (USAMRDC) based at Ft. Detrick, MD are now integrated into the DHA. The personnel running flagship programs will not necessarily change. Strategic research plans (SRPs) for key priority portfolios (e.g. traumatic brain injury, psychological health and infectious disease) for the DHA have all been recently published. All new project proposals being submitted to the DHA must align with these strategic plans to be considered for funding, and existing projects must align within a certain timeframe or risk termination.

Leadership, Congressionally Directed Medical Research Programs (CDMRP): G2G met with the outgoing and incoming Directors of CDMRP to discuss program priorities. CDMRP funds impactful, innovative research via programs added by Congress to the Defense Appropriations Bill. These programs fill gaps and address high-priority needs focused on improving health, well-being, and care



quality for Warfighters, Veterans, their dependents, and the broader community. In FY24, there was \$1.509B in funding for CDMRP grant recipients. The top funded program was for TBI and psychological health (\$175M). Programs for arthritis (\$10M) and Glioblastoma (\$10M) were added this year. As women's health continues to be a focus for DoD, CDMRP will continue to fund research encompassing a range of diseases and conditions that affect women uniquely, disproportionately, and differently than men including endometriosis, maternal mental health, musculoskeletal injury, and breast, endometrial, ovarian, and thyroid cancers. CDMRP established a policy on the inclusion of women and minorities in clinical research in October 2020, and beginning with FY25 all applicants are required to consider SABV in their proposals.

Leadership, Combat Casualty Care Research Program (CCCRP): G2G met with key leadership of this program to discuss their priorities in interventional strategies and countermeasures in the areas of blood products, fluid resuscitation, mitigation of shock physiology, coagulopathy, pathophysiologic responses to traumatic hemorrhage, and the battlefield management of pain. These topics are specifically part of their Battlefield Resuscitation for Immediate Stabilization of Combat Casualties (BRISCC) portfolio and they are eager to connect with companies with capabilities in this space.

Leadership & Researchers of the Walter Reed Army Institute of Research (WRAIR) – This is the DoD's premier research enterprise for brain health and performance optimization and seeks to discover, develop, and deliver impactful solutions through innovative research. WRAIR team members shared insights on their portfolio areas in brain trauma neuroprotection, and clinical research opportunities in the psychological and sleep health space. WRAIR leads the Center for Military Psychiatry and Neuroscience (CMPN), a translational and expeditionary effort to identify and eliminate brain health threats to Soldiers. CMPN investigates and manipulates the relationship between sleep and performance, performs behavioral health assessments to inform unit Commanders on Soldier behavioral health needs, and develops and implements resilience trainings. On a parallel track, there are efforts to identify and treat TBI, as well as understand the impact of repeated blast exposure.

Director of Research, and Capability Area Manager, US Army Institute of Surgical Research (USAISR): This group is focused on developing innovative treatments for combat casualty care, particularly translation of knowledge into material products for care, at the point of injury and for prolonged care. They discussed processes and mechanisms for collaboration and the cyclic timelines for funding projects prioritized by their institute.

Director, Military Infectious Disease Research Program (MIDRP): This directorate leads the army's work on preventing and treating infectious disease threats relevant to the Warfighter. We discussed priorities centered on strategies for the detection of sepsis and for biological resource management that can be leveraged to rapidly detect and deploy countermeasures for communicable disease threats.

Director, Military Women's Health Research Program, USU: Priorities include addressing challenges to the military readiness of active-duty servicewomen (ADSW) including poor hydration, urinary tract infections and a lack of awareness of the full spectrum of contraception options. We discussed opportunities for women's health research projects as part of the REACH program, and collaborations



the Director is seeking to foster with her counterparts at the VA, as well with active women's health researchers at MTFs such as Walter Reed.

The above-described meetings were extremely insightful, as were several other meetings G2G had with the following:

- General Health Science Officer/Sr. Scientist and Director, Joint Integrative Clinical Medicine Research at the 59th Medical Wing
- Chief Scientific Officer, Medical Technology Enterprise Consortium (MTEC)
- Product Manager, Warfighter Expeditionary Medicine and Treatment (WEMT) Program Office at USAAMDA
- Deputy Component Acquisition Executive and Program Manager, Pharmaceutical, Devices, and Medical Support Systems at DHA
- Senior Program Analyst at BioFabUSA
- Chief, Operational Compliance & Consultant for Nursing Research at Air Force Medical Agency
- Director, Military Medical Program at North American Rescue
- Medical Contracts Manager and Medical Supplier Account Manager at ADS

In closing, participating at MHSRS provides opportunities to gain intel on military needs, gaps, and requirements and to engage with DoD researchers, program and project managers, leadership, and decision makers. Presenting at the conference is a great way to raise visibility of your R&D efforts, innovation, and/or new products with key DoD leaders and decision-makers. The deadline to submit an abstract to be considered to present at next year's conference is expected to be in February or March 2025. If you have any questions or would like additional information please reach out to Liz Powell (lpowell@G2Gconsulting.com), Greg Kapcar (gkapcar@G2Gconsulting.com), Aditya Girish (agirish@G2Gconsulting.com) or Andrea Harless (aharless@G2Gconsulting.com).

