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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 14-17, 2023 in Kissimmee, FL**

OVERVIEW

Below is an overview of key meetings and takeaways from the 2023 Military Health System Research Symposium (MHSRS). This includes highlights from the opening plenary session, breakout sessions on specific military medical challenges, and several of G2G's one-on-one meetings with Program Managers and Directors. The conference is the military's largest scientific meeting and was centered on the theme of 'Medical Readiness for the Future Fight'. It featured over 3,000 posters, more than 600 oral presentations, and was attended by ~3800 affiliates of the Department of Defense (DoD), researchers, industry, and academia. Please let us know if you have any questions or would like additional information by contacting Liz Powell (lpowell@G2Gconsulting.com), Greg Kapcar (gkapcar@G2Gconsulting.com), or Aditya Girish (agirish@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 highlighted the three interrelated pillars of the MHS: force readiness, medical force readiness (clinical and operational), and care of beneficiaries. He indicated that both physical and mental health, as well as preventive medicine are key components of force readiness. In planning for potential conflicts with near peer adversaries, the DoD is focusing on extracting maximum value from its medical assets and better translating research to patient care. Other major challenges for the military he discussed included: chemical and biological weapons threats, developing countermeasures for infectious diseases, expanding the scope of prolonged care and operations in extreme environments shaped by climate change. The DoD has interest in collaborating and sharing information with potential partners across industry and academia to address these issues.
- **Major General (Ret.) Paul Friedrichs, MD, Director of the Office of Pandemic Response Policy at the White House** – He touched on a variety of topics: the



importance of interpersonal interactions across the MHS, expanding applications of AI in biotechnology and care, erosion of trust in medicine/vaccinations due to rampant misinformation, and health sector/workforce resilience. Additionally, he called for boldness among the health sector and stated, “We cannot allow innovation to be stifled by regulation.”

- **Terry Rauch, PhD, Acting Director of Research and Development for Health Readiness Policy and Oversight, MHS and John Holcomb, MD, former Director, Army Institute of Surgical Research** – They moderated a panel of combat casualty care and operational medicine experts from across the continuum of care (Medical Roles 1-4) that included: COL Jennifer Gurney, MD, Chief of the Joint Trauma System; Phillip Mason, MD, Director of Anesthesiology at UT Health San Antonio; Paul Pasquina, MD, Chair of Rehabilitation at Uniformed Services University (USU) Health Services; and Mr. Kaleb Twilligear, former Non-Commissioned Officer in Charge, Directorate of Simulation and Combat Medic Sustainment Division. Panelists shared experiences from theater and provided frank assessments about shortcomings in the state of care at each Role and opportunities for improvement. They re-emphasized that **hemorrhage is the #1 cause of death in Role 1** and highlighted the need for a renewed focus on far-forward surgical interventions performed at Role 2 to save lives. Other areas of need to improve care across the continuum, include:
 - Consistency of documentation and interoperability standards
 - Training that resembles austere Role environments
 - Targeted utilization of technology for certain tasks to minimize human error
 - Avoiding stovepipe R&D, to improve collaboration, and reduce knowledge gaps

Topics and Breakout Sessions:

This year, MHSRS included several sessions with high-level leaders explaining policy priorities within DoD, future agency structural changes, and Program Directors/researchers leading breakout sessions. Some key topics covered included:

- Antimicrobial Countermeasures for Wound Infections
- Blood Product Technologies and Cellular Therapeutics for Treatment of Non-compressible Hemorrhage, Shock, and Trauma
- AI/ML to support Readiness, Prevention, Return to Duty and Decision Making
- Predictive Technologies and Regenerative Medicine for Neuromusculoskeletal Injuries
- Wearable Technologies for Deployed Environments and Warfighter Performance Optimization
- Research, Operations, Medicine and Performance Optimization in Extreme Environments
- Treatment, Assessment and Mitigation of TBI, Blast Injuries and Polytrauma
- Response to and Research on Military Operational Exposures
- Psychological Health Research Translation & Behavioral Health Interventions
- Advanced Battlefield Care for Burn Injuries at the Point of Need



- Expeditionary Diagnostics and Treatment of Vision Injury
- Lessons Learned and Advancements in Military Medicine from the War in Ukraine

Some of the sessions G2G attended included:

- AI/ML in Military Medicine: MHS is moving forward with selecting initiatives relevant to DoD wide priorities from ~100 projects identified in a 2018 survey. Key areas include: using real time data capture to facilitate medical decision-making in the field and mining health record data for precision medicine applications.
- Female Warfighter Health & Performance: Provided an overview of the Military Women’s Health Research Program (MWHRP) that was established by the USU to allow for research and collaboration among active-duty service women and veterans.
- Antimicrobial Countermeasures for Wound Infections in Military Personnel: Featured several studies on protecting service members from battlefield infections and included in-depth discussion on biofilms.
- DoD Funding Programs: Covered specific Congressionally Directed Medical Research Program (CDMRP) funding programs, such as the Joint Warfighter Medical Research Program (JWMRP) and the Peer Reviewed Medical Research Program (PRMRP) along with other military medical funding opportunities through cooperative research and development agreements (CRADAs) and the DoD’s SBIR/STTR programs.
- Managing Casualties Across the Continuum of Care in Distributed Operations: Industry is invited to assist DoD with three priorities, among others, aligned with the ‘May 2022 Army Medical Modernization Strategy’ and ‘Futures Command Concept for Medical 2028’ publications: 1) Maximizing return to duty, 2) Optimizing evacuation via ground, air and sea, and 3) Addressing contestable logistics
- Development of a Research and Acquisition Framework for Navy Expeditionary Medicine: It stressed stakeholder alignments in developing requirements documentation, noting there are more requirements than funding, and prioritizing funding modernization of legacy systems and the development of new capabilities.

G2G’S MEETINGS WITH PROGRAM MANAGERS AND DIRECTORS

Through one-on-one meetings, G2G garnered more information on priorities and who is managing areas of interest to specific bioscience fields. Some key meetings included:

Deputy Assistant Principal Secretary for Health Affairs, Department of Defense – She oversees health-related DoD programs and departments critical for shaping federal policy. The National Defense Authorization Act (NDAA), which is passed by Congress each year, includes a variety of health provisions that the DoD can provide feedback on as it moves through the lawmaking process. Priorities include female warfighter health, including issues such as the impacts of sex differences in body composition on military training and racial disparities in perinatal outcomes among armed forces mothers. Her portfolio also includes liaising with clinicians and



other medical stakeholders at DoD to frame coverage policies and optimize access to necessary care.

Acting Director, Research & Engineering, DHA – Gained valuable insights on DHA’s progress toward consolidating all military medical research as well as healthcare delivered at military treatment facilities (MTFs). This is part of DHA’s response to directives in the 2017 NDAA. These measures impact most R&D funding that have traditionally been allocated in a decentralized manner across the different service branches. All Army research dollars, including those for the Medical Research and Development Command (MRDC) Broad Agency Announcement (BAA), have been moved under DHA, except ~\$35M which will stay with two Army labs. It could take another couple years until all public-facing communications online reflect full integration under DHA. Despite these changes, it is expected that certain DoD installations will continue to function as is. For example, Fort Detrick, will continue as an execution agency with no plans to move operations away from that site.

In terms of specific R&D priorities, DHA is transitioning to a structure consisting of 9-11 technical areas. The confirmed technical areas include:

- Traumatic Brain Injury (TBI)
- Psychological Health
- Sensory Systems (e.g., hearing, vision, etc.)
- Infectious Diseases
- Casualty Care
- Directed Energy Health Effects

These areas will be led by program managers who develop 3–5-year strategic plans for funding priorities and outcomes. This is a shift from DoD’s longstanding committee structure for R&D decision making. Forthcoming opportunities will be linked closely to these plans. The strategic plan for TBI has already been published, with more to be released later in 2023 and into 2024. The current Military Operational Medicine Research Program (MOMRP) that includes a portfolio of environmental health and protection, injury prevention and reduction, physiological health and performance, psychological health, PTSD and resilience is currently going through DHA’s integration planning process and will be completely reorganized. By contrast, the R&D priorities outlined under the current Military Infectious Diseases Research Program (MIDRP) will face far fewer modifications when subsumed into the new Infectious Diseases Technical Area.

Deputy Component Acquisition Executive, DHA – She leads tech transfer from the point of advanced technology development forward. Thus DHA’s re-organization is intended to assist the processes for transitioning research to fielded products with the highest potential for impact. She provided some key insights including:



- ‘Acquisition’ at DHA does not equate to procurement, but rather the broader DoD process of product life cycle management from development, testing, procurement, and capability sustainment.
- The concept of knowledge transition, which informs the circumstances when and how developed capabilities should be used and then then drives future DoD R&D
- Work within DHA technical areas are driven by requirements, which are concrete, actionable benchmarks to meet the needs and gaps of military end users and MTFs that are shared via continuous feedback. DHA can allocate specific resources for specific requirements.
- Acquisition at DHA is split across program executive offices (PEOs) including: Enterprise Medical Services/Medical Systems, IT and Imaging (including medical devices in MTFs), Document Imaging Management Systems (DIMS)/Electronic Health Records (EHR), and Operations Medical Acquisition (OMA). Specific to OMA, DoD seeks solutions with a 12-months minimum shelf life and reduced refrigeration burden.

Director, Congressionally Directed Medical Research Programs (CDMRP) – CDMRP, which funds biomedical research innovation initiatives, has received \$16 billion from Congress, and has issued over 17,000 grant awards since it was created in 1992. In FY23, Congress allocated \$1.5 billion for specific focus areas that include, but are not limited to: wound care, cancer, arthritis, malaria, and suicide prevention. Some newer focus areas include food allergies, eating disorders, maternal mental health, and endometriosis. CDMRP emphasizes consumers as the “true north” of the organization and incorporates patient perspectives (including women and minority representation) as part of the review process. The Director provided insights about potential alignments with the Peer Reviewed Cancer, Rare Cancer, and the Joint Warfighter Medical Research Programs.

Chief Medical Officer at Joint Program Executive Office for Chemical, Biological, Radiological and Nuclear Defense (JPEO-CBRND) – His group works on rapid medical product development for future infectious disease threats and is the DoD analog to the Biomedical Advanced Research and Development Authority (BARDA) at the Department of Health and Human Services (HHS). Their current focus is on monoclonal antibody (mAb) manufacturing in partnership with the private sector through two routes: 1) Discovering and developing new, potent mAbs against infectious diseases, while optimizing key properties during early R&D, to facilitate rapid manufacturing downstream and 2) Improving the properties of existing mAb products while working under constraints. AI/ML tools are being utilized to aid with mAb property optimization. The aim is to de-risk mAb development and facilitate continuous manufacturing, to allow for rapid deployment of product at the next outbreak or pandemic. This involves integrating clinical development and manufacturing under one roof, while encouraging decentralized clinical trials. Longer term, the scope of products could potentially include small molecules, vaccines, antibody-drug conjugates, and cell and gene therapies.



He also provided insights on broader issues of domestic drug supply and manufacturing. He suggested the need for an office in HHS focused on critical drug shortages, to work cooperatively with, but independent of existing agencies. This office could aid in forecasting target quantities of critical drug supplies to be prioritized for domestic manufacturing. Partnerships with industry involving matching funds could be used to finance such work. In his view, this approach would be more feasible than targeting onshoring 100% of all critical supplies and providing blanket subsidies to manufacturers.

Military Deputy Director, Combat Casualty Care (CCC) Research Program – She discussed her portfolios including tactical combat casualty care, blood products, enroute care, and autonomous care and evacuation. As CCC works to move capabilities far forward to improve return to duty without increasing footprint, she explained the priorities are addressing acute battle fatigue, testing novel analgesics, treating acute pain without side effects, understanding acute pain and physiology, and developing therapeutics for pain that do not compromise warfighter performance.

Former Director of the Military Infectious Disease Research Program (MIDRP) – He discussed how MIDRP is focused on medical solutions that prevent, predict, and treat infectious disease threats. MIDRP is currently focused on wound infection, emerging and infectious diseases, including Dengue, Lassa, Hantavirus, and norovirus (a major problem in the Navy which is seeking immunoprophylactic solutions). In terms of vaccine development, MIDRP is most focused on efficacy. While speed is important, a vaccine must have 80% efficacy to be considered, and an ideal vaccine is cell free.

The above-described meetings were the most insightful. G2G had dozens of additional meetings with the following individuals: Integrative Clinical Medicine Director & Sr. Scientist at 59th Medical Wing, Joint Trauma System Chief at DHA, Director of Casualty Care/ Prolonged Field Care at DHA, Capability Area Manager for Brain Trauma Neuroprotection at Walter Reed Army Institute of Research, Program Manager at BioFabUSA, Assistant Portfolio Manager for the CCC & Vice President for Global R&D at the Henry M. Jackson Foundation.

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 February/March 2024. If you have any questions or would like additional information please reach out to Liz Powell (lpowell@G2Gconsulting.com), Greg Kapcar (gkapcar@G2Gconsulting.com) or Aditya Girish (agirish@G2Gconsulting.com).

