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Summary of the Military Health System Research Symposium (MHSRS)

August 19-22, 2019 in Kissimmee, FL

Questions?

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OVERVIEW

Below is an overview of MHSRS and key meetings and takeaways. It includes a summary of information gleaned from attending the plenary opening remarks and breakout sessions on specific military medical challenges, and numerous one-on-one meetings with Program Managers and Directors. Please let us know if you have any questions or would like additional information by contacting lpowell@G2Gconsulting or gkapcar@G2Gconsulting.com.

KEY TOPICS AND SESSIONS

Topics

This year, MHSRS included several sessions with high-level leaders explaining policy priorities within DoD and plans for the future Warfighter and Program Directors and researchers leading breakout sessions. Some key topics covered included:

- Warfighter Medical Readiness and Training
- Return to Duty Issues
- Global Health Engagement
- Expeditionary Medicine
- Warfighter Performance
- Innovation in the Military Health System, Defense Health Program, and U.S. Army Research Funding through SBIRs/STTRs/BAAAs
- FDA-DoD Collaborations
- Combat Casualty Care and Trauma Interventions
- Point of Injury Care and Prolonged Field Care
- Far Forward and En Route Care
- Total Exposure Health and Environmental Exposure
- Human Performance
- Rehabilitation and Amputation Care
- Women's Health
- Ocular and Hearing Loss Injuries
- Brain/Psychological Health – Prevention and Treatment of TBI, Concussions, PTSD, and related issues of mental health, sleep management and quality of life
- Musculoskeletal Injuries and Orthopedic Care – Prevention and Treatment
- Pain Management
- Acute, Burn and Chronic Wound Management
- Predictive Analytics and Digital Health
- Robotics, Medical Simulation and AI
- Blood and Blood Products
- Hemorrhage Control and Resuscitation
- Infectious Disease, Infection Control and Antimicrobial Resistance
- Precision Medicine
- Cellular Therapy and Regenerative Medicine

Plenary Session

The main speakers were from DHA (Defense Health Agency) and included:

- **CAPT Joseph Cohn – Chief, Research Program Administration, DHA** – He opened the event with general welcoming remarks. G2G met with him and Kathy Berst, Program Manager for Pharmaceuticals, Devices and Medical Support Systems at DHA, later in the week to get valuable insights on the restructuring of DHA. See below.
- **RADM Mary Riggs – Deputy Assistant Director, R&D DHA** – She shared success stories, such as the first blood test for TBI due to DoD's investment and the recent FDA-DoD MOU providing greater coordination to accelerate approvals for Warfighters, e.g. freeze-dried plasma is now available for the military. G2G talked with her following her speech and she emphasized how critical innovation is to military medical success.
- **Thomas McCaffery – Principal Deputy Assistant Secretary of Defense, Health Affairs** – He was just appointed and approved by the senate. His office administers \$50B in the Defense Health System to 10.5 million beneficiaries and that is responsible for 100,000 births per year. The global network of health labs is leading infectious disease efforts and working to train providers and move innovations further down range. He said R&D community partnerships are key. He also discussed the FY2019 NDAA (National Defense Authorization Act) that is requiring moving all Military Treatment Facilities (MTFs) to DHA and how it will sustain readiness, improve beneficiary access and outcomes while lowering cost because it will eliminate four different management structures. On October 1, 2019, DHA will assume control over all CONUS MTFs and overseas MTFs with final transition no later than September 30, 2021. The Military Medical Force Requirement is to support Joint Force and Clinical Readiness Requirements so DoD has created 11 initiatives it is working on to better manage such as modernizing TRICARE, establishing uniform electronic health records system and increased integration and communication across services. Finally, within specific areas of medicine, the Tactical Combat Care – Joint Trauma System has resulted in 67% decreased fatalities but concern remains about the future of increased Prolonged Field Care requiring more self-sufficiency to diagnose and treat at point of injury. The psychological health efforts have enhanced diagnosis and care but this remains a top priority as over the last 17 years 4,000 service members received TBI diagnosis.
- **Vice Admiral Raquel C. Bono – USN Director, Defense Health Agency** – Soon to retire, the former surgeon addressed readiness, operations, and business reform as Secretary Esper's priorities that she is working to implement. Last year, she launched a new DHA health services research funding opportunity to advance health service delivery and welcomes the reforms tied to the FY2019 NDAA.

Some other speakers of interest included:

- Terry M. Rauch, Ph.D., Acting Deputy Assistant Secretary of Defense for Health Readiness Policy & Oversight
- Alan Weil, J.D., M.P.P. Editor-in-Chief, Health Affairs Journal
- COL Todd Rasmussen spoke – Uniformed Services University and former CCCR (Combat Casualty Care Research Program) Director
- SGT Oliver Campbell (RET), Uniformed Services Agency, survived severe trauma on battlefield and now student at Dartmouth working to become a doctor

- COL Eveline Yao, USAF USSOCOM Surgeon General

Breakout Sessions

Some of the sessions G2G attended included:

- Total Exposure Health – Focused on assessing genetic, environmental and socio-ecological influences on behavioral outcomes.
- TBI biomarkers and diagnostics – Focused on ways to better diagnose and intervene.
- Blood and Blood Products – Focused on whole blood transfusions and emphasized speed is most important and they want products directly available for Armed Services Whole Blood Storage Program. But in future Prolonged Field Care (PFC) need supplies ready, so developed the Ranger Program where identified blood type of all soldiers and got universal blood donors secured. Also, shared their ultrasound capability for hemorrhage control and trauma care.
- Acute Lifesaving Trauma Interventions – Focused on range of innovations that are enhancing trauma response, especially in settings.
- Management and Treatment of Warfighter's Neuromusculoskeletal Injuries – Focused on improving treatment for common injuries facing service members.
- Securing Warfighter Dominance in Future Air Battlespace – Focused on technologies that improve human performance.
- Innovative Countermeasures and Diagnostics for Emerging Infectious Diseases – Focused on better ways to diagnose early and accurately and respond to infectious diseases (viruses and bacterial).
- Predictive Analytics within the MHS – Focused on software that can enable predicting health outcomes to better target care for service members.
- Non-vaccine infection control – Focused on ways to prevent and reduce infections beyond vaccines.
- What's New in Brain Health for Elite Warfighters – Focused on neuropsychological profiles, neuroscience, dietary factors and nutritional supplements, exercise factors, sleep impact, scarring of the brain, and balance and sensory function.
- Advances in Burn Wound Management During Prolonged Care – Focused on debridement, topical treatments for burns and chronic wounds, eletrospun dressing for mitigating infection and burn severity, wound healing for critical burns, full thickness skin columns in treating partial thickness burns, and accelerated wound closure using acellular fish skin.
- Training Effectiveness for Point of Injury Medical Care – Focused on the Joint Tactical Combat Casualty Care curriculum and joint medical modeling and simulation training and some specific hardware and software tools they are using.
- Pain Management for the Future Fight – Focused on battlefield scenarios, combat stressors, both acute and chronic pain management, and some specific treatment options.
- Functional Return to Duty Decision Making Post mTBI & Musculoskeletal Injury – Focused on symptoms, cognitive function and motor function following mTBI, return to duty decision-making and clinical assessments.
- Hitting the Target-Ensuring Optimal Human Performance, Psychological Health and Readiness throughout Military Services – Focused on LGBT-affirming workplace issues, ADHD in Marines, antidepressant use, mental fitness training, and suicide prevention.
- Aligning Readiness and Research: An Educational Pipeline for Quality Provider-Scientists – Focused on research productiveness and case studies in vascular surgery, emergency medicine and otolaryngology.

- A Total Lifecycle Approach to Delivering Healthcare Capabilities: Re-framing the RDT&E Concept – Focused on examples and ways to move knowledge from bench to battlefield applications and connecting the seams across the lifecycle.
- Innovative Approaches to Prevent, Diagnose & Treat Sepsis During Prolonged Field Care – Focused on burn sepsis diagnosis, big data and sepsis, biomarkers, point of care monitoring and prevention of infections.
- The Future Front Line: Supporting the Warfighter of Today with Innovation of Tomorrow – Focused on Joint Trauma Systems, medical logistics, the Armed Services Blood Program, health surveillance and immunization licensing process.
- Innovations in Medical Technologies to Advance En Route Patient Care – Focused on hemorrhage control, digital wearable combat casualty card and multi-modality bioprinting.
- Precision Medicine for Acute Trauma – Focused on polytrauma patients, augmented reality technology, facial transplantation, kidney injury, sepsis and pneumonia.
- Rehabilitation and Limb Loss – Focused on prosthetics and better integration to bone and skin as well as virtual training and other technology tools to increase capabilities for patients.
- Defense Health Programs and US Army Research Funding Opportunities – Provided an overview of funding opportunities and how to track them and included leadership from the offices of CDMRP, SBIR/STTR Program, Human Research, and US Army Medical Research Acquisition Activity.

G2G'S MEETINGS WITH PROGRAM MANAGERS AND DIRECTORS

New Health and R&D Management Systems

In meeting with military personnel, we heard about changes within DoD. In addition to the MTFs moving to DHA management as summarized above, the Army Futures Command (AFC) is instituting many changes. Significant funding and responsibility are being moved to this new command, which oversees modernization. In the first year, the AFC, based in Austin, Texas, has grown from 12 to 24,000 personnel in 25 states and 15 countries. It is the Army's largest reorganization effort in over 40 years. While neither General John Murray, the AFC commander, nor Bruce Jette, the Assistant Secretary of the Army for Acquisition, Logistics and Technology spoke at MHSRS, many Program Managers and Directors talked about AFC in our meetings.

AFC has eight cross-sectional teams addressing six modernization priorities: long-range precision fires, next-generation combat vehicle, future vertical lift, network, air and missile defense, and Soldier lethality – all of which have been allocated \$30B over the next five years. The Research, Development and Engineering Command has realigned to become the Combat Capabilities Development Command (CCDC) to find and build needed technologies to ensure overmatch capabilities. The Army Medical Research and Materiel Command (USAMRMC) programs are being moved over to the CCDC with a focus on fielding products, not funding basic research. The priority is short-term successes with items with INDs and that are deployable within five years.

Finally, of interest to small businesses, within the AFC, the Army Applications Laboratory was set up inside the Capital Factory, a hub for startups, to help innovators navigate the Army's acquisition process and the command is forming another team inside its headquarters to better engage with small businesses. The USAMRMC plans to continue to hold Vendor Days and small business outreach programs under this new command, but much is still in flux. Congress has mandated a strong focus on small business outreach and engagement, ordering a GAO report to track this activity so we expect more small business activities from the command.

G2G also garnered more information on priorities and who is managing areas of interest to specific bioscience fields ranging from health IT systems to infection control to en route care tools. Some key meetings of such interest included:

- National Trauma Institute – Based in San Antonio, NTI is eager to partner on clinical research projects and has an active network of trauma centers that span the country. Their focus is later stage research for collaborations with companies, but they also work closely with the Combat Casualty Care Research Program on executing their priorities.
- Director of Research Operations and Executive Director of SC21 (Surgical Critical Care Initiative, Uniformed Services University) – His focus is predictive analytics and medical devices as the mission of SC21 is to provide medical training and education for surgical residents, medical students, and students from military academies to improve decision-making. He does not work with therapeutics. He is open to learning about new innovations in advanced stages of development that align with this mission.
- Director of Research, MTEC – She works with the military (primarily the USAMRMC) and technology providers and partners on funding solicitations to align military needs and fill technology gaps to prevent injuries and accelerate the development of revolutionary medical solutions across the entire medical infrastructure to benefit active military personnel, veterans, and civilians. Areas of interest have included:
 - Battlefield diagnostics and therapies to reduce impact of TBI and concussions
 - Evidence-based therapies for PTSD to integrate warfighters back into society
 - Cell therapies that heal previously irreparable nerve, vascular and organ damage
 - Antibiotics to cure life-threatening infections
 - Telehealth solutions that monitor warfighter health conditions in training and battle
 - Substance abuse reduction and management during chronic pain relief
 - Commercialization of cutting-edge artificial limbs with more comfort and functionality in the near term and limb transplantation and regenerative medicine therapies to restore normal functions like walking, grasping and writing in the long-term
 - Technologies for medics to increase treatment at the point of injury (POC)She emphasized she is a resource as companies evaluate new solicitations and trying to assess if they should apply. MTEC expects to continue to release new funding solicitations.
- Research and Development Transition Manager, Task Area Manager, Critical Care Systems – He is active in numerous innovations concerning trauma care. He aims to work with companies in the advanced development stage and can connect companies to potential research collaborators. He also encouraged us to work on CRADAs in teaming up with collaborators. Acute burn wounds, sepsis, infection control, hemorrhage control and point of injury imaging technologies were areas of most interest in our discussion.
- Air Force Medical R&D Director-San Antonio – She is leading several research initiatives focused on trauma and has helped work with collaborators on animal models. She explained the changes happening within DHA and AFC and the impact on her organization. As others are losing funding, she is gaining it but she is still assessing total budget and ways it can be spent as we enter the next fiscal year. Because she formerly headed Navy Medical R&D, she shared several contacts within Navy who have Special Forces contacts and lead on orthopedic devices/care, regenerative medicine, imaging technologies, En Route Care and the Critical Care Research Program.

- Chief Science Director, Naval Medical Research Unit-San Antonio – He talked about the timeline for companies when drawing down funds lasting two years and shared some insights with the changes happening within DHA. Much is to be determined in the next fiscal year, but he is working collaboratively across the services on research initiatives.
- Director of BioFab Lab USA, based at USAMMDA – He explained his new role with BioFab Lab, run by Advanced Regenerative Manufacturing Institute (ARMI), and shared insights on the shifting R&D funding within USAMRMC and AFC. The purpose of BioFab Lab is to make practical large-scale manufacturing of engineered tissues and tissue-related technologies to benefit existing industries and grow new ones by serving as a Manufacturing Innovation Institute (MII) within the Manufacturing USA network. BioFab Lab is improving its operations and expects to see more progress with private sector collaborations. Meanwhile, a significant amount of research funding at USAMRMC is shifting to the new command, AFC. Both CDMRP and the Joint Policy Committees continue, but it is unclear how will operate under DHA. Paying attention to the National Defense Strategy is key to determining where funding will go in the years ahead.
- DHA Leadership – We met with several in DHA for R&D and Acquisitions, and they provided updates on the changes and said externally much remains the same so continue to engage and track opportunities. The Joint Medical Readiness and Annual Joint List are key in setting priorities. USAMMDA was recently restructured to include:
 - Prevention and acute care – infectious disease, blood products and trauma care
 - Expeditionary medicine and treatment – hemorrhage control and long-term care
 - Warfighter brain health – TBI and psychological health
 - Warfighter health – holistic health and fitness and evacuation vehicle items
- Scientific Advisor to AF Surgeon General – He shared his priorities of human performance and the biomedical impact of flight on the military in his role as Chief Scientist for COL France for the Air Force. He works with the 71st Human Performance Wing in Dayton, OH and the 59th Wing in San Antonio, TX, although the 59th Wing is moving to DHA so there will be one R&D unit under DHA Policy and Oversight from now on.
- En Route Care Director – He provided insights on his focus for en route care, which are the ease of use, speed, and sustainability in the Prolonged Field Care setting as being top priorities. He welcomes innovations in advanced development stage.
- USAMRMC Vendor Days Director – We met to discuss the Vendor Days that occur throughout the year at Fort Detrick and how they can position companies with not just the DoD, but NIH, hospitals, EMTs and others involved in healthcare. G2G will be at the September 11th Vendor Day focused on first response and trauma care innovations.
- TATRC Director – He just moved from deputy director to director and oversees six labs and programs: Computational Biology, Health IT, Mobile Health, Medical Modeling & Simulation, Operational Telemedicine and the intramural AAMTI Program. TATRC works with early stage research through technology demonstrations and implementation.

G2G had dozens of meetings during the MHSRS conference but found these to be the most important to summarize. Should you have any questions, please contact the G2G team at lpowell@G2Gconsulting or gkapcar@G2Gconsulting.com.