

TATRC Welcomes Newest Director, COL Jeremy C. Pamplin to the Helm



COL Jeremy C. Pamplin,
TATRC's 10th Director.

On 20 June, COL Jeremy C. Pamplin took the reins from COL Gina Adam as the tenth Director to serve at the Telemedicine & Advanced Technology Research Center.

No stranger to the TATRC organization, COL Pamplin arrived in August 2018 and took on the role of Deputy Director for the past ten months where he had the chance to gain a deeper understanding about this extremely unique organization and its numerous innovative initiatives.

Described as being “born for this role, and being at the right place at the right time,” COL Pamplin’s energetic and all-inclusive leadership style has really been a motivator and force multiplier.

COL Pamplin comes to TATRC from the Madigan Army Medical Center (MAMC) where he began the Army’s first Tele-Critical Care service

from 2016–2018. Prior to his time at MAMC, he was the Chief of Clinical Trials in Burns and Trauma and the Medical Director of the U.S. Army Burn Intensive Care Unit at the U.S. Army Institute of Surgical Research. He has served as medical director of surgical and medical ICUs since completing his Critical Care Medicine fellowship at Walter Reed Army Medical Center. COL Pamplin deployed twice: once in support of Operation Iraqi Freedom as the Chief of Critical Care for the 86th Combat Support Hospital and once to Afghanistan in support of Operation Enduring Freedom as the Deputy Deployed Medical Director of the 33rd Field Hospital (UK), and the American Contingent’s physician leader. He helped develop and start the first extracorporeal membrane oxygenation program at Brooke Army Medical Center. He was the principal investigator for the ADvanced Virtual Support for Special OpeRations forces (ADVISSOR) project that transitioned to the ADvanced Virtual Support for OpeRational Forces (ADVISOR) Service, the Army Virtual Medical Center’s Operational Virtual Health Capability. COL Pamplin received a bachelor of science from West Point in 1997 and his medical degree from the Uniformed Services University in 2001.

In the few short months since COL Pamplin became Director, the team has witnessed his sincere and genuine efforts to encourage and involve everyone at TATRC to become agents of change and innovators within their own areas, to constantly think outside the box, and, in keeping with the Army Future’s Command motto, truly “Forge the Future.”

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TATRC Hosts Prolonged Field Care Demonstration with Madigan Partners



TelePFC Remote Monitoring



TelePFC Remote Specialist



TelePFC Medic Team supported by TelePFC Remote Monitoring and TelePFC Remote Specialist.

On 21 May, TATRC had the pleasure of hosting a talented team of individuals from Madigan Army Medical Center's Telemedical Research for Operational Support (TR4OS), who, along with TATRC Director COL Jeremy Pamplin, carried out a demonstration of telementoring capabilities for prolonged field care (PFC). The 2-day event took place in TATRC's outdoor simulated field environment. It allowed for our colleagues within the command to see firsthand the capabilities telementoring provides and the value of high fidelity simulation for prolonged field care training.

Featuring a field medic attending to a patient, guided by a remote expert, the event consisted of a scenario which covered the entire spectrum from full, comprehensive telementoring with video and audio relay, to zero connectivity wherein the medic had to rely on a hardcopy of the clinical practice guidelines. Each situation holds unique importance for testing the abilities of a novice provider responding to an

unfamiliar scenario in an austere environment. The purpose of this event was to demonstrate a controlled laboratory and validated clinical testing model to the study sponsor, potential transition partners, and simulation training leaders.

Katy Cohen, Research Nurse and proctor for the event, stressed the importance of simulations like these, stating, "It's unique to let the medic react to the scenario as it unfolds, operating in real-time while also having a proctor who's tailoring the situation to the subject."

During the exercise, TATRC Director COL Jeremy Pamplin had the opportunity to brief a multitude of attendees on the importance and value of TelePFC, including MRDC's then Commanding General, MG Barbara Holcomb, as well as Command Sergeant Major Timothy Sprunger. The event was a resounding success and a great step forward for this innovative technology.

TATRC is in the beginning stages of developing our own in-house clinical simulation exercises, and the opportunity to



MMSV Research Scientist, Mr. Geoff Miller briefs USAMRDC Leadership during the TelePFC demo on 21 May.



TATRC staff and MAMC's TR4OS team pose for a group photo after the TelePFC demo



TATRC Director, COL Jeremy Pamplin, briefs staff and attendees on the value of TelePFC.

see how far the Madigan TR4OS Team has come in their own efforts was inspiring. Simulation at this level, in real-time, is incredibly complex as every possible choice, and action of the subject (e.g. the medic) has to be accounted for ahead of time. According to TATRC's Director COL Jeremy Pamplin, "PFC training is HARD because the care complexity is HIGH and becomes more cognitively challenging as time marches forward. Developing this type of laboratory environment is part of the intent behind the TATRC alignment with USAMMDA."

Further down the line, the team looks to expand the platform to provide full-scale, plug-and-play training for all roles in the process, where all parts are interchangeable, including devices, personnel, and environments.

The benefits of these types of exercises are numerous and invaluable, according to LTC Chris Colombo, MD, the project's Principal Investigator. From efficiency and cost savings,

to providing a better understanding of resource allocation and personnel training, these exercises allow for a deeper understanding and evaluation of exactly which methods and techniques can result in maximum readiness and potency.

LTC Colombo stated, "In an ideal world, you'd have a specialist on-hand to train every medic face-to-face. We are changing the notion of how to extend resources to where they were previously unavailable. We believe we can tip that balance by placing an additional resource in the room, via telemedicine, allowing the trainee to handle a situation that would otherwise be outside their scope."

Overall, the team considered the event an important step forward and a key to opening doors for future development. 1SG (Ret.) Kevin Ross, Project Manager, emphasized the value of the exercise, noting, "it's not always possible to include both the technology and the end-user, with their own unique set of requirements, in the same training event. Exercises like these work to show that high-quality training can be viable even without the ability to work face-to-face with a subject matter expert."

"Here we had a future leader of other medics, and he hadn't touched a patient up until this training. Not because he didn't want to, but because proximity is important to the ability to access training. I think what we did here is help to change the perspective of how training can be accessed and the value of research, and the more we can do that, the better we can help develop the Army's training curriculum."

TATRC is proud and grateful to the TR4OS team at JBLM for their partnership and expertise, which helped make this event a resounding success. We look forward to further collaborations in the name of advancing prolonged field care. ■■■

Joint Team Researches Battlefield Virtual Health of the Future

A joint team of collaborators came together at Camp Bullis, TX from 8 – 12 April to review and provide initial feedback on TATRC's Medical Data Cloud (MDC) research study by examining multiple medical functional areas enhanced through innovative technology solutions. The team included:

- TATRC's Medical Intelligent Systems Lab (MISL)
- The U.S. Army Virtual Medical Center (VMC)
- Marine Corps Warfighting Laboratory (MCWL)
- Combat Capabilities Development Command Aviation & Missile Center Systems Simulation, Software and Integration Directorate (CCDC AMC S3I)
- Combat Capabilities Development Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance Center Command, Power and Integration Directorate (CCDC C5ISR CP&ID)
- Air Force Research Laboratory (AFRL)

The multi-service team came together over four days to research and study mobile health solutions to support battlefield medicine. The first two days were focused on equipment set-up and the establishment of network systems. On the third day, personnel were trained on the utilization of the systems, culminating with the research testing on the final day. Mobile Medics (MM) from the VMC utilized AFRL's Battlefield Assisted Trauma Distributed Observation Kit (BATDOK) System to provide simulated patient data over simulated classified radio network

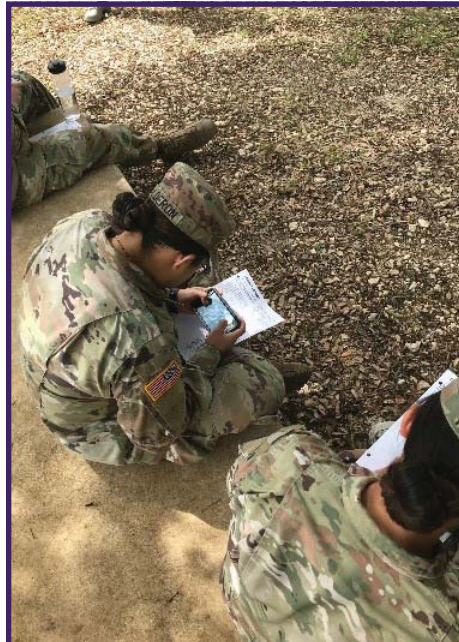


Figure 1: MM feed data into BATDOK.

for a medical dashboard on CCDC AMC S3I's cloud-based medical information exchange portal known as the MDC and MCWL's Medical Common Operating Picture (MedCOP). Providers from VMC's Advanced Virtual Support for Operational Forces (ADVISOR) TeleConsultation program viewed live, real-time data through a web-based interface. Some of the providers were located on site, while four other providers were located across CONUS. Brooke Army Medical Center's Chief of Logistics and Chief of Patient Administration provided expert feedback on logistics and medical regulating to improve future iterations of this capability. Michael Kile, Operational Readiness Program Manager at the Army Virtual MEDCEN stated, "This initial research concept offers the potential to provide a mobile capability to allow for Virtual Health solutions to connect forward



Figure 2: Providers viewing the dashboard on the MDC.



Figure 3: TATRC's James Beach receives feedback from an ADVISOR provider.

deployed medical personnel to Role I, II, and III Medical Treatment Facility personnel for bi-directional medical information exchange supporting tele-mentoring, teleconsultation, and remote monitoring."

"This collaborative research event was a tremendous success. The joint partnership and idea exchange provided researchers with a large amount of information and concepts to refine the products, and make them more user friendly and relevant for medical needs in the current operational space," said Mr. James Beach, Project Manager from TATRC's MISL. ■■■

Virtual Health Solutions for Multi-Domain Operations

In FY19, a new research area, known as Virtual Health (VH) awarded its first funding. Ms. Jeanette Little from TATRC serves as a capability area manager (CAM) for this new research portfolio. This is significant since the Army research portfolios are realigning efforts to address the priority areas for our future Warfighters.

The reason for this growth area is evident: the future operational environment will differ in how medicine has been delivered in the operational environment previously. The focus of virtual health solutions will be organized around Multi-Domain Operations or MDOs. This means that fighting forces will be smaller, more dispersed, and when an injury occurs, evacuation times will be significantly longer due to the capabilities of near peer adversaries. Communications will be DIL (denied, intermittent, or low/no comms) for long periods of time.

Ms. Little stated, "As a result of these future challenges, it is vitally important to plan for the next generation of telemedicine, or VH tools and technologies that can support Service Members, point of injury care providers, remote consultants and commanders that will anticipate the new challenges in this novel operational environment."

The four key topic areas that are high priorities for the new Virtual Health research projects are as follows:

- Determine novel ideas, approaches and strategies to facilitate effective VH consultations in the communication constrained MDO environment through prioritization of clinical data elements generated by the care provider and/or onsite clinical monitoring equipment. As VH technologies are leveraged in the operational environment, large amounts of physiological data can be generated; yet the ability to communicate those data fields to remote consultants will be extremely restricted. Within the MDO environment there will be large, yet highly variable time frames without any communications; when bandwidth is available, it will be restricted to high priority data elements. Therefore, determining which clinical data elements should be classified as urgent, high, medium and low priority for the windows of connectivity is critical to effectively support the care provider seeking clinical guidance and expertise. Further stratifying these clinical data into prioritization for asynchronous support solutions in the absence of/ or during degraded communication resources must also be considered. Establishing novel combinations of different VH technologies and information transfer strategies that optimize patient care in context while minimizing network resources, are required for effective VH within the MDO environment.

- Identify novel ideas, approaches and strategies to provide VH support to a care provider when an established, synchronous (real time) teleconsultation is disrupted due to communication

degradation, failure, or outages prior to completion. Because of the communication constraints of the MDO environment, it should be expected that communications may be disrupted prior to the completion of a live consultation. Therefore, exploring techniques to leverage clinical decision support tools that will dynamically be invoked as communication capabilities are reduced or fully denied is essential. Clinical decision support capabilities in numerous form factors will be key to fulfilling medical expertise gaps that exist between the caregiver qualifications and required casualty care at the point of injury. The seamless scaling of VH solutions between synchronous to limited and / or asynchronous to clinical decision support systems in the absence of network communications must be achieved in real time / near real time and be accompanied with a clear protocol for the care giver.

- Determine novel ideas, approaches, and strategies to identify appropriate and available remote expert consultants to aid the novice care provider in the MDO environment to support just-in-time consultation needs. The existing expert consultation network is predicated on traditional echelons of care, and assumes ready access to reliable communication resources. Providing care givers with tools to facilitate obtaining needed advice and or coaching that is based on clinical needs, connectivity options, geographic proximity, expert health consultant schedules and privacy / security considerations while still maintaining the situational awareness of the anticipated evacuation chain requires a paradigm shift from current practice. Considerations of primary, alternative, contingency, and emergency plans for obtaining necessary VH support should also be considered.

- Explore novel ideas, approaches and strategies for identifying best practices to counteract threats from electronic warfare (EW) that can be leveraged for current and future VH technologies. The MDO is predicated on the assumption that near peer adversaries will actively attempt to obtain critical information from VH tools. Additionally, it is assumed that these adversaries will further attempt to disrupt military operations by inserting false data sets and or malicious code into VH tools to misdirect care givers and / or senior leaders. Developing effective countermeasures that can be embedded into next generation virtual health solution sets, specifically respective to health data elements and the unique attributes and properties of clinical information is an essential requirement to counteract EW threats.

In FY19, three intramural research projects have been awarded, and all are early stage, 6.2 funded efforts. Two of these efforts directly involve TATRC researchers. A total of four research laboratories are involved: the Army Cyber Battle Lab, Institute for Surgical Research, TATRC, and Walter Reed Army Institute of Research. These labs are actively partnering their research efforts to commence the early stage VH research activities focused on the four aforementioned topic areas. In FY20, both intramural and extramural VH research projects will be awarded, and those submissions are undergoing the peer review process which will be announced shortly. Calls for proposals will also be announced soon for FY21 funding opportunities. ■■■

TATRC Participates in its 3rd Pentagon Lab Day



Key staff representing our organization at this year's Pentagon Lab Day! From left: Ms. Samantha Hornby (BHSAl), Mr. Nate Fisher (MISL), Mr. Geoff Miller (MMSV), and then-Director COL Gina Adam.

Team TATRC had the honor and pleasure of being a part of the third biennial Department of Defense Lab Day 2019 held at the Pentagon Courtyard hosted by the Under Secretary of Defense for Research and Engineering (USD(R&E)) which took place on 25 April. The DoD Lab Day showcase features the innovative work performed by the scientists and engineers within the Defense Laboratory Enterprise, which includes Defense laboratories, warfare centers, and engineering centers across the world.

A team of TATRC's subject matter experts including Mr. Geoff Miller, Medical Modeling, Simulation and Visualization Lab Lead, Mr. Nate Fisher, Medical Intelligent Systems Lab Project Manager, and Ms. Samantha Hornby of the Biotechnology High Performance Computing Software Applications Institute (BHSAl), were selected and on hand to exhibit all things related to medical simulation, augmented reality, medical robotics and autonomous systems, as well as the BHSAl's high-tech injury prevention and alertness monitoring with the 2B-Ready app.

Designed to showcase next-generation knowledge and materiel products from the Army, Navy and Air Force, the event featured hundreds of enlisted personnel, contractors and government employees, and served as a chance for DoD leaders to both assess the progress of current funding efforts and to identify upcoming capability gaps.

The Lab Day provides a unique platform to be able to demonstrate an Army product to leaders across each service and the real benefit is in the transition of knowledge and product utility across the entire DoD.

"The entire event is really an opportunity to showcase what we do on a daily basis, and then to bring that hard work to a larger audience," said USAMRDC and Fort Detrick's then-Commanding General, MG Barbara R. Holcomb.

Team TATRC is grateful to have been selected to participate with the rest of our MRDC family in this valuable collaborative event, and we look forward to the next Pentagon Lab Day in 2021! ■■■

mHIC's New Mobile Health Pilot Project with JPEO CBRN Defense

In the 4th quarter of FY19, TATRC commenced an exciting new partnership with the Joint Program Executive Office for Chemical Biological Radiological and Nuclear (JPEO CBRN) Defense team on a pilot research and technical demonstration effort. This multi-faceted effort seeks to develop a proof of concept Joint Health Risk Management (JHRM) prototype solution that enables measurement of individual exposures to Chemical, Biological, Radiological and Nuclear (CBRN) hazards, and provides combatant commanders with actionable hazard assessment and risk mitigation information.

The initial technical configuration will link environmental exposures to unit IDs and individual health records of Service Members (SMs) to document exposures which will aid in health risk management and long term care over a SMs career, Force Health Protection planning, and retrospective epidemiological studies. This new partnership is possible because TATRC's existing Mobile Health Care Environment Research (MHCE-R) system and its secure mobile app, mCare, can provide a means for an early capability demonstration of the JHRM solution.

Mr. Adam Becker from the JPEO CRBND is excited to work with TATRC to collect longitudinal blast gauge exposure leveraging the secure mCare app and MHCE system. His vision for a multi-year concept will eventually demonstrate seamless interconnection between the secure mCare app and next generation CRRN sensors, and data exchanges with other government systems. Providing health risk management support to operations is a required capability of the Military Health System (MHS). This capability enhances the MHS' effectiveness to detect and assess Warfighter exposures to CBRN hazards and routine Occupational and Environmental Hazards (O&EH) in deployed environments, as well as develop an early understanding of the health risk to personnel operating in environments, contaminated by chemical warfare agents, toxic industrial chemicals / materials, biological agents, natural occurring diseases, radiological agents or nuclear weapons. JHRM provides knowledge and decision support capabilities necessary to implement several key CONOPS, including Joint CBRN Contamination Mitigation, Joint CBRN Hazard Awareness and Understanding, and Joint Force Health Protection. JHRM directly supports the Joint Functional Concept of Protection.

The JPEO CBRN Defense teams have developed a preliminary strategy outlining an interconnection between the

MHCE-R system / mCare app and the existing health data repository as an initial step to a multi-year demonstration of a concept that would eventually have seamless interconnection between the secure mCare app and next generation wearable and point environmental sensors, and data exchanges with other government systems, potentially the Hazard Assessment and Mitigation (HAM) Decision Support tool, Global Biosurveillance Portal, MHS Genesis, and / or the Defense Occupational Environmental Health Readiness System (DOEHRS) systems.

In this initial phase of the pilot project, TATRC researchers will be:

- Developing use cases to inform the development of the HAM analytical algorithm and define appropriate user interfaces.
- Developing a functional version of the secure mCare app on an operationally approved mobile device(s) for use in a future, operational setting.
- Developing a manual entry form within the secure mCare app that would allow the SM to input location data, environmental, health, direct reading and passive reading sensor data, and personnel / unit IDs.
- Developing a means of data exchange from the secure mCare app and / or backend MHCE system to other government system(s), to include an evaluation of system data dictionaries to append the MHCE system data structure, as needed.

Ms. Jeanette Little, Lab Manager for TATRC's Mobile Health Innovation Center, stated, "This project addresses several capability gaps such as: Improving the breadth, resolution, and timeliness of environmental battlespace awareness and health risk management; improving the documentation of Service Member exposures; and improving interoperability among CBRN, Occupational Environmental Health, and medical systems & technologies. By leveraging the existing MHCE system, lessons learned, capabilities and resources of the TATRC team, we will continue leading Army Medicine into the future of care." ■■■

Shalom from the SHORESH Meeting in Israel



The SHORESH Team enjoys a meal. From left: Dr. Jaques Reifman (BHSI), Dr. Gary Gilbert (MISL), and then-Director COL Gina Adam.

Senior members from Team TATRC traveled the globe to participate in this year's SHORESH Meeting, which was hosted by the Israeli Defense Force (IDF) in Tel Aviv and took place 8 – 12 April. COL Gina Adam, TATRC's Director at the time, attended with both Dr. Jaques Reifman and Dr. Gary Gilbert, who were invited to give specific presentations on their individual areas of expertise.

Dr. Reifman, Director of the Biotechnology High Performance Computing Software Applications Institute, gave a Keynote presentation entitled: "The Role of Artificial Intelligence (AI) in Army Medicine," as well as a separate presentation on: "Sleep Markers of PTSD in Combat-Exposed Service Members."

In Dr. Reifman's second talk on

sleep markers of PTSD in Service Members, he discussed the strong evidence linking sleep disturbances and PTSD, even though the identification of objective markers that characterize PTSD during sleep has been challenging, with prior studies yielding inconsistent findings. This research aims to identify quantitative sleep biomarkers of PTSD that are reproducible across nights and sub-populations of a study. The results suggest that these sleep-specific markers may reflect the underlying neural processes involved in PTSD.

Dr. Gary Gilbert, TATRC's lead for the Medical Intelligent Systems Lab, delivered a presentation on the New Army Research Task Area in Medical Robotic and Autonomous Systems (MED-RAS).

For several years, TATRC and the

IDF's Trauma Branch have looked for opportunities to collaborate and partner on research and development efforts for casualty evacuation in unmanned systems. Beginning in 2010, the USAMRDC collaborated with the IDF through the NATO Human Factors in Medicine (HFM) Panel in publishing a NATO report on Safe Ride Standards for Casualty Evacuation Using Unmanned Aerial Vehicles. Several other reciprocal visits from stakeholders have been held over the past five years, and Israel is a partner-nation and member of the ongoing NATO HFM Exploratory Team studying NATO potential for Autonomous Tactical Care & Evacuation.

During his talk, Dr. Gilbert pointed out that future combat strategies such

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Honorable Thomas McCaffery Visits USAMRDC

On 22 April, TATRC had the privilege of briefing the Honorable Thomas McCaffery, Acting Assistant Secretary of Defense for Health Affairs (ASD-HA), during his visit to USAMRDC HQ. Mr. Nate Fisher, of TATRC's Medical Intelligent Systems Lab, was on hand to demonstrate to Mr. McCaffery the key concepts of medical robotics and autonomous systems.

In his role as ASD-HA, Mr. McCaffery is the principal medical advisor to the Secretary of Defense. He administers the Military Health System \$50 billion Defense Health Program budget and is responsible for ensuring the global delivery of quality, cost effective health care to 9.4 million Service Members, retirees, and their families. Mr. McCaffery oversees the Defense Health Agency and the Uniformed Services University of the Health Sciences.



Mr. Nate Fisher (MISL) briefing the Hon. Mr. McCaffery, ASD-HA, on key concepts of MRAS.

As always, TATRC is proud to have the opportunity to work toward the betterment of military medical

care, and it was both a pleasure and an honor to take part in this important demonstration. ■■■

SHORESH continued from page 8

as the U.S. Army's Multi-Domain Operations (MDO) will involve greater dispersion and near isolation over great distances necessitating units to be more self-sufficient and less dependent on logistical support. Numbers of manned evacuation platforms are likely to be insufficient for widespread multiple domain battlefields with peer adversaries or may be denied entry. Combat commanders with mounting sick or wounded will face degradation of medical resources and encumbered combat mobility without new combat casualty care and force multiplication strategies. Following the guidance of the U.S. Army's Robotic and Autonomous Systems (RAS) Strategy, and the 2018 RAS Interim Capability Document, the MRDC's Medical Simulation & Medical Sciences Research Program (MSISRP) MED-RAS research task area aims to leverage RAS to support prolonged care

& evacuation in MDO in collaboration with related research portfolios funded by MRDC's Combat Casualty Care Research Program. Subsequent to the SHORESH meeting, TATRC, along with the U.S. Army PEO Aviation, the Army Missile Research Development and Engineering Command and the Office of Naval Research, submitted a proposal through the Army's Foreign Comparative Testing process in coordination with the IDF for the evaluation of Israel's Cormorant Unmanned Aerial System as a candidate for medical operations in Unmanned Air Systems joint Foreign Technology Assessment. According to Dr. Gilbert, that proposal was not selected for funding this year but the future joint research endeavors with the IDF in this area will be pursued.

The clear highlight of the SHORESH Combat Casualty Care Working Group, to which Dr. Gilbert was assigned, was a visit hosted by the IDF to the heavily fortified and

continually defended border between Israel and Syria at the Golan Heights followed by a tour of the nearby supporting hospital center. Unlike the U.S. military, Israel does not operate military-only Role 4 and 5 hospitals, but leverages nearby civilian facilities to support operational missions around its borders. Dr. Gilbert remarked that, "Just off the main road, through seemingly peaceful populated areas, it was a clear reminder of what it's like to live your entire life under the threat of imminent war on your doorstep."

Now in its 19th year, SHORESH brings together top scientists and researchers from both the U.S. and Israel in order to find solutions to issues involving the pillars of advancing military medicine. TATRC was honored to be included on the agenda at this year's event. ■■■

It's PR2ME Time for the Army National Guard



The 2019 Army National Guard's (ARNG) annual Medical Team Conference (MTC) was held at Camp Dawson, West Virginia from 4 - 10 May. Nearly 350 participants from the 54 States and Territories engaged in briefings, small group discussions, and interactive demonstrations, that all focused on innovation and process improvement as they support the Army's strategic priorities of lethality and sustained readiness. In attendance was Army Surgeon General at the time, LTG West, as well as the MEDCOM CSM, CSM Gragg, DSG for Mobilization, Readiness and Reserve Affairs, MG Dir, and BG Reese the HQDA Assistant SG for Mobilization, Readiness, and National Guard Affairs.

One presentation and demonstration that grabbed everyone's attention immediately was TATRC's Portal for Ready and Resilient Individuals using a Mobile Enterprise (PR2ME) - the mobile application that allows a user to complete the Soldier portion of the DoD Periodic Health Assessment on their personal smartphone or mobile device. The PR2ME app capability was developed by TATRC's Mobile Health Innovation Center (mHIC) through a partnership with the ARNG. mHIC employees Mr. Ron Yeaw and Mr. Rob Chewning were at the conference and participated in both the presentations and app demonstrations.



mHIC Deputy Lab Lead, Mr. Ron Yeaw, got valuable face-time with then-ASG, LTG Nadja West, as well as MAJ (P) Tim Cho, ARNG, during the ARNG's annual MTC.



ARNG Deputy State Surgeons from all U.S. States and Territories get first glance at PR2ME.



PHA Pilot Participants getting a closer look at PR2ME interface and rollout plan.

"This timely mobile application will increase medical readiness and overcome some existing barriers to completing Part A of the PHA by Reserve Component Soldiers outside of the armory," said MAJ (P) Tim Cho, MD, MPH, Chief of Preventive Medicine and the Program Manager of the mobile application for the ARNG. In addition to the PHA, the application will allow for secure messaging, upload of fitness tracking data, surveys and access to a library of health and prevention information.

Prior to the PR2ME demonstration, the ARNG / PR2ME team met briefly

with LTG Nadja West to discuss the possibilities of this new platform. The team also provided PR2ME demonstrations to ARNG DSG BG Faris and ARNG Chief Surgeon, COL Michael Pelzner. Per COL Michael Pelzner, "I fully expect this app to go viral first across Guard Nation, then the Army, then the DoD."

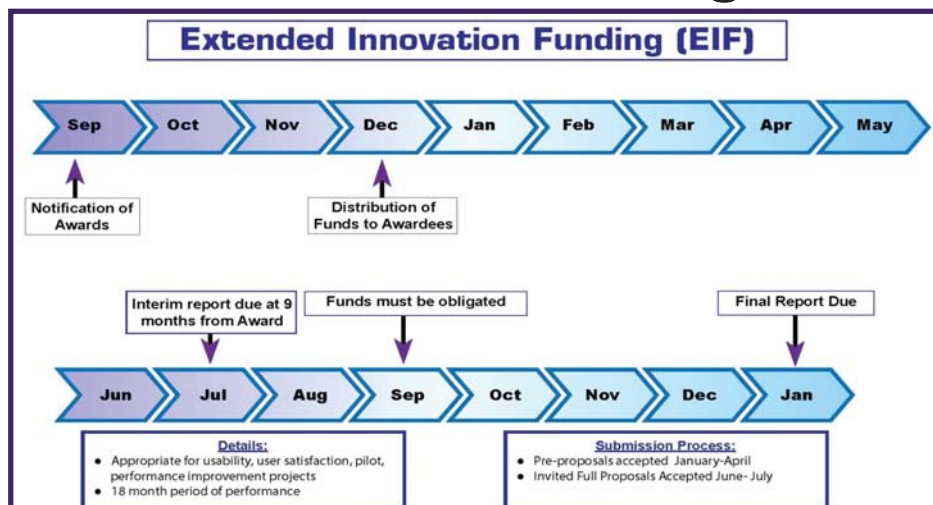
TATRC is finalizing development of the mobile application, and ARNG expects to roll it out to pilot units before the end of the year. ■■■

AAMTI FY20 Extended Innovation Funding (EIF) Updates

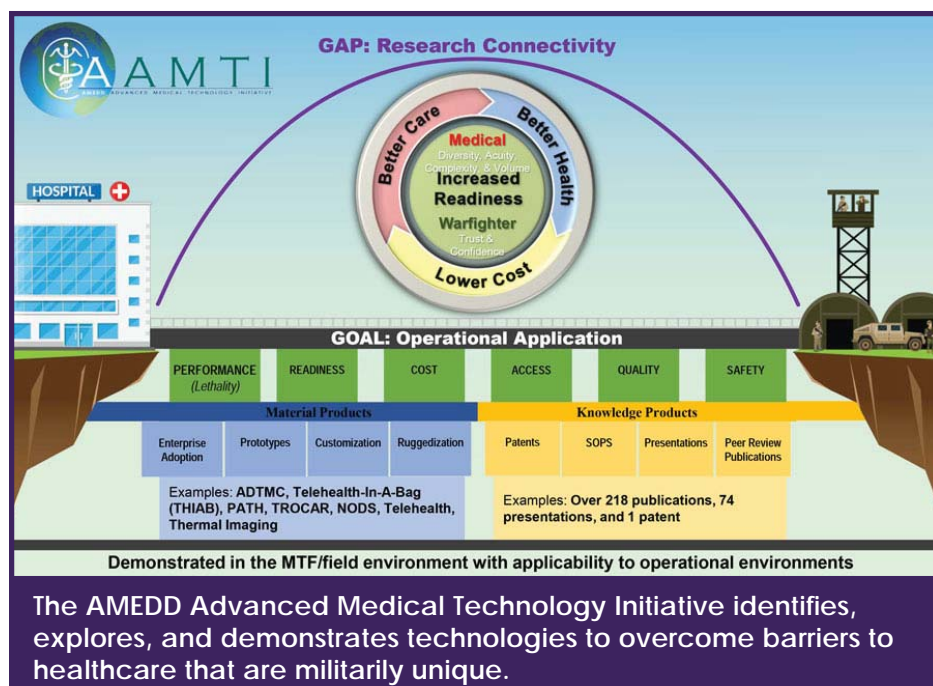
In FY99 (and each year thereafter), the Army Surgeon General, through the U.S. Army Medical Research and Development Command's (USAMRDC) TATRC, provided a \$5M special appropriation of DHP O&M funds to enable technology demonstrations throughout the AMEDD. TATRC has managed these projects since the program's inception from award through execution.

The AMEDD Advanced Medical Technology Initiative (AAMTI) is an intramural program that is only open to Military and Civilian Innovators. Small funding investments are made in small commercial off the shelf (COTs) or government off the shelf (GOTs) performance improvement projects that are \$250K or less. Innovators are encouraged to work with academia, industry and other services to complete their projects. Each proposal that is received is evaluated not on research metrics, but on the innovation of their concept, military relevance, metrics for success and potential for return on investment. The AAMTI program produces material and knowledge products, including prototypes, customization, ruggedization, patents, standard operating procedures (SOPs), presentations, and publications. It is an excellent tool for funding great ideas quickly.

This is an investigator initiated program that rewards enthusiastic innovators that identify a problem / potential solution set with 'seed money' to conduct process improvement or technology demonstrations on emerging medical technologies and document their impact on cost, access, quality, and safety of care and medical readiness. It also provides for medical tech-surveillance capability and the ability to fail fast for the knowledge gain. Program execution encompasses small funding investments at the facility / individual level in two distinct categories: **Rapid Innovation Funding (RIF)** and **Extended Innovation Funding (EIF)** for which the period of performance for each category is limited to 6 and 18 months respectively.



EIF - 18 Month Period of Performance.



AAMTI EIF preproposals have been accepted for the EIF program since January of this year. Hopeful Innovators submitted seventy AAMTI preproposals for EIF FY20. These preproposals came from fifteen different AMEDD facilities. Once submitted, preproposals are reviewed by a team of preproposal peer reviewers (14 this year) through June each year. Invitations for full proposals were sent out in July and a second peer review panel (6 this year) reviewed the down selected full proposals and recommend decisions to the TATRC

Director for final approval. Notification of final selection occurred the last week of September with funding arriving in FY20.

"Ultimately, the AAMTI provides an opportunity to demonstrate technologies and their operational application in a military treatment facility, lab or military field setting to assess the cultural, business, and clinical implications that impeded the adoption of new technologies, which allows for the identification of gaps or the closing of gaps," said Ms. Holly Pavliscsak, AAMTI's Program Manager. ■■■

Dr. Gary Gilbert Leads NATO Working Group into Unmanned Territories

For several years now, TATRC has performed research, mostly via Small Business Innovative Research (SBIR) initiatives, in enabling technologies that allow combat casualties on future battlefields to be evacuated via unmanned “Robotic” ground or air systems. Recently, NATO got into the act when in 2018, Dr. Patrick Mason, U.S. representative to the NATO Science and Technology Organization (STO) Human Factors in Medicine (HFM) Panel nominated Dr. Gary Gilbert, from TATRC’s Medical Intelligent Systems Lab, to chair a NATO Exploratory Team (ET) to study the Development of Autonomous Medical Systems for Tactical Evacuation.

The first meeting of that team involving five NATO nations, was held in Falls Church, VA 2 – 4 April. RADM Mary Riggs, Defense Health Agency, J9, and COL Gina Adam, Commander, U.S. Army Medical Materiel Development Activity (then Director of TATRC), welcomed a multinational team of multidisciplinary experts to look at the development of autonomous medical systems for tactical evacuation in future battlefield environments. LTC David Johnson, Deputy Director at MRDC’s Combat Casualty Care Program, noted that there is ongoing research in many countries and many scientific communities to develop autonomous medical systems that can deliver care and potentially ease the workload of the field medic, while providing the ability to deliver life-saving care as far forward as point of injury. There is also considerable effort to develop autonomous transport vehicles (air, land and sea) that can perform reconnaissance, attack and logistic missions without putting military personnel at risk. According to Dr. Gilbert, “The ability to put autonomous care systems on both manned and unmanned ‘platforms of opportunity’ could greatly enhance evacuation capacity in future multi-domain operations and mass casualty situations, as well as enhance onboard medical



Dr. Gary Gilbert (MISL) opens up proceedings at this year’s NATO Working Group.



NATO Exploratory Team Group Photo.

monitoring and enroute casualty care.”

COL(Retired) Dr. David Lam, a former U.S. Medical Liaison to NATO, stated that, “It is inevitable that at some time in the future, a commander will decide to use an autonomous platform to move a casualty; it is up to us to create a safe and effective system to support casualty evacuation and assist the commander in making an informed decision.” The NATO team plans to address those concerns by

exploring potential operational scenarios and concepts for operation, safe ride standards, and mission planning capabilities to effectively coordinate tactical care and evacuation. The specific objectives for this ET as commissioned by the NATO HFM are to develop S&T needs for establishing common NATO: 1) concepts

NATO Work Group
continued to page 13

Another Successful Symposium with the Special Operations Medical Association

The 2019 Special Operations Medical Association's (SOMA) Annual Symposium (SOMSA) was held 7 - 10 May in Charlotte, NC and key personnel from TATRC actively participated at this important yearly event. SOMA, a non-profit organization, focuses on the education and training of the Special Forces and Special Operations Combat Medics, who are often alone and unsupported in both tactical or non-tactical circumstances in remote, austere, and hostile environments. They are also responsible for the health care of their teams as well as surrounding indigenous populations which usually include noncombatant civilians. By providing this forum for military and civilian medical personnel from around the world to meet and exchange ideas, SOMA advances the science, technology, and skills of unconventional medicine which increases survivability, against the odds, for the people under their care.

This year's meeting featured two days of pre-conference tutorials and interactive demonstrations aimed directly at enhancing Special Operations Forces (SOF) medic operator skills. These tutorials were exceptionally well attended and were considered to be the highlight of the SOMSA event by these SOF medics. The regular conference included both daily plenary sessions with topics of general interest as well as breakout sessions organized as six tracks: Military Special Operations, Tactical Emergency Medicine, Human Performance & Resiliency, Medical Support Operations in Unconventional Warfare, SOF Medicine Relevant Research, and International Allied Nations Special Operations. As the SOMA Research Chair, TATRC's own Dr. Gary Gilbert moderated the day-long research track. The most notable keynote presentations included the annual "Tom Deal Memorial Lecture" by

Dr. Olen Netteburg entitled "Go to the End of the World...Then Turn Left and Go a Bit Farther." Dr. Netteburg is an emergency physician from Loma Linda Medical Center in California who spoke on his experiences treating indigenous peoples in the Bere Adventist Hospital located in a most remote area of Chad, Africa. Another outstanding plenary on "Meeting the Needs of Our Nation - Feasibility of Former SOF Medics Serving as Physician Extenders" by Arthur Kellerman,

Dean of Uniformed Services University of the Health Sciences, was highly regarded. Additionally, a plenary session of Operational Vignettes by enlisted Special Operations Medics, Wounded SOF Non-Medical Operators, and civilian Tactical Emergency Medical Technicians brought the audiences to their feet.

Within the research track, Dr. Gilbert and the other research committee members selected two oral presentations and two scientific posters for awards. The winning oral research presentation plaque went to COL Stacy Schackelford, USAF MC, Director of the Joint Trauma Center for her talk entitled, "Military Prolonged Field Care and Survival in Iraq and Afghanistan." The best research poster award went to Maj (Ret) Christopher Dominguez, from

the Mayo Clinic for his poster on the "Feasibility of Teaching Ocular Ultrasound in Simulated Traumatic Brain Injury for Military SOF Medics." For many, the real highlight of the symposium was the annual SOMSA Banquet at which the "SOF Medics of the Year" are recognized and attendees pay tribute to those SOF warriors who fell in the line duty during the year. Dr. Gilbert stated, "If for no other reason than this, to stand, bow, and pay my respects to those who willingly gave their lives, not just for their countries, but for all the free peoples of the world, I will continue to attend SOMSA, on my own as long as I can even after I retire." ■■■



NATO Work Group

continued from page 12

for evacuation on unmanned systems, 2) research and development roadmaps, 3) approaches for implementing safe ride standards, 4) interoperability standards, and 5) mission coordination of autonomous patient transport. The group was able to review all the subject matter presented that relate to given objectives, but there are still many unknowns. Collaborative, shared discussions helped shape future activities needed to elicit additional information and understanding of the ability to leverage emerging unmanned platforms into tactical evacuation of casualties.

In future follow-on meetings, the group will review related existing doctrine and policy from NATO, member nations military organizations, and associated centers of excellence in both the operational considerations and the enabling technologies for this capability. There will be smaller multinational working groups that will work through given scenarios to further explore potential concepts for operation which portend to leverage use of the unmanned systems for casualty evacuation. While all members feel the use of unmanned systems will be essential to accomplish medical missions in future conflicts, there is much to be learned by this community to ensure a safe, responsive and effective capability is

developed and implemented.

The major outcomes of this particular workshop included: 1) assignment of subgroups to review scenarios and potential concepts of operations for ground, littoral, marine, and rescue scenarios, 2) limiting the scope of ET to evacuation of wounded, sick, and injured personnel on robotic, autonomous, and / or other unmanned vehicles of opportunity, 3) proposed use of the term RASEVAC (Robotic & Autonomous Evacuation) to describe the panel's work, and 4) Germany offering to host the next ET meeting in Munich in the fall. Stay tuned for updates on this continued collaborative effort and the findings that come out of the follow-on workshop. ■■■

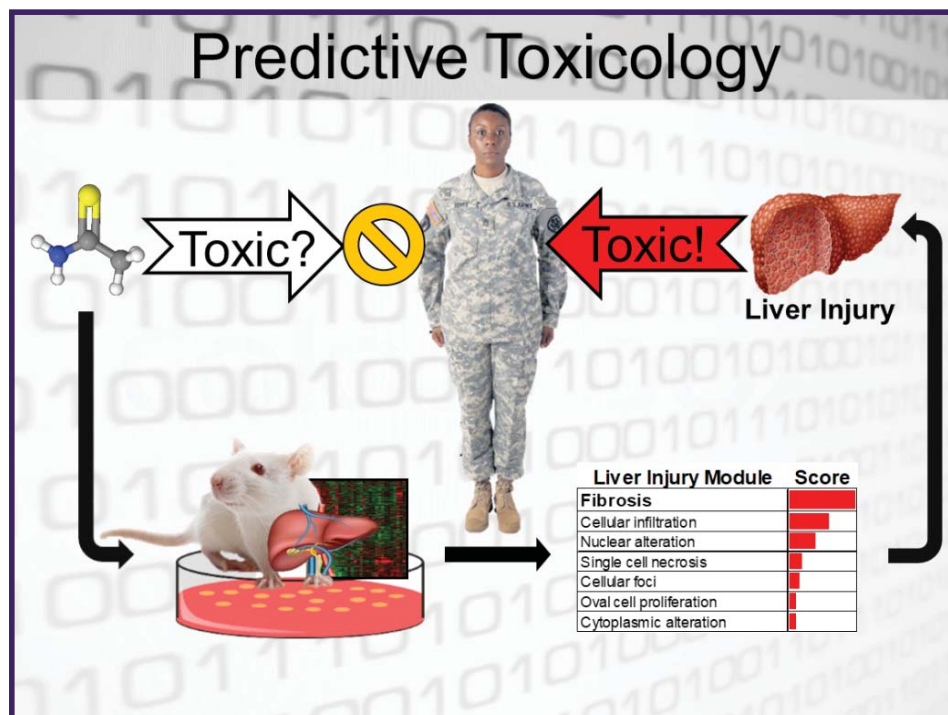
BHSAI Scientists Mine Big Data to Identify Sets of Genes Predictive of Liver and Kidney Injuries

The goal of predictive toxicology and ultimately personalized medicine is to use your own cells to customize the best treatment for you. For this to work, test tube results (in vitro) need to have some connection with the toxic response in the human body (in vivo) so that the physician can correctly interpret the results and start treatment.

Developing a prediction tool is a great challenge, requiring artificial intelligence (AI) from both in vitro and in vivo experiments. Ideally, these experiments would be conducted in humans. But ethically, this is impossible. So we rely on the next best thing: animal experiments.

The first records of animals being used as models of human anatomy can be traced to Alcmaeon of Croton and Aristotle, in ancient Greece. Since then, animals have been used for centuries to predict how chemicals and environmental factors might affect humans. But comparing species is complicated because their genetics and bioavailability differ. Not surprisingly, many compounds may be toxic for one species, yet benign for others. For example, theobromine, the compound that gives chocolate its bitter taste, is enjoyed by humans but can be lethal for cats and dogs.

Whether or not animal models are useful in predicting how people respond to a chemical has recently been debated in the scientific community. Regardless of the answer, we are left with the problem of prediction. As U.S. Secretary of Health and Human Services Mike Leavitt stated in 2007, "Currently, nine out of ten experimental drugs fail in clinical studies because we cannot accurately predict how they will behave in people based on laboratory



A computational approach to bridge in vitro and in vivo experiments, both within and across species. Data from Toxicogenomics Project-Genomics Assisted Toxicity Evaluation System (TG-GATES) were used to identify key genes (modules) associated with liver injuries in rats in vivo, which were validated and further tested in rat in vitro and in human in vitro studies.

and animal studies.”

Given these shortcomings of animal studies, and the growing consensus that conducting such studies on a large scale or for routine experiments is unethical, much research has focused on developing cell-based (in vitro) assays as substitutes. But biological markers of cell toxicity are usually quite crude and only indicate a generic response, such as loss of cellular integrity or cell death.

The predictive toxicology program, led by Dr. Anders Wallqvist, is funded by the Defense Threat Reduction Agency (DTRA) and involves a collaboration between scientists from TATRC’s Biotechnology High Performance Computing Software

Applications Institute (BHSAI) and Vanderbilt University. Under this program, Dr. Schyman, a scientist at BHSAI, has been working on a computational approach to elucidate how to connect the dots between in vitro and in vivo experiments and between results from different species.

Their idea was to identify groups of genes (gene modules) commonly associated with a specific type of organ injury. The scientists first identified injury-specific gene modules by applying hierarchical clustering and artificial intelligence techniques on large sets of

Predictive Toxicology
continued to page 15

USAMRMC Finds a New Name... and Home

Time to update your TATRC rolodexes, as TATRC's overarching command was both

moved and renamed in an announcement during a Fort Detrick town hall meeting that took place on 31 May. Senior Army leaders redesignated the U.S. Army Medical Research and Materiel Command (USAMRMC) to the U.S. Army Medical Research and Development Command (USAMRDC), as well as realigned MRDC from the Army Materiel Command (AMC) to be under the newly inaugurated Army Futures Command (AFC).

"This is a very exciting opportunity," said USAMRDC and Fort Detrick Commanding General at the time of the transition, MG Barbara R. Holcomb. "But we also need to continue all those same relationships we've had in the past as we look forward towards innovation and developing new technology." Following the town hall, Soldiers applied their new AFC shoulder patches in a symbolic show of identification with the new command.

Establishment of the Army Futures Command is the most significant Army



ARMY FUTURES COMMAND - WHO WE ARE

The **Army of 2028** will be ready to deploy, fight, and win decisively against any adversary, anytime and anywhere, in a joint, **multi-domain**, high-intensity conflict, while simultaneously deterring others and maintaining its ability to **conduct irregular warfare**. The Army will do this through the employment of **modern manned and unmanned ground combat vehicles**, aircraft, sustainment systems, and weapons, coupled with robust combined arms formations and tactics based on a modern warfighting doctrine and centered on exceptional **Leaders and Soldiers of unmatched lethality**. Above all else, we want to make sure Soldiers have what they need, before they need it, **to protect tomorrow...today**.

reorganization effort since 1973. Army Futures Command is the fourth Army Command and is tasked with driving the Army into the future to achieve clear overmatch in future conflicts. AFC, headquartered in Austin, Texas, declared its full operational capability in July 2019, after an initial one-year stand-up period.

Gen. John M. "Mike" Murray is the commander, Army Futures Command. He is responsible for leading a team of Soldiers and civilians to streamline the Army's modernization enterprise under a single command. The command

enhances efficiency and effectiveness in delivering the technology necessary to maintain the Army's competitive advantage and win wars.

TATRC Director, COL Jeremy Pamplin feels strongly that the alignment and AFC focus is perfect for where TATRC wants to go. TATRC is in "the right place at the right time. The AFC moto, 'Forge the Future,' reflects our own vision perfectly to develop and deliver quality medical capabilities to protect, treat, and sustain the health of our Service Members." ■■■

Predictive Toxicology continued from page 14

rats in vivo data obtained from a public database [Open Toxicogenomics Project-Genomics Assisted Toxicity Evaluation System (TG-GATEs)] (Te et al., 2016). The BHSAI team identified 8 and 11 gene modules specific to liver and kidney injuries, respectively.

In a recent publication, the team successfully validated the injury-specific gene module approach by exposing Sprague-Dawley rats to thioacetamide, a known liver toxicant, by showing that the

genes associated with liver injury could predict the organ injury after 24 hours of exposure to a sub-lethal dose of the drug (Schyman et al., 2018). They showed that this approach could be used to predict in vivo results from gene responses in the test tube. Importantly, they found that the gene module approach could also connect the dots between rat and human in vitro data.

"This research is still in the early stages, but we see great potential to use the gene module approach as a complement to in vitro high-throughput assays to predict liver and kidney

injuries," said Dr. Schyman. ■■■

Reference:

Schyman, P., Printz, R.L., Estes, S.K., Boyd, K.L., Shiota, M., and Wallqvist, A. (2018). Identification of the toxicity pathways associated with thioacetamide-induced injuries in rat liver and kidney. *Front. Pharmacol.* 9, 1272.

Te, J.A., AbdulHameed, M.D.M., and Wallqvist, A. (2016). Systems toxicology of chemically induced liver and kidney injuries: histopathology-associated gene co-expression modules. *J. Appl. Toxicol.* 36, 1137.

Congratulations to our Esteemed Director, Newly Promoted Colonel Jeremy Pamplin



BG Michael Place and TATRC Director, COL Jeremy Pamplin, stand at attention during COL Pamplin's promotion ceremony.

It was a picturesque day; the sun was shining and a light breeze had Old Glory waving proudly in front of the scenic backdrop of Nallin Pond for our esteemed Director, Jeremy Pamplin's promotion to Colonel! The promotion ceremony, which took place on 20 May, was presided over by BG Michael Place, the Deputy Commanding General, Regional Health Command – Pacific, and long-time mentor and family friend of COL Pamplin.

More than 80 family, friends, and coworkers attended in support of COL Pamplin's exemplary achievements and to bear witness to this monumental moment in his distinguished career.

Seated among the front row were distinguished guests that included: USAMRDC Commanding General, Barbara Holcomb, Ft. Detrick Command Sergeant Major, Timothy Sprunger, Father Michael Jendrek of St. Ignatius of Loyola Catholic Church, Event Proctor, Mr. Kevin Ross, and COL Pamplin's family members – wife Erica, sons Conner and Owen, daughter Hailey, mother Ms. Harriet Strauss, and father

COL (Ret.) Charles Pamplin.

Following a moving opening invocation from Father Mike, Pastor for the Pamplin family, BG Place then took the stage to deliver his remarks on the character and caliber of COL Pamplin, and the importance of such an event. No stranger to public forums, BG Place spoke passionately and proudly of his longtime friend and colleague, stating, "Jeremy brings that combination of innovation, creativity, what I would call 'disciplined innovation,' to get things done the right way so that they're sustainable, and make a difference in future battlefields." BG Place highlighted the significance of being promoted to Colonel, noting that such a rank is often times the apex of many dedicated and honorable careers in military service, exclusively awarded to those who have distinguished themselves as extraordinarily worthy.

As the official promotion commenced, COL Pamplin's family joined him front and center to assist. Proud smiles, hugs, and a few shouts of joy from daughter Hailey, ensued as they pinned the eagles onto their father's shoulder boards. COL Pamplin then stood at attention during an exceptionally



More than 80 were in attendance for the ceremony, including USAMRDC Leadership and other notable military personnel.



COL Pamplin's family pins the Eagles onto his shoulder boards.

poignant moment as his father, a retired Colonel himself, fitted the new beret onto his son's head.

As the newly-promoted Colonel took the floor to thank family, friends, and colleagues for attending, he made a point to acknowledge that it was not just an important moment for him, but also for those who had helped guide and push him to this milestone, saying "I may be the one standing up here, but it's not just my success. It's also for all those I've come across over the years that helped me along my journey and gotten me to where I am today. I certainly couldn't have done it without you."

Team TATRC is honored to have been able to celebrate this well-deserved achievement with COL Pamplin and his family, and we look forward to the future under his leadership as TATRC's newest Director! Big Congratulations on another career milestone, Sir! Your TATRC family is proud! ■■■

TATRC Says Au Revoir to Outgoing Director, COL Gina E. Adam

When COL Gina Adam arrived at TATRC to assume her Directorship in late July of 2018, she hosted a meet and greet with TATRC staff where she stated, “The time is right for TATRC to find its voice in the new research landscape, and I’m glad to be here to lead in that direction.” Now, as we thank COL Adam for her dutiful and dedicated leadership and say farewell as she assumes command of the United States Army Medical Materiel Development Activity (USAMMDA), we can proudly and graciously say that TATRC has indeed found that voice. COL Adam stood by her word and has helped to both guide our organization through a time of great change, and has positioned us to be more impactful and efficient than ever moving forward.

COL Adams’ Directorship here was a success from day one, and that has continued to be evidenced ever since. Her time at TATRC only added to a list of appointments that gave COL Adam great familiarity and understanding of the nature and structure of the USAMRMC (now USAMRDC), including Research Psychologist at the U.S. Army Aeromedical Research Laboratory (USAARL) and Deputy Director at MPD at the U.S. Army Research Institute of Environmental Medicine (USARIEM), and XO at USARIEM. Additionally, COL Adam had previously served as a Deputy Project Manager at USAMMDA several years earlier, making her appointment as the new Commander there, that much more noteworthy, as it highlights the progress and success that has



Incoming Director, COL Jeremy Pamplin, presents outgoing Director, COL Gina Adam, with her celebratory team photo.

been featured so prominently throughout her remarkable career.

In early June, the TATRC staff held a farewell luncheon to honor and thank COL Adam for her leadership and camaraderie during her time here. The event was a great showing of gratitude and friendship, and allowed the team to look back on what was a landmark year for the organization, thanks to COL Adam’s stewardship. The respect and admiration that COL Adam has earned from her TATRC colleagues was apparent as well wishes and appreciation were shared abundantly from all who were in attendance.

COL Adam, from all of your TATRC family, we wish you great success and Godspeed in this newest chapter of your career in service to our Great Nation, and will always look fondly back on your time here with us. Thank you, ma’am! ■■■

This Quarter's TATRC TRIVIA...

?

Who is the only TATRC Director to attend the Army's prestigious military academy, West Point?

Answer to Last Issue's TATRC TRIVIA...

!

Question: The Samuel J. Heyman Service to America Medal, aka the "SAMMIE" award, is considered the government's civil servant equivalent of the Oscars. In 2016, what distinguished TATRC Lab Director was given this illustrious award in the Science and Environment category for their work on a first-of-its-kind, portable computer system that enables medics to diagnose and treat patients quickly and accurately during emergency transport and alert trauma centers to prepare immediate blood transfusions?

A: Dr. Jaques Reifman, BHSAI Director was awarded the 2016 SAMMIE.

TATRC's Beloved Science Director Assumes New Virtual Health Role at OTSG



Director COL Jeremy Pamplin thanks Dr. McVeigh for his many years of valuable, dedicated service to the organization.

There was big news in the world of Virtual Health earlier this summer, as TATRC's "Optometrist to the Stars," Dr. Fran McVeigh officially moved up (or down) the road to the Office of the Surgeon General as the Army's Director of Virtual Health!

To see him off, family, friends, and colleagues gathered for a luncheon on 13 June to celebrate and remember the good times and invaluable accomplishments that TATRC has made over the course of Dr. McVeigh's tenure as a result of his unparalleled expertise. TATRC Director, COL Jeremy Pamplin was on-hand to say a few kind words about the "Good Doctor," and present him with the esteemed Civilian Service Commendation Medal for his dutiful work in support of the Warfighter.

During his illustrious 30-year career as an Army Colonel, Dr. McVeigh worked with numerous high-ranking DoD officials and was stationed at Walter Reed Army Medical Center, where he served as the Chief of Optometry and Clinical Informatics, prior to joining Team TATRC on 1 February, 2008. Dr. McVeigh started with TATRC as a Portfolio Manager to oversee all the Vision Research that was being done at the time as a part of TATRC's Vision Portfolio. In his 11 years with us, he has risen up and stepped into several critical roles, to include leading our research teams as TATRC's Science Director.

On top of that, he also served as the Lead for the Virtual Health Support Office. And in his spare time, he is heavily involved in "Project Healing Waters" -- which is dedicated to the physical and emotional rehabilitation of disabled active military service personnel and disabled veterans through fly fishing. Dr. McVeigh has always made himself available to other members of TATRC with his expertise, listening ear, incredible wealth of knowledge, and occasional in house "eye - exams!" He has been through all the significant changes that TATRC has incurred over the past few years and been a pillar of strength and firm supporter of the organization, helping us to get where we are today!

In his new role as the Army's Director of Virtual Health, Dr. McVeigh will be responsible for overseeing and focusing his team on the Army's operational virtual health needs and requirements. Clearly, this role is a perfect fit, and TATRC is proud to know that such a qualified and deserving candidate is moving on to continue his legacy of great work in such an important field.

Congratulations and Godspeed, Dr. McVeigh! While we will desperately miss seeing your fun loving smile around here, we are excited about your next endeavor and know that you'll continue the tradition of advancing military medicine. Your TATRC family wishes you all the best! ■■■

On the Horizon...

Upcoming Events:

28 November: Thanksgiving

2-6 December: Industry / Interservice Training, Simulation & Education Conference (I/ITSEC) Orlando, FL

2-6 December: 2019 AMSUS Annual Continuing Education Meeting National Harbor, MD

13 December: TATRC Annual Holiday Party

25 December: Christmas Day

31 December: New Year's Eve

Team TATRC Let the Good Times Roll at the 24th Annual Organization Day

Good friends, good food, and a good time was had by all as Team TATRC came together for the 24th Annual Summer Picnic & Org Day! Just over 60 people were in attendance for a fun day of food, fellowship, and relaxation as we looked back on the past year's successes and achievements. This year's event also featured a unique addition to the agenda as the team used the opportunity to observe a "transition of authority" as TATRC's outgoing Director, COL Gina Adam, handed the reigns over to incoming Director, COL Jeremy Pamplin.

COL Adam opened the event with a touching welcome speech, reminiscing on the significant progress TATRC has seen through what proved at times to be an uncertain future, given the organizational changes taking place across the entire MHS. She wrapped up her speech with kind words to her successor, stating, "I did not know how it would be working with COL Pamplin in the beginning, but in the end I could not have asked for a better Deputy." The pair then carried out the official "transition of authority," with a particularly unique TATRC twist, as COL Adam handed over the "Innovation Gauntlet" to COL Pamplin. A couple of hugs and high-fives later, and the transition was complete! COL Pamplin then took the stage to address the team for the first time as Director, noting, "We do great, important work here, and I'm excited to get back to the roots of what it is we do best – innovate and integrate!"

After a bountiful feast, graciously provided by various contributions from the team and the diligent work of our resident "Grill Masters" John Orzechowski and Reggie Francois, it was time for the "team building" activities to begin! What started out as a water balloon toss, featuring a masterful performance by our "Graphics Guru," Mr. Ray Samonte and his son Julian, the events then quickly shifted into an all-out balloon battle royale! The rules of engagement went right out the window for the "water-warriors," as Mr. Ron Yeaw caught a particularly well-placed headshot



Outgoing Director, COL Gina Adam, presents incoming Director, COL Jeremy Pamplin, with the "Innovation Gauntlet," followed by celebratory High-Fives!



"Grill Masters" John Orzechowski and Reggie Francois provided the team with a bountiful feast.



Though Kara be little, her aim is fierce! Not even family ties could save Mr. Ron Yeaw from this well-placed headshot from his own daughter.

from his own daughter. Finally, the battle culminated in an ultimate act of sabotage as COL Pamplin doused event MC, Ms. Lori



Not even the Director was safe from this year's water balloon battle royale!

De with a literal downpour, surely earning himself some payback that won't soon be forgotten!

All in all, the day was a resounding success and was a great showing of the bond that we all share as part of "Team TATRC." A special thanks to everyone who came together again this year to help make sure the event was a fun, happy, interactive, and an enjoyable time for all! Here's to an even better time next year as we look forward to the 25th anniversary of this fantastic tradition! ■■■

Employee Spotlight

Congratulations to TATRC's Q3 Employee of the Quarter!

Mr. James Beach of TATRC's Medical Intelligent Systems / Operational Medicine Laboratory was selected as TATRC's Employee of the Quarter for his continuing excellent work and untiring efforts as a Research & Support Project Manager for the U.S. Special Operations Command (USSOCOM) Joint Medical Exchange & Dissemination of Information for Combat Casualty Care (J-MEDIC3) Project, and for leading the efforts in supporting field evaluations of operational telemedicine and tactical medical information exchange technologies in collaboration with USSOCOM, U.S. Army Special Operations Command, Army PEO Aviation, and the Aviation and Missile Research, Development, and Engineering Center (AMRDEC).

J-MEDIC3 is both a Defense Health Program funded Program of Record with USSOCOM and a Joint Program Committee – 1 (JPC-1) funded research project within MRDC TATRC. From the initial J-MEDIC3 concept, James has played an instrumental role in the J-MEDIC3 program in conjunction with USSOCOM by organizing and supporting the Joint Capabilities Integration and Development System Capability Development Document (CDD) writing, identifying the SOCOM PM, developing and now executing the research element proposal through JPC-1, and



Mr. James Beach, Medical Intelligent Systems / Operational Medicine Laboratory Project Manager is the Employee of the Quarter for Quarter 3.

supporting the Product Manager (PM) in establishing, funding, coordinating, and executing the program. A major element this quarter was preparing briefings for the SOCOM PM, organizing Decision Gate meetings with the MRDC Principal Assistants for Acquisition & Research, and helping shepherd the J-MEDIC3 program plan through the Defense Health Program Milestone Decision Authority, all PM responsibilities. Now in its second year of execution, the research component of the J-MEDIC3 program has already identified, tested, evaluated and made recommendations to the PM on several emerging technologies. These tests and

evaluations, conducted both this year and last year in conjunction with both SOCOM user medic operators, and U.S. Army Communications-Electronics Research, Development and Engineering Center scientists and engineers were organized and conducted by Mr. Beach and his operational telemedicine colleagues. A 2nd year final report was completed and published this quarter. At the recent Integrated Product Review, he presented the J-MEDIC3 overview to the Medical Data Cloud team that included AMRDEC, U.S. Air Force Research Laboratory, Naval Surface Warfare Center Dahlgren Division, Marine Corps Warfighting Laboratory, Medical Communications for Combat Casualty Care and U.S. Marine Corps Next Generation Logistics, plus SOCOM medics and support personnel. He continued to advance the coordination and the integration of the J-MEDIC3 Program with the JPC-1 funded Medical Data Cloud research project and the Virtual Medical Center's ADVISOR program. This research concept is investigating the ability of connecting a medic, in a deployed isolated environment, with a medical specialist at a major MTF through the tactical, operational, and satellite networks in order to treat serious casualties

Q3 Employee of the Quarter continued to page 25

Q3 Employee of the Quarter *continued from page 24*

and increase the casualty's survivability until medical evacuation can arrive. Mr. Beach is currently establishing the network node for the J-MEDIC3 research by collecting real and simulated non-identified medical data from OCONUS locations back to Fort Gordon's Web Portal servers to allow medical providers access via a web browser. The de-identified data will be analyzed to determine the effectiveness and usability of virtual health systems in an operational setting.

In his operational telemedicine and tactical medical information technology test and evaluation role, James worked with PEO Aviation in three different events during FY18 & 19, in addition to the TATRC / CERDEC annual field evaluation event, for which an extensive 110 page report was published this quarter. The most recent of these

events was with PEO Aviation at Army NIE 18.2 conducted last year at Fort Bliss and White Sands Missile Range. Under Mr. Beach's leadership, TATRC personnel provided support to PEO Aviation for the integration of BATDOK, Tempus Pro Physiological Status Monitor, and MEDHUB into the AeroMedTelNet to conduct network analysis and capability testing of Trellis Ware's TSM Radio Waveform to support bi-directional medical exchanges, to the U.S. Army Medical Materiel Development Activity's MEDHUB program by providing networking and technical support at the medical company's ground station, and conducted data collection and analysis of the Sensogram Biosensor via a CRADA between Sensogram and TATRC (the latter was also performed during the Island Marauder exercise). These capabilities allowed for the medical personnel to prepare an appropriate response

for the incoming casualties with informed medical situational awareness that included treatment performed and medications provided at Role I and during the helicopter flight. Finally, in accordance with guidance from the Deputy Director, James Beach has developed an extensive plan for research data collection to include end user feedback during field events.

Like all MISL and Operational Medicine lab scientists, James manages several SBIR projects aimed at providing enabling technologies for his other projects and supported PMs. It is certainly clear to all at TATRC that James continuously models and sets the example of the qualities outlined in the Employee of the Quarter Charter. Congratulations, Mr. James Beach! ■■■

Let's Get Social!

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TATRC Civilians Shine this Summer During a Busy Award Season!



Ms. Jeanette Little, Lab Manager for the Mobile Health Innovation Center, received the Civilian Service Achievement award. This is the fifth highest Civilian award in the entire Army, and speaks to the incredible service and value that Ms. Little brings not only to TATRC but to the entire Medical Research and Development Command for her efforts in Mobile Health. Ms. Little was presented the award by TATRC's Director at the time, COL Gina Adam, during TATRC's 24th Annual Summer Org Day.

Ms. Cheryl Merritt, TATRC's Chief of Staff, who is responsible for the day to day operations and oversight of more than sixty personnel, was awarded the Civilian Service Achievement Award during the CG's Town Hall on 25 June. Ms. Merritt's dedicated efforts and insightful management abilities keep TATRC moving forward.



Dr. Gary Gilbert, TATRC's Medical Intelligent Systems Lab Director, was awarded the Civilian Service Commendation Medal at the CG's Town Hall on 25 June. Dr. Gilbert is known for pushing the envelope as a far-forward thinker in the areas of medical robotics and autonomous systems. A known entity in the medical research community, Dr. Gilbert's tireless efforts to advance medical robotics is unmatched and TATRC is proud to have such a dedicated Senior Leader guiding TATRC into the future.

Dr. Fran McVeigh, TATRC's Science Director and Lead for the Virtual Health Support Office, was presented the esteemed Civilian Service Commendation Medal for his dutiful work in support of the Warfighter by TATRC Director, COL Jeremy Pamplin during Dr. McVeigh's Farewell Luncheon on 13 June. Many friends and family were on hand to celebrate the "Good Doctor" and his countless achievements in the area of Virtual Health.



Congratulations to our Senior TATRC Leaders for their invaluable contributions and dedication to advancing military medicine.