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TATRC's BHSAI Director, Dr. Jaques Reifman, Recognized with 2nd Presidential Rank Award

By: Crystal Maynard, USAMRMC

On June 2nd, the U.S. Army Medical Research and Materiel Command (USAMRMC)'s Dr. Jaques Reifman received the Presidential Rank Award's Meritorious Executive Award for the second time in his government career!

Reifman serves at the USAMRMC's Telemedicine and Advanced Technology Research Center (TATRC), where he is the director of the Department of Defense's Biotechnology High Performance Computing Software Applications Institute (BHSAI) for Force Health Protection.

Reifman first earned the Presidential Rank Award's Meritorious Executive Award in 2009, which recognizes Senior Executive Service members who have demonstrated extraordinary career accomplishments. The selection process is rigorous and only 5 percent of SES members are eligible to receive the rank of Meritorious Executive.

The ceremony on June 2nd which honored Reifman and the other executives being awarded the Presidential Rank Award, was held at the Pentagon and was presented by Mr. Patrick J. Murphy, Under Secretary of Army and Chief Management Officer, as well as Army Surgeon General, LTG Nadja West.

Dr. Jaques Reifman, BHSAI Director

"It is, of course, very exciting and an honor," Reifman said of the award. "However, I would not be where I am without my team. I may bring an idea to the table, but they dig in and find ways to bring that idea to fruition."

After Reifman started at the USAMRMC in 2001, he saw the need for an organization such as the BHSAI. Reifman built the institute to have a diverse staff composed of about 40 employees, 75 percent of whom have doctoral degrees. The BHSAI's mission is to develop computational solutions to accelerate the research and development of militarily relevant medical products

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Mr. Patrick J. Murphy, Under Secretary of Army and Chief Management Officer, along with Army Surgeon General, LTG Nadja West, present the Presidential Rank Award's Meritorious Executive Award to Dr. Jaques Reifman.

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for the USAMRMC's Force Health Protection Directorate. The institute also collaborates with life scientists within and outside of the DoD to develop and integrate computational biology and medical informatics applications into research programs; focused on improving the medical protection and care of military personnel.

"In my 30-odd year career as a research scientist in academia and government, I have not met a more driven and capable leader," said Dr. S. Anders Wallqvist, Deputy of the BHSAI for Force Health Protection. "Working with Dr. Reifman is exciting. He is a person that pushes the boundaries of the science and he is not afraid to work outside his comfort zone. Dr. Reifman is somebody who drives himself and us to excel in the work that we are doing."

To complete its mission, the BHSAI collaborates with many other parts of the USAMRMC, as well as Navy, Air Force and academia. The institute averages 20 to 25 projects each year.

"One of the hallmarks of working with Dr. Reifman is his ability to instill a sense of urgency and commitment to the work that we are doing," said Wallqvist. "His work ethics are legendary; he comes in first in the morning, and he is the last one to leave. He sets an example for excellence, and I think this comes across in how the institute works and ultimately in the work that we provide to support the Warfighter."

TATRC's 2nd Annual Spring Open House Brings Record Breaking Numbers Despite Torrential Rains!

Due to the resounding success of TATRC's 1st ever Open House held last May, TATRC opened its doors again for the 2nd Annual Spring Open House and Technology Demonstration on 6 May 2016.

The theme at this year's event was "Supporting Military Readiness through Innovative Technologies," and it allowed guests to experience firsthand TATRC's unique skill sets and expertise. With over 45 demos and exhibits from TATRC's five labs and key programs, visitors were 'blown away' and not just from the gusty winds and downpour of rain! Even with weather conditions less than ideal, the dreary weather couldn't keep away the nearly 300 registrants from this exciting event!

Guests in attendance included key staff from academia, industry and the military, including Senior Leaders from DHA, OTSG, VA and Health Affairs, as well as countless small businesses interacting with the TATRC team.

Dr. Gary Gilbert highlights some of the Operational capabilities to BG (P) Robert Tenhet, Deputy Surgeon General of the Army.

RADM Colin Chinn, USAMRMC's new Deputy Commander, (pictured center), is briefed on TATRC's AAMTI Program and some of the successfully funded research initiatives.

BG (P) Robert Tenhet, Deputy Surgeon General for the Army, spent over two hours meeting with TATRC Subject Matter Experts and learning about TATRC's many initiatives. Tenhet was amazed with the capabilities and commented, "This is truly a hidden gem within Army Medicine."

Also spending a considerable amount of time at the Open House, was the U.S. Army Medical Research and Materiel Command's (USAMRMC) new Deputy Commander, RADM Colin Chinn. RADM Chinn said, "I'm excited to see the diversity of research being conducted here."

TATRC, an element of the USAMRMC, conducts and supports research through its five key laboratories and programs which include: computational biology, health information technology, mobile health, medical modeling and simulation, operational telemedicine and the AMEDD Advanced

Open House *Continued from page 2*

Medical Technology Initiative Program.

With an extensive network of partners, TATRC expertise is focused on the entire research spectrum, from early stage innovative research to technology demonstrations and implementation to benefit the Warfighter.

TATRC labs actively collaborate with commercial entities and academic institutions to address the requirements of our medical research programs through special funding and partnership opportunities.

"The Open House is first and foremost a knowledge management event to educate the military medicine community and external partners on our current focus areas," said COL Dan Kral, TATRC's Director.

TATRC's work continues to support military readiness across the military health system, and events like the Open House highlight the range of our competency areas and research portfolios.

Dr. Jaques Reifman Named Samuel J. Heyman Service to America Finalist

Dr. Jaques Reifman, a U.S. Army Medical Research and Materiel Command Senior Research Scientist and TATRC's Lab Director for the Biotechnology High Performance Computing Software Applications Institute (BHSAI), was named as a Samuel J. Heyman 'Service to America' finalist on May 1st.

The nonprofit, nonpartisan Partnership for Public Service announced the 32 finalists, which are exceptional federal employees who are engaged in significantly important work to strengthen the national defense, spur the economy, protect the environment, and advance the health, safety and welfare of Americans and others around the world.

The Sammies, known as the "Oscars" of government service, are a highly respected honor with a vigorous selection process. Named for the Partnership for Public Service's late founder who was inspired by President Kennedy's call to serve in 1963, these awards align with his vision of a dynamic and innovative federal workforce that meets the needs of the American people. Celebrating their fifteenth anniversary this year, the Service to America Medals have earned the reputation as the most prestigious awards to honor America's civil servants. The 2016 finalists were honored on May 3rd on Capitol Hill in Washington, D.C., as part of Public Service Recognition Week. Dr. Reifman was among those distinguished finalists being recognized.

Reifman serves at the USAMRMC's TATRC, where he is the director of the Department of Defense's BHSAI for Force Health Protection. Reifman is one of the medal finalists in the category of Science and Environment. The category recognizes a federal employee for a significant contribution to the nation in activities related to science and environment (including biomedicine, economics, energy, information technology, meteorology, resource conservation and space).

Reifman and his team developed an artificial intelligence system, called the Automated Processing of the Physiologic Registry for Assessment of Injury Severity known as APPRAISE, for medics to quickly detect if severely injured patients in transit are hemorrhaging, improving survival rates by preparing trauma centers to act immediately upon the patient's arrival.

The finalists are contenders for eight Service to America Medals, including Federal Employee of the Year. Medal categories include Science and Environment; Homeland Security and Law Enforcement; National Security and International Affairs; Citizen Services; and Management Excellence. All 32 finalists will also be eligible for the Service to America Medals People's Choice Award. More than 350 nominations were submitted for consideration this year.

Medal recipients will be announced on September 20th at the Andrew W. Mellon Auditorium in Washington, D.C.

Dr. Reifman — your Team is Proud of you and wishes you Best of Luck in September!!

Dr. Jaques Reifman, (pictured center) after being named a Samuel J. Heyman "Service to America" finalist for his work on APPRAISE.

TATRC's Mr. Nate Fisher Presents at TRADOC's Mad Scientist Conference

Mr. Nate Fisher, Project Manager with TATRC's Operational Telemedicine Lab, was invited to present at the "Mad Scientist" Conference series held 21 – 22 April in Tempe, AZ at Arizona State University.

"Mad Scientist" is a novel and innovative conference that is hosted by the U.S. Army Training and Doctrine Command (TRADOC) G2. "Mad Scientist" offers an opportunity for participants to listen to leading scientists, innovators and thinkers discuss the evolution of the operational environment, and the effects of technology on future armed conflict. TRADOC G2 believes that the Army must continuously learn, adapt and innovate. TATRC's Operational Telemedicine Lab works toward that innovation in the field and is focused on the forward thinking that is needed to advance the Army into the future. Mad Scientist is an initiative that enables continuous dialogue between joint military, academia, international partners, as well as the private sector to help the Army explore the evolution of the Operational Environment through the year 2040.

The theme for this year's Mad Scientist Conference was: "Megacities and Dense Urban Areas in 2025 and Beyond." Information gathered at this event is currently being synthesized to inform TRADOC's Commanding General, on science and technology investment recommendations to the Chief of Staff of the Army and the Army Acquisition Executive.

Mr. Fisher presented his paper titled: "Unmanned Systems in Support of Future Medical Operations in Dense Urban Environments" which was also published in the Small Wars Journal. The presentation hypothesized that future Unmanned Aerial Systems (UAS) can be utilized to overcome some of the likely limitations imposed by future medical operations in Dense Urban Environments, starting with emergency medical resupply, and extending the capability to casualty evacuation (CASEVAC). If predictions made in the Army and DoD strategic roadmaps for UAS materialize, the air vehicle fleet will shift from a mix of mostly manned vehicles, to a fleet consisting of mostly unmanned or optionally-piloted vehicles. Nate's presentation discussed how UAS have the potential to provide much greater mobility in these future environments because they are able to take on greater risks, and provide greater agility due to their potential to be scaled down in size. The presentation also outlined the potential benefits to be gained by actively developing modular capabilities to leverage future multi-purpose UAS, including those currently under development, for medical resupply and CASEVAC missions. Moreover, Mr. Fisher enumerated the likely challenges to these types of UAS missions, both technical and operational, and provided a technology development roadmap required to navigate through these challenges, and ultimately realize these capabilities. Mr. Fisher's presentation was well received and sparked thoughtful questions and follow-up discussions during an interactive Q&A session, including supportive remarks from LTG Kevin W. Mangum, Deputy Commander and Chief of Staff TRADOC, and BG Leopoldo A. Quintas, Director of Concept Development and Learning for TRADOC's Army Capabilities Integration Center.

Also in attendance were COL Dan Kral, TATRC's Director and Dr. Gary Gilbert, TATRC's Operational Telemedicine Lab Manager. Dr. Gilbert proudly stated, "Robots, drones and other unmanned systems are here and they are here to stay; the only enforceable limitations on their military utility will be human ingenuity. Sooner or later, some hard-charging mission oriented combat leader

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"TEAM TATRC" in Full Force at the 2016 MAD SCIENTIST Conference in Tempe, AZ. TATRC's Director, COL Dan Kral (pictured left) alongside Mr. Nathan Fisher, Project Manager, (center) & Dr. Gary Gilbert, Lab Manager for Operational Telemedicine (right), before Mr. Fisher's presentation.

Mad Scientist

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caught in the middle of some future megacity fire fight, is going to attempt to use one of these machines to send a casualty off to safety and medical treatment because at that time and place, it will be the right thing to do. What Nathan made crystal clear at the Mad Scientist meeting is that the prudent strategy is to begin now, to ensure that when that first unmanned CASEVAC event happens, it is successful. That is what TATRC is all about."

Former MRMC Commanding General, BG (R) Russ Zajtchuk Returns to Visit TATRC

TATRC's original founder and former MRMC CG, BG (R) Russ Zajtchuk (seated center) and additional guests, visit with TATRC Leadership to learn about the organization's new mission.

On Tuesday, 10 May, former MRMC Commanding General and TATRC's founder, BG (R) Russ Zajtchuk, along with COL (R) Joan Zajtchuk and COL (R) Elias Nimmer, requested a visit to TATRC to learn about what TATRC looks like today, 20 plus years after being established. After a brief office call with MG Brian Lein earlier in the day, the Zajtchuk delegation came to TATRC for a Command Briefing and Organizational Update. COL Dan Kral delivered the briefing and was accompanied by several other members of the TATRC staff to include: Chief Scientist, Dr. Francis McVeigh, Operational Telemedicine Lab Manager, Dr. Gary Gilbert, TATRC PAO & Marketing Manager, Ms. Lori DeBernardis, Executive Assistant, Ms. Donna Lightner, along with Dr. Jeff Davies, Senior Advisor at CDMRP and all engaged in a fruitful discussion. COL Kral presented TATRC's most current Command briefing and explained that TATRC had been recently re-missioned and is now operating as an intramural technology lab in Telehealth. Also briefed were TATRC's organizational structure and the makeup of personnel, as well as an outline and explanation of each of the five labs and one key AAMTI program. BG (R) Zajtchuk served as the Commanding General for MRMC from 1994 – 1998 and was a staunch supporter of Telemedicine and Advanced Medical Technologies and was a true pioneer in the field.

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lori.a.debernardis.ctr@mail.mil

In Search of Innovation: AAMTI PM Takes to the Road!

The Army Surgeon General, through the Telemedicine and Advanced Technology Research Center (TATRC), provides a special Defense Health Program, Operations and Maintenance (DHP O&M) appropriation to enable technology proofs of concept and demonstrations throughout the Army Medical Command (MEDCOM). TATRC created the AMEDD Advanced Medical Technology Initiative (AAMTI) to solicit and fund these MEDCOM projects. The fundamental goals of the AAMTI are: to demonstrate medical technologies and their impact on cost, access, quality, safety of care, and medical readiness; to provide senior MEDCOM leadership with medical 'tech-watch' capabilities; and, to encourage medical technology entrepreneurship by funding MEDCOM technology innovators through a bottom-up (Provider/Medical Treatment Facility level) approach. In search of innovative projects, Ms. Holly Pavliscsak, the AAMTI Program Manager, has been a road warrior traveling around to numerous sites within the AMEDD to promote the AAMTI program and to hear first-hand about AAMTI success stories, as well as note suggestions for improvements to the program for the future. To date, she has traveled to Fort Belvoir, MD, Fort Sam Houston, TX, and Joint Base Lewis-McChord, WA.

Her first stop was the Fort Belvoir Community Hospital (FBCH) where she visited with Lt Col Heather Nelson, Dr. Richard Repeta, CDR Alexander Bustamante, CPT William Cave and Shane Chung to review the AAMTI program in detail. Ms. Mabel Cooper from TATRC's Mobile Health Innovation Center (mHIC), also attended and spoke about mCare and the benefits of the Mobile Health Care Environment (MHCE), since FBCH has a strong interest in piloting mobile health.

Ms. Pavliscsak then traveled on to the Army Medical Department Center and School (AMEDD C&S) US Army Health Readiness Center of Excellence (HRCoE), and met with COL Scott Schaffer, Dean, Graduate School of the HRCoE, and many previous AAMTI recipients and reviewers to determine areas for improvement and to encourage investigators to submit strong, innovative proposals to this year's AAMTI open season.

While there, she also presented and attended the HRCoE, 5th Annual Graduate School Faculty Development and Research Symposium at the Fort Sam Houston Community Center on 20-21 April 2016. Her

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Ms. Holly Pavliscsak (pictured center) visits the AMEDD Center & School staff to encourage submissions to the AAMTI program this season.

AAMTI on the Road *Continued from page 4*

presentation entitled: "Exploration of Potential Intramural Department of Defense (DoD) Funding Opportunities" focused on the fact that the MEDCOM has many unique missions that differentiate it from the civilian medical sector such as, rapid mobilization of military medical personnel, providing emergency care on the battlefield, and providing rehabilitation to Soldiers recovering from injuries. This in-depth session explored potential DoD intramural funding opportunities only open to DoD military or civilian employees. Components of successful DoD intramural research proposals were discussed in this session including collaborations with military, civilian and industry partners, segregating research goals into phases and determining the military implications of the research concept. Her presentation was well received by faculty and students looking to apply for intramural funding, which includes the AAMTI program.

At the symposium she had an opportunity to meet with numerous faculty and students during the poster presentations, including LTC Shane Koppenhaver as he presented his poster on an AAMTI funded project titled: "Using Structural Health Monitoring to Improve Diagnosis of Low Back Injury in U.S. Service Members."

Finally, she went to Joint Base Lewis-McChord, WA where she attended the Colonel Pat C. Kelly Madigan Research Day on April 29th, hosted by the Clinical Investigations Department at Madigan Army Medical Center (MAMC). While there, she met with COL Michael Place, MAMC Hospital Commander, COL Richard Burney, Chief of the Department of Clinical Investigation and many previous AAMTI investigators. She also spent one-on-one time answering questions from potential submitters for the AAMTI FY17 proposal call.

LTC Shane Koppenhaver presents his poster on Structural Health Monitoring, an AAMTI Funded Research Project.

Ms. Holly Pavliscsak, AAMTI PM, presents on DoD Funding Opportunities and the AAMTI program.

Ms. Pavliscsak stated, "This face-to-face, one-on-one time spent discussing the AAMTI directly with PI's has been invaluable, productive and enlightening as we continue to enhance the program!"

Ms. Pavliscsak's adventures have taken her far and wide. She would love to visit your facility and learn more about the innovative technologies and projects that you have that have the potential to make an impact on patients, providers, and/or the Military Heath System as a whole. Please contact her if you would like to learn more about the AAMTI program. Ms. Pavliscsak can be reached via e-mail at: holly.h.pavliscsak.ctr@mail.mil.

Health Symposium Instrumental to TATRC Execution of Team Fitness Tracker Research

Members from TATRC including the Health Technology Innovation Center (HTIC) Lab Manager, Ms. Betty Levine, HTIC Project Manager, Mr. Robert Connors, and Project Officer, Ms. Rebecca Lee, recently attended the State of the Science Symposium in Bethesda, MD at the Uniformed Services University of the Health Sciences (USUHS). Also participating in the conference were two other notable TATRC Alumni, TATRC's former Deputy Director, COL (R) Ron Poropatich, MD and former Chief Operating Officer, COL (R) Jim Olson.

The Symposium was titled: "Fitness and Health Outcomes: Exercise, Health, and Nutrition for Wounded, Injured, and Ill Veterans." This Symposium was presented by The Center for Rehabilitation Science Research, Department of Physical Medicine and Rehabilitation at the USUHS; Department of Rehabilitation, Walter Reed National Military Medical Center; The University of Pittsburgh School of Health and Rehabilitation Sciences, Department of Rehabilitation Science and Technology, Human Engineering Research Laboratories; and the University of Pittsburgh School of Medicine Center for Continuing Education in the Health Sciences. The meeting focused on the elements that affect brain function, which include physical activity, stress, nutrition, sleep, social activities, and mental acuity. The meeting stressed the importance of Mind, Body and Spirit on the health of the individual. HTIC's interest in this meeting is related to a Team Fitness Tracker research project in which they will look at whether activity tracking devices, when coupled with support from Unit Fitness Coordinators, can improve active duty service members' activity levels and sustained activity, thus leading to improved readiness. Ms. Levine said, "It was really interesting to learn how physical exercise is not only good for one's body, but also for the mind. By increasing blood flow, we can affect mood as well as reduce the incidence of dementia as we age. We also learned about the importance of Progressive Return to Activity following Acute Concussion or mild Traumatic Brain Injury."

Pictured above are current TATRC staff and former Alumni members of the TATRC team. This "reunion" took place at the "State of the Science Symposium" held at USUHS in Bethesda, MD.

TATRC's former Deputy Director, and current U.S. Army Medical Special Corps Assistant Chief of Staff for Public Health and Director, System for Health & Performance Triad at the Office of the Surgeon General, COL Deydre Teyhen, DPT, PhD, OCS gave a presentation on: "Moving to Health: Powered by the Performance Triad." During her session, she spoke about the need for a System for Health and how the Performance Triad addresses the three key areas that can help lead to a healthier population – activity, nutrition and sleep. COL Teyhen discussed how service members have worse sleep practices than the general population because lack of sleep is worn like a badge of honor and not necessarily because of deployments. She also discussed the benefits of exercise on depression, and how to selectively fill a plate of food and eat healthier without forbidding certain types of food – she stressed moderation, not abstention.

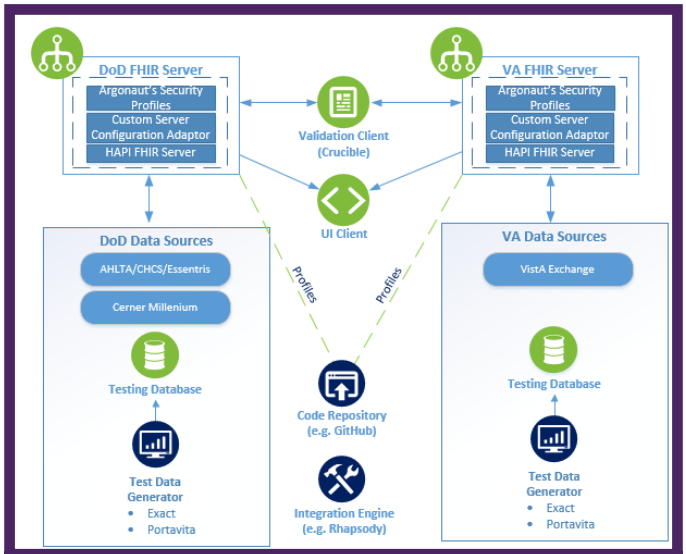
As a result of this symposium, TATRC's HTIC team was able to gain a more holistic view of physical, mental and spiritual fitness which may lead to enhanced readiness. This will help the team develop a more robust Team Fitness Tracker prototype moving forward.

FHIR Proving Ground Proves Successful for Multi-Agency Collaboration

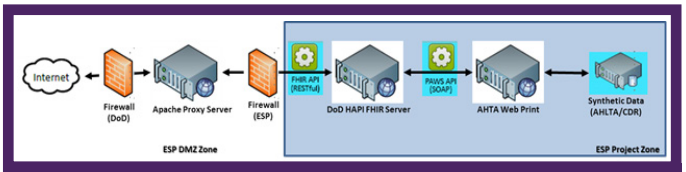
FHIR, pronounced like "Fire," is the Fast Healthcare Interoperability Resources, which is the latest standard created by the Health Level Seven International organization, and is a strong candidate to meet the open API requirement added by the Office of the National Coordinator for Health Information Technology to its proposed certification criteria for Electronic Health Records (EHR)s.

With an increased momentum behind the exploration of FHIR within the Department of Defense (DoD), Department of Veterans Affairs (VA), ONC, and major commercial EHR vendors, the Interagency Program Office's (IPO) Joint Exploratory Team (JET) established the need for a FHIR Proving Ground (FPG). This FPG provides a joint space for experimentation and development of joint FHIR profiles that are standardized and harmonized for DoD-VA. With a central development and testing environment, the FPG was looking to foster FHIR development efforts, including validating the interoperability of FHIR interfaces between DoD, VA, and other federal partners.

To meet the needs outlined by the JET, the FPG was represented in the TATRC Early Stage Platform (ESP) which supports a number of projects dedicated to DoD research and development efforts around EHRs including Composite Health Care System (CHCS) and AHLTA. ESP Lab resources are a complex collection of virtualization technology and software development systems that provide local and/or centralized processing, storing and dissemination of information in support of software engineering activities.



FHIR Proving Ground Environment



FPG Architecture in ESP

TATRC's Health Technology Innovation Center (HTIC) team developed the FPG architecture in the ESP environments shown below. This architecture includes a HAPI FHIR Server connected to an AHLTA test data source populated with longitudinal and clinically-relevant, synthetic data sets consisting of over 6,000 plus patients and over 1,000 instances of allergies.

TATRC's HTIC team collaborated with other members of the JET team to ensure that two FHIR Data Access Framework Resource Profiles, Patient and Allergy Intolerance, were mapped from the native data structures and translated from its native 3M code system to standard code systems, such as RxNorm and SNOMED. In order to secure FHIR resources, MITREid Connect, a reference implementation that includes a general-purpose OAuth 2.0 Authorization Server, was used to provide appropriate access control.

According to the JET, the FPG will advance a number of outcomes such as:

- The Proving Ground will become an active, vital laboratory for the Departments;
- The Departments will be better positioned for a rapid transition to standards-based exchanges;
- DoD, VA, and IPO will help shape national healthcare standards and policies, and lead industry adoption;
- There will be increased secure clinical data sharing across the Departments.

Ms. Ollie Gray, HTIC's ESP Program Manager stated, "This initiative provides an initial proving ground for testing and exploration of standards development for the electronic health record. These resources will continue to evolve to provide ready access for further development and testing."

For additional information on FHIR, please contact Ms. Ollie Gray, ollie.b.gray.civ@mail.mil, HTIC's ESP Program Manager.

Employee Spotlight

TATRC's Mr. Robert Connors Serves on HIMSS Innovation Committee

Mr. Robert Connors is a long-standing U.S. Army TATRC and Military Health System team member, and an active member of the Healthcare Information and Management Systems Society's (HIMSS) Innovation Committee. The HIMSS Innovation Committee is a national group of health information technology (IT) experts who identify emerging technologies and/or processes that positively impact healthcare by improving the care experience and individual and population health, as well as reducing costs. The TATRC Health Technology Information Center's (HTIC) own Robert Connors is part of this elite group of healthcare professionals dedicated to furthering this cause.

At HIMSS 16 in Las Vegas, NV, Mr. Connors served as a Co-Moderator with Mr. Santosh Mohan (Stanford Health), leading a full day symposium entitled, "Spurring Innovation in a Highly Regulated Environment." Considering that innovation is the key to setting new directions in healthcare, yet is also a heavily regulated environment, the Symposium delved into answering questions like, "What rules can one break in order to innovate and survive? How can innovation take place knowing that some things must stay the same?" The Innovation Symposium took a deep dive into examining what's working and how and why it works. There were 120 HIMSS attendees at the Innovation Symposium. Mr. Connors was instrumental in securing key speakers for this Symposium, including Dr. Steve Steffensen, MD, Director of Military Health System Innovation, and former Director of the TATRC Advanced Information Technology Group. Other speakers included Mr. Ken Kleinberg, The Health Advisory Board, and Dr. Farzad Mostashari, former Director of the Office of the National Coordinator for Health IT.

Bob Connors with other members of the HIMSS Innovation Committee and Staff at HIMSS 16, Las Vegas, NV. Pictured from left to right are: Rod Piechowski (HIMSS Senior Director), Bob Connors (TATRC's HTIC, Health IT Research Administrator); Michael Sutter (Carle Foundation, Chief Innovation Officer and Retired Army Nurse Corps); Ian Hoffberg (Manager, HIMSS Staff), and Santosh Mohan (Stanford Health Fellow).

As a senior member of the HTIC team, Mr. Connors supports Ms. Betty Levine, Lab Manager, and Ms. Ollie Gray, Program Manager, by carrying out research that involves advanced technologies and addresses the needs of service members and their beneficiaries. He joined TATRC in 2006 as a contracted Subject Matter Expert where he led early research on speech recognition and natural language processing projects. This led to Army Medicine's decision to license 10,000 copies of Nuance Dragon speech recognition. Subsequently, as an IPA, Mr. Connors oversaw Congressional Special Interest Project awards involving emerging and enabling health IT technologies. He was also a prolific writer of Small Business Innovative Research (SBIR) topics for Assistant Secretary of Defense for Health Affairs (ASD (HA)), involving Enterprise Master Patient Indexes and Probabilistic Matching;

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Cohort Builders for Comparative Health Effectiveness Studies; Universal Health Language Exchange, Clinical Decision Support for TBI and PTSD; and Medical Device Cyber-Security Language and Usability. In 2000, Mr. Connors retired as a Navy Medical Service Corps Officer (Healthcare Administrator). Upon his military retirement he oversaw Patient Safety, Risk Management, and Credentials Solutions as a Tricare Management Activity (TMA) government official. He also served as TMA's Senior Principle Contracted Consultant for AHLTA Requirements, Cost Estimates, and Configuration Management.

Mr. Connors earned an MHA in Hospital Administration, and a MS in Information Systems Management from George Washington University. He is board-certified as a Fellow, American College of Healthcare Administrators, and as a Project Management Professional. He has served as an Adjunct Instructor at Georgetown and Virginia Tech, and continues to provide guest lectures to graduate programs in health IT and hospital administration at the George Washington and George Mason Universities. In his spare time, Mr. Connors mentors local students through the HIMSS Mentoring Program, and teaches Wounded Warriors how to fly fish as a member of Project Healing Waters.

New Research Project Manager Joins TATRC's mHIC Team!

The TATRC mHIC team is pleased to introduce their newest team member, Amanda Schmeltz. Ms. Schmeltz will be assuming the mobile research project management duties that had been previously held by Ms. Holly Pavsliscsak. Amanda has a wealth of experience with clinical research and Institutional Review Board (IRB) management that will ensure that the mHIC research efforts continue to move forward.

Amanda graduated from the University of South Carolina in 2006 with a degree in Psychology. She has spent the last ten years working in clinical research in varying degrees. Her background and interest areas have been mainly in the realm of cognitive neuropsychology, namely: Alzheimer's and mild cognitive impairment, late onset (and treatment-resistant) major depression, cognitive effects of various brain cancer treatments, as well as genetic profiles influencing phenotypes of these cognitive deficits.

Since moving to the Southeast from New York in 2013, she connected with the nation's leading Neurogastroenterologist at Augusta University. Her research management experience over the years has been a hybrid of lead study coordinator and research manager; including grant writing, IRB management, budget and personnel management, as well as running and assisting with the nitty gritty study aspects on any given protocol (from the informed consent process, to taking vitals, and conducting medical procedures, to data entry and analysis, and everything in-between as-needed). The TATRC mHIC team is very excited to have Ms. Schmeltz' wealth of experience as part of our team moving forward. Welcome, Amanda!

Ms. Amanda Schmeltz, mHIC's newest project manager to join the team.

TATRC Welcomes New Deputy Director, Mr. Tim McCarthy

Mr. McCarthy joins TATRC's "Command Team" after serving 26 years in the Army Medical Department (AMEDD) in a variety of assignments as a Healthcare Administrator which led to functional and technical innovation. He also spent 11 years with Electronic Data Systems (EDS) and Hewlett Packard working in the technology industry, providing strategic information technology support to the Army Medical Department, Recruiting Command, and Army Knowledge Online (AKO). Most recently, Mr. McCarthy spent the last 6 + years working for the Defense Center of Excellence (DCoE) for Psychological Health and Traumatic Brain Injury, as Deputy in the Primary Care Behavioral Health Directorate, providing program development and IT support for case and risk management tracking, as well as program evaluation.

While on active duty, Mr. McCarthy's focus was on human resources, operations, leadership development and executive skills, training technology, distance learning, Information Management/ Information Technology (IM/ IT) training and knowledge management. He retired from the AMEDD as the Chief of the Leadership and Instructional Innovations Branch, where among other things, he was responsible for the creation of the AMEDD's IM/IT training program, the Joint Medical Executive Skills Institute, and helped to inspire the creation of AKO. He also taught in the Army/Baylor University Master's program in Healthcare Administration.

Mr. Tim McCarthy, TATRC's new Deputy Director, joins the Command Team.

Working for EDS and HP, Mr. McCarthy led the efforts to bring a knowledge management focus to the IT community and created "Recruiting Central," an initial virtual community Recruiting Command. He served as the on-site Program Manager providing key technology support and strategy for the development of AKO. For the Army Surgeon General, he was responsible for the creation of many virtual medical communities in AKO, as well as several other technology projects.

During his time at the Primary Care Behavioral Health Directorate, DCoE, he was responsible for central development of an automated patient tracking/ case-management system, and provided program development, implementation support, the development and collection of metrics and a flat-file database capability for program evaluation for all DoD Services.

In his new role, Mr. McCarthy will serve as the Deputy Director for TATRC working in conjunction with the Director, Chief Scientist, Chief of Business Operations as well as all Lab Managers, to provide a fresh insight to the advancement of technology supporting the MHS. He resides in Reston, VA and has several interests including sailing (boat on Herring Bay, near Deale, MD), skiing, cooking and enjoying the company of old friends. He holds an M.A. in College Student Personnel and Counselling/Higher Education from Bowling Green State University in Ohio and a B.S. in Biology/Education from SUNY at Geneseo. He originally hails from Hornell, NY, not far from Gary Gilbert's hometown.

Welcome, Tim McCarthy!

TATRC Senior Logistician Recognized for Herculean Efforts in PITLAB Clean-Up

Mr. Joe Barrick, TATRC's Senior Logistician, was recently recognized by his TATRC Colleagues for his outstanding work on a gigantic "turn in" project. Mr. Barrick recently took on an enormous task of sorting through, classifying, and turning in 20 years of accumulated equipment and materials which took up a total of nine MILVAN storage units. In addition, he turned in approximately eight MILVANS worth of excess equipment, as well as the MILVANS themselves, therefore helping to declutter and tidy up the TATRC PITLAB Area. In addition, Mr. Barrick put back into service a field tent which expands the field lab area that is used for testing prototypes and demonstrating equipment. The PITLAB has been tremendously improved as a result of this clean up!

TATRC would like to extend a sincere thanks for his efforts and congratulate him on a job well done!

COL Kral recognizes Joe Barrick for providing outstanding logistical support.

TATRC's Carl Manemeit Converted to Government Civilian

Carl Manemeit is no stranger to TATRC! As a matter of fact, he's been part of Gary Gilbert's team supporting Operational telemedicine efforts for 6+ years. Carl joined TATRC in January 2009, and has served as both an IPA and contractor since that time. He was recently hired and converted to a government civilian into the Deputy position within the Operational Telemedicine Lab. Mr. Manemeit will be continuing his senior project management duties and will also be taking on the role of Contracting Officer Representative (COR) for these projects, as well as serving as a PI for new projects. Carl retired from Active Duty Service in December 2008 as a Lieutenant Commander in the U.S. Navy. Deployed multiple times, the last deployment was with the 1st Marine Logistics Group for Operation Iraqi Freedom. Congratulations, Carl on your new appointment to civil service!

Mr. Carl Manemeit returns as DoD Civilian.

Upcoming Events:

2 - 4 August: DHITS Conference; Orlando, FL

15 - 18 August: MHSRS Conference; Orlando, FL

28 - 30 September: ATA Mid-Year; New Orleans, LA

TATRC Holds its 21st Annual Organization Day

TATRC held its 21st Annual Organization day on Friday, 24 June right here on post at Ft. Detrick's Nallin Pond, under sunny blue skies. Each year, the Organization Day is an opportunity to bring together TATRC Alumni, current TATRC staff and their families in a social, casual environment in order to see where the Organization currently is, and review how far we have progressed and improved over the past year. After a warm welcome and brief update on TATRC's recent progress and successes, our Director, COL Dan Kral, served up a potpourri of delicious foods to each picnic attendee. This year's organization day provided great food, exciting competitions in Corn Hole and Ladder Golf tournaments, and a rousing water balloon fight with the Senior Leadership. The 21st Annual Organization Day was quite the success, and we look forward to continuing the tradition and seeing how far TATRC has come at next year's 22nd Annual Organization Day! Happy Summer!

Employee of the Quarter: Ms. Sharon Garlena

Ms. Sharon Garlena, Project Officer for AAMTI Program & EOQ for Qtr 3!

It is with great pleasure that The Telemedicine and Advanced Technology Research Center (TATRC) announces its newest Employee of The Quarter for Quarter 3!

Ms. Sharon Garlena is the latest to join the ranks!

Ms. Garlena has been an outstanding member of the TATRC team and has provided superb service in support of many critical TATRC business areas. As the Assistant to the Chief of Research Review, Sharon was responsible for daily management of the entire proposal submission and review system. In this role, Sharon single-handedly supported the weekly Proposal Review Board meeting and the documentation and tracking of the subsequent after-action requirements. Sharon provided important user-interface and business process input that allowed TATRC to iteratively improve its data management system and its proposal review processes. Sharon's flexibility, expertise, and professionalism were vital in assuring TATRC's successful execution of its new mission in support of the Joint Program Committee's (JPC) Program Announcement process. Sharon provided constant, consistent, and high quality support which enabled TATRC to adapt to, and master, an entirely new business process in support of our JPC customers. Currently, Sharon is supporting the AMEDD Advanced Medical Technology Initiative (AAMTI) Program Manager and her expertise has resulted in numerous improvements to AAMTI communication and tracking efforts.

Sharon is a hardworking and exemplary employee. Her commitment to TATRC's many and evolving missions has been unwavering, and the execution of her tasks and responsibilities has been outstanding. Congratulations Sharon, on a job well done!

TATRC Welcomes James Beach to the Operational Telemedicine Team

James Beach is the newest addition to TATRC, joining the team following his military retirement after 23 years of service. He is a Project Manager in the Operational Telemedicine Lab. He brings a significant amount of experience in the Defense Acquisition Management System to the TATRC team. He has direct experience in Acquisition activities ranging from pre-Material Development Decisions through Operational Testing to Milestone C activities for medical capabilities supporting both the Operational (Field Units) and Generating Forces (Military Treatment Facilities).

James graduated Magna Cum Laude with a Bachelor of Science in Chemistry from the University of North Carolina in Charlotte and obtained his Masters in Management Information Systems from the University of Maryland – European Division.

As a Defense Acquisition University Certified Level 3 Program Manager, and a certified Project Management Professional, James served as the Program Manager for U.S. Army Medical Research and Material Command (USAMRMC)'s Transport Telemedicine Project responsible for working with numerous stakeholders from the Office of the Surgeon General, to achieve a Material Development Decision into the Technology Maturation and Risk Reduction (TMRR) Phase. Through prototyping efforts conducted in the TMRR, he worked diligently to establish a research and advanced development partnership between the United States Army Medical Materiel Agency (USAMMA) and TATRC. This partnership exposed him to many of the Operational Telemedicine Projects.

James served in the U.S. Army for 23 years, starting off as a Private in 1988 and retiring as a Lieutenant Colonel. As an enlisted member of the U.S. Army Chemical Corps stationed at Fort Bragg, North Carolina, James served in Desert Shield and Desert Storm directly supporting the 75th Field Artillery Brigade. James also served as a Medical Platoon Leader in a Divisional Cavalry Squadron. His first assignment within the Army Medical Department was as an Executive Officer at a small health clinic in Babenhausen, Germany, followed by Executive Officer at a large health clinic in Hanau, Germany. James' first assignment in the Acquisition Work Force was at the Army Medical Department Board, as the Operational Test Officer responsible for the Block I Operational Test of Medical Communications for Combat Casualty Care and Theater Medical Information Program. He served as the Chief Information Officer and S-6 for the 121st General Hospital in Korea. Afterwards, he was assigned as the Chief Technical Officer at the United States Army Research Institute of Infectious Diseases, responsible for delivery of capability to the infectious disease research community. James was deployed to Iraq in 2008 to serve as the S-6 at the 115th Combat Support Hospital, and ultimately provided area support to the Baghdad Area for MEDWEB Picture Archival Communication Systems. Upon return from Baghdad, James served as the Chief Technical Officer at the Enterprise Information Technology Program Management Office at the USAMRMC. From there, he transitioned into the USAMMA to become the Army's Project Manager for Picture Archival Communication Systems, followed by being an Advanced Developer for the Transport Telemedicine System. He also served as the Chief of the Army's Medical Device Cybersecurity Cell, working closely with industry, other Services, and the Food and Drug Administration to deliver secure capabilities to the Military Treatment Facilities.

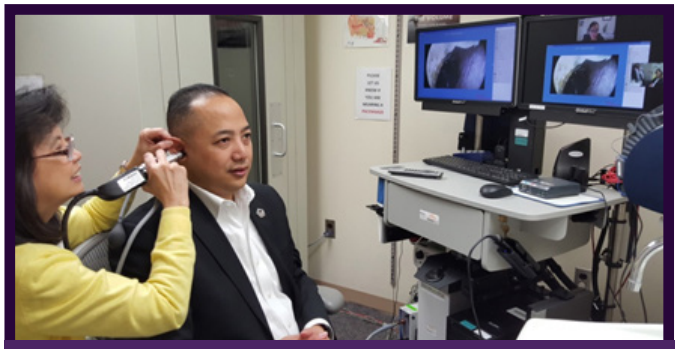
Newly retired Mr. James Beach signs on as Project Manager for Op-T-Med.

James is married to Michelle Beach and has twins; a son (Wesley) and daughter (Madison). James is currently conducting horticulture experiments in his backyard, with varied results, and hopes to become a successful gardener in his spare time. TATRC warmly welcomes James Beach to the team!

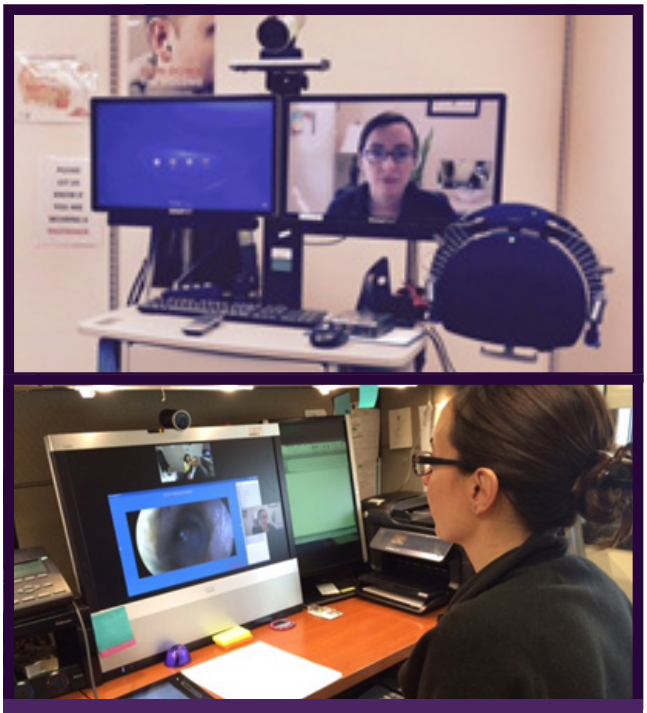
AAMTI Project Spotlight: Net-Centric Audiology Program Enables Wide Area Persistent Hearing Surveillance

Since its inception, the AMEDD Advanced Medical Technology Initiative (AAMTI) has funded many pilot telehealth programs. In 2013, the AAMTI program supported the establishment of a cooperative telehealth partnership between the Audiology and Hearing Conservation Services at Walter Reed National Military Medical Center (WRNMMC) and the DiLorenzo TRICARE Health Clinic (DTHC) at the Pentagon. The goal of this program was to explore the logistical feasibility and technological considerations of providing audiology services remotely in the Department of Defense (DoD). Additionally, the program assessed patients' and providers' satisfaction with TeleAudiology, as compared to typical, in-person clinical visits, and conducted cost-benefit analysis of the TeleAudiology program to determine return on investment (ROI) outcomes.

Through this telehealth program, the WRNMMC Audiology and Hearing Conservation clinics are successfully providing state-of-the-art, diagnostic (comprehensive hearing and auditory processing evaluations), rehabilitative (hearing aids), and hearing conservation readiness audiology services to patients working at the Pentagon. At WRNMMC, Principal Investigator Dr. Georgina Blasco (Audiology) leads a team of providers including Ms. Margaret Jylkka (Hearing Conservation), Dr. Kerry Chmielenski (Hearing Conservation), and Dr. Danielle Zion (Audiology). Telehealth Clinical Technician, Ms. Leilani Ramos is based at the Pentagon and assists in facilitating the visit from the remote clinic using a telehealth cart with specialty-specific peripherals (e.g., a video otoscope, audiometer, tympanometer and immittance bridge, and hearing aid testing/fitting equipment).



The Telehealth Clinical Technician, based at the Pentagon, facilitates the visit from the remote clinic, using a telehealth cart with specialty-specific peripherals.



The Audiologist directs the visit via VTC from Watler Reed.

With the specialized equipment and trained personnel in place, patients of DTHC who would otherwise be referred to a National Capital Region (NCR) medical facility, now have the option to remain at the Pentagon for their audiology and/or hearing conservation appointments, while the providers at WRNMMC use video-teleconferencing equipment and remote access to the PC-based clinical evaluation systems housed on the telehealth cart to conduct appointments remotely. Since August 2015, over 100 TeleAudiology visits have been conducted. Technological issues are rarely encountered and are no different than those experienced in traditional clinical settings. Benefits for the patients (and the commands employing them) are evident in the estimated 200+ work hours conserved and reduced travel expenses to and from WRNMMC. Furthermore, satisfaction survey data from both patients and participating providers are extremely positive with average ratings of 4.96 out of 5.00 from patients and 4.98 out of 5.00 from providers' post-visit assessments. Within the NCR, the TeleAudiology program is extremely valuable not only as a convenient alternative to in-person services offered at WRNMMC, but also as a means to save the Pentagon staff (many of

AAMTI Project Spotlight

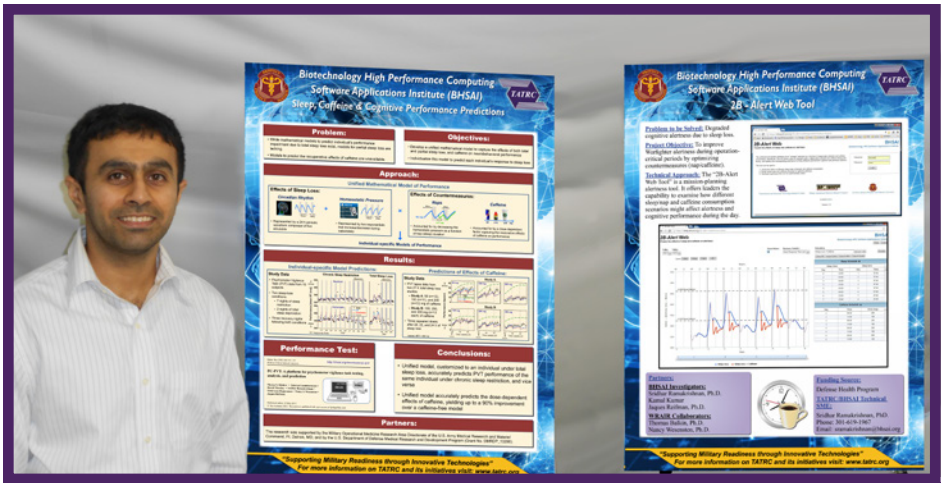
Continued from page 16

whom are high-ranking officers) valuable time away from their duties.

This TeleAudiology pilot effort suggests tremendous potential for high quality patient care at remote military treatment facilities lacking access to specialty services and recapturing purchased care cost from eligible patients being referred out of the TRICARE network. Continued data collection and further analyses for the WRNMMC TeleAudiology program are currently underway in order to demonstrate the ROI savings and to justify long-term support for sustainment of this type of patient care in the DoD setting. "This TeleAudiology initiative was an outstanding example of how a small amount of seed money from the AAMTI program can help foster collaboration between researchers, clinicians, and information technology professionals within the Military Health Care System, and help bring innovative, efficient, high-quality health care to our Service Members, Retirees, and their Dependents," said Dr. Douglas Brungart, Chief Scientist for the Scientific and Clinical Studies Section of the National Military Audiology and Speech Center at WRNNMC.

BHSAI Scientist is Nationally Recognized at Young Investigator's Award Competition

Dr. Sridhar Ramakrishnan, Research Scientist at the Biotechnology High Performance Computing Software Applications Institute (BHSAI), was named as a Finalist in the Space Medicine Association's Jeff Myers Young Investigator Award competition. This prestigious recognition was for his presentation at the 87th Annual Aerospace Medical Association's Scientific Meeting, entitled "An Individualizable Model to Predict Sleep/Wake, Circadian, and Caffeine Effects on Cognitive Performance." This year's Scientific Meeting was held in Atlantic City, NJ, April 25-28th, 2016, and the theme was "Human Performance and the Year of the Aerospace Medicine Professional." Dr. Ramakrishnan's presentation was judged to be at the top 5% from a field of some 199 contestants in this year's competition. During his talk, Dr. Ramakrishnan described a novel mathematical model for predicting cognitive performance impairment as a result of sleep loss. The model, known as the Unified Model of Performance, or UMP, uses as inputs an individual's sleep/wake schedule and caffeine consumption and provides predictions of future cognitive performance. Sleep, which is a part of the Surgeon General's "Performance Triad," affects the health and performance of Warfighters, and better management is crucial for readiness and mission success. The UMP has been incorporated in a smartphone app, called "2B-Alert," and in a web-enabled, mission-planning tool, "2B-Alert Web," both of which are mobile health tools developed at the BHSAI. These tools promote readiness and allow for our Service Members and their leaders to implement countermeasure strategies, such as naps and caffeine consumption, to optimize their cognitive performance during mission-critical periods. Congratulations to Dr. Ramakrishnan for his outstanding efforts on this important topic.



BHSAI Research Scientist, Dr. Sridhar Ramakrishnan, (pictured left) was named a Finalist for the Space Medicine Association's Jeff Myers Young Investigator Award at the 87th Annual Aerospace Association's Scientific Meeting held in Atlantic City, NJ.

TATRC's Operational Telemedicine Team Members Conduct Site Visit to Neya Systems

In mid-April, a technical team from TATRC's Operational Telemedicine Lab took to the road for a site visit with Neya Systems, one of their small business research partners working in Unmanned Aerial Systems (UAS). Mr. Nathan Fisher, Robotics Project Manager and Engineer, along with Ms. Rebecca Lee, Project Officer, traveled to Wexford, PA to integrate Neya Systems' VTOL Evacuation and Re-Supply Tactical Interface (VERTI) system onto the Operational Telemedicine Lab's S800 small Unmanned Aerial System (sUAS) platform. VERTI was designed to be an easy-to-use mission management system to allow untrained or minimally trained operators in the field to interact with Unmanned Systems at the task/goal level for medical resupply or CASEVAC missions. Additionally, VERTI is also being developed to easily integrate third party applications that the dismounted soldier/medic could use to send commands to an incoming UAS, bringing just-in-time medical supplies and/or responding to a casualty evacuation request. The VERTI system includes integration of medical information exchange among the ground medic, the UAS C2 system, and the UAS base station. This information could include transmission of Combat Casualty Care and medic/patient encounter documentation as well as remote physiological monitoring data captured from medical sensors during flight. Such is the objective of the planned implementation of the VERTI system with a K-Max UAS this summer at the Fort Dix, C4ISR Ground Activities field evaluation of prototype telemedicine and medical information systems.

Integration of Neya's VERTI system with TATRC's sUAS, for the purpose of conducting low-cost research and performing demonstrations of the VERTI capabilities at Fort Detrick, consisted of first testing the communications link between the VERTI application on a handheld device, and the onboard flight computer running Neya's software. Once bench testing was complete, the next two days of the site visit focused on flight tests to demonstrate medical resupply missions, which entailed taking off, reaching a waypoint, landing, taking off, returning home, and landing. The functionality of the system was verified during flight testing in which a simulated medical resupply mission was initiated and executed successfully using the handheld device, and assisted takeoff and landing was performed using a smart watch interface. This capability was subsequently set up and demonstrated during the 6 May TATRC Open House at Fort Detrick.

Mr. Nate Fisher and Ms. Rebecca Lee perform final pre-flight checks before a technology demonstration.

Mr. Nate Fisher and Ms. Rebecca Lee tune up TATRC's UAS in the Lab before a test flight.

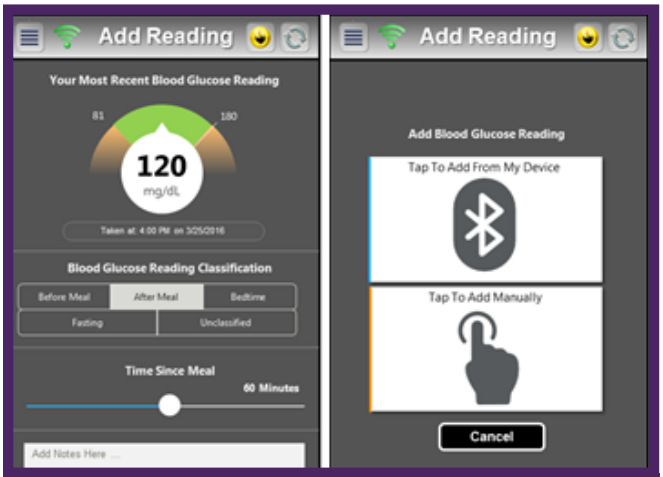
TATRC's S800 sUAS platform is a commercial hexacopter "drone" which has been modified to be controlled by an open source flight controller that gives this platform the ability to interface with on-going and future research projects involving command and control and human-robotic interaction. Mr. Nate Fisher said, "Having a small UAS platform that easily integrates with different command and control systems is a great asset to the lab because it provides a convenient and affordable alternative to using a full-size UAS for conducting operational testing and demonstration of TATRC's research efforts in the use of Robotics and Autonomous Systems for medical applications."

As previously indicated, the sUAS platform running Neya's mission management software will be utilized during TATRC'S Operational Medicine exercises at Ft. Dix this summer to train soldiers in the use of the VERTI application in preparation for exercises using Lockheed Martin's K-Max UAS.

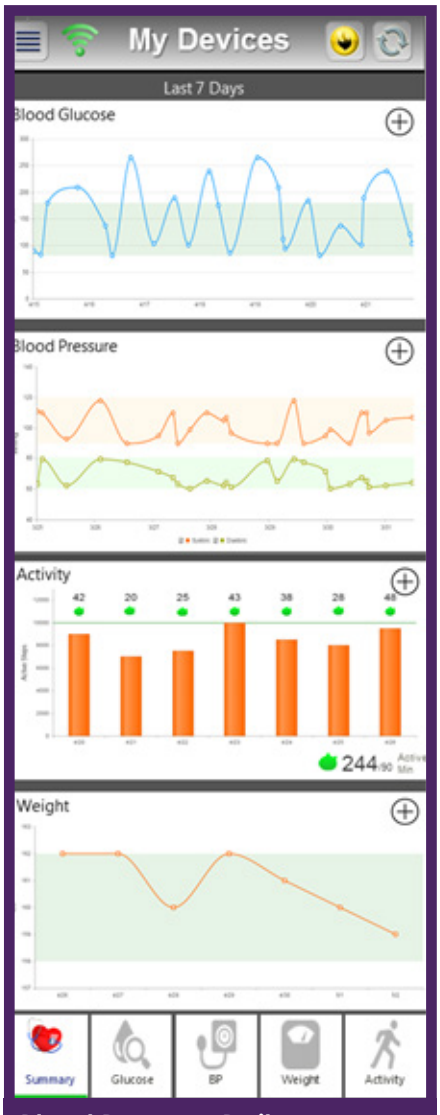
mHIC's Home Diabetic Study Update: Mobile Application Design Features

The TATRC mHIC team has completed an assessment of the required and necessary features for a home health component to the secure mobile communication environment (MHCE system) and its secure mCare mobile app. Presently, the mobile code is being compiled to achieve all of the new functionality requirements. New features to the mobile interface include:

- A dedicated section of the application to access all the aggregated information from personal devices, including a glucometer, blood pressure cuff, weight scale and activity tracker.
- Options to upload data from a personal device or provide manual entries.
- Comparison displays of data from the four devices on a weekly basis.
- Detailed, graphical data for a single day, 7 day and/or 30 day timeframe.
- Ability to expand complex graphs for easier viewing on a mobile device.
- Ability to customize each graph by turning on and off data field displays.
- The ability to enter notes and data classifications, and display that information from hover boxes over the graphs.
- Default and customized data ranges to help patients determine if their lifestyle choices are making a difference in their clinical measurements.



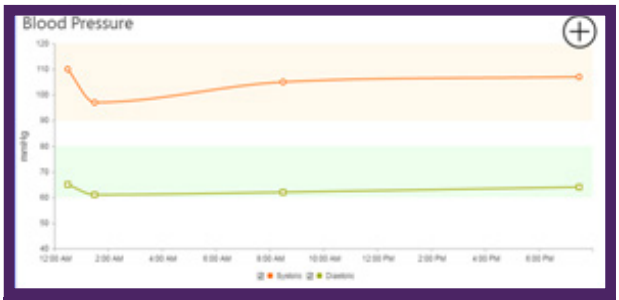
Examples of screenshots featuring the new functionality and graphical displays of a user's data.



Blood Pressure: Daily Graphical View.

The mHIC team is still in the initial phases of building the app itself. This phase is scheduled to be completed in August 2016, and will be followed by an assessment both at Madigan Army Medical Center (MAMC) and at Nellis Air Force Base (AFB) before moving into the second phase of actual patient use.

The TATRC mHIC team is diligently working in concert with the Patient Centered Medical Home (PCMH) teams at MAMC and Nellis AFB as part of a larger partnership with the Clemson University School of Public Health. This effort is funded by the Joint Program Committee – 1.



Blood Pressure: Weekly Graphical View.

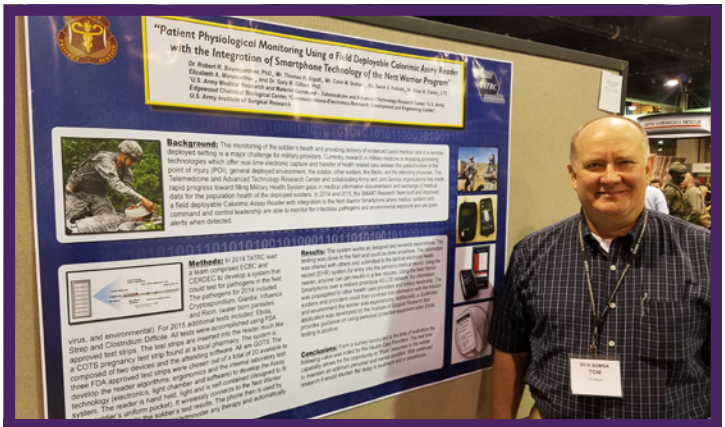
TATRC's Operational Telemedicine Staff Present at SOMA

Key staff from TATRC participated in this year's Special Operations Medical Association's (SOMA's) Scientific Assembly held 22 – 26 May at the Convention Center in Charlotte, NC. Founded in 1987, SOMA brings together a unique blend of pre-hospital, tactical, wilderness, austere, disaster and deployed medicine. The stated goal is to advance the art and science of special operations medical care through the education and professional development of special operations medical providers. SOMA provides a forum for military and civilian medical providers, academia and industry from around the world to meet and exchange ideas in its annual Scientific Assembly; through its official publication, the Journal of Special Operations Medicine (JSOM); and through periodic Mini-SOMA Conferences.

Dr. Gary Gilbert, TATRC's Operational Telemedicine Lab Manager stated, "This conference provides an excellent forum to acquire updates on current Tactical Combat Casualty Care (TCCC) tactics, techniques and procedures, as well as an opportunity for our staff to interact with the various Special Operation Forces (SOF) communities. This allows us to gain insights into their experience with current fielded and prototype medical technology capabilities and their envisioned needs for new ones. The outstanding SOF medic/operator vignette presentations and US Special Operations Command (SOCOM) Medical updates, as well as the concurrent sessions on the status of Military SOF, Tactical Emergency Medical Services, Global Health Engagement, TCCC support for U.S. Marshall Service, Foreign Military SOF medical support, Prolonged Field Care, and SOF State of the Science and Research, all provided additional awareness to the operations and medical technology needs of the SOF community and will be of great benefit to TATRC as user input to ongoing and future research."

Other staff from TATRC who were in attendance at the conference included: COL Daniel R. Kral, Director; Mr. Carl H. Manemeit, Program Manager, Operational Telemedicine Lab; Mr. Thomas R. Bigott, Program Manager, Operational Telemedicine Lab, and Mr. Geoff Miller, Senior Research Scientist, Medical Modeling and Simulation Innovation Center.

At the conference this year, two posters from TATRC were selected for presentation. The poster entitled: "Patient Physiological Monitoring Using a Field Deployable Calorimic Assay Reader with the Integration of Smartphone Technology of the Nett Warrior Program" was presented by Mr. Thomas R. Bigott and "Point of Injury Telemedicine & Encounter Documentation over secure Tactical Networks in Conventional Operations"



Tom Bigott pictured with his poster on Portable Chemical Detection System Linked to Nett Warrior Smartphone, presented at SOMA's Scientific Assembly.

Carl Manemeit also presented a poster on POI Telemedicine & Encounter Documentation at SOMA.

SOMA

Continued from page 20

was presented by Mr. Carl H. Manemeit.

In addition to being an educational symposium, this event provides an excellent forum for TATRC attendees to further shape ongoing and future Research & Development efforts involving SOCOM, by meeting face-to-face with operator medics, physicians, and project stakeholders from SOCOM and its subordinate commands, such as the 75th Ranger Regiment, 160th Special Operations Aviation Regiment, Air Force Para Jumpers, and US Army Special Operations Command Special Forces Groups. Likewise, this event provided an opportunity to meet with medical information and telemedicine vendors to discuss current and future research opportunities.

Dr. Gary Gilbert, TATRC's Operational Telemedicine Lab Manager, was recently elected to the Special Operations Medical Association (SOMA) Board of Directors as an At-Large Member. SOMA Board members are leaders in the field of special operations medicine who are charged with guiding and directing the SOMA organization to achieve its objectives of advancing the science, technology and skills of unconventional medicine.

Dr. Gary Gilbert was selected for Soma's Board of Directors.

mHIC's Telehealth 2.0 Study Approved for Funding

The TATRC mHIC team is pleased to announce that their research project, entitled "Telehealth 2.0: Preserving Continuity of Behavioral Health Clinical Care to Patients Using Mobile Devices" has been approved for funding by the Joint Program Committee – 1. This research project is a collaborative effort between TATRC, the Defense Center of Excellence, National Centers for Telehealth & Technology (T2) office and the Behavioral Health Clinic at Fort Hood.

This research project aims to use mobile technology to leverage telehealth services as a means to maximize the continuity-of-care that the military healthcare system can provide to Service Members when they are temporarily relocated due to military service requirements, but require and are engaged in behavioral health (BH) services. The effort will focus on the utilization of a patient's personal mobile device in an approved, secure fashion to maintain the established therapeutic relationships with the BH provider(s) while the patient is on temporary duty assignment outside the continental United States. The patient and BH provider(s) will use a relational model of care delivery to complete a course of treatment that the patient sought out prior to being reassigned.

There are four specific aims to this research effort:

1. Develop the required technology enhancements to the existing mobile health (mHealth) product to support this project;
2. Test the feasibility of the mobile interface for patient use;
3. Establish the acceptability of this technology approach with BH providers; and
4. Deploy and evaluate the technology solution in a clinical context.

As a result of this project, best practices will be established in order to lay the groundwork for more expansive transformations of the tele-BH care delivery process, thus minimizing disruptions in psychotherapeutic interventions, working collaboratively between remote and local sites for comprehensive care, and potentially reshaping how telehealth is delivered in operational venues. Ms. Jeanette Little, mHIC Lab Manager stated, "The TATRC mHIC team is excited to explore the next generation of telehealth through our key partnerships with T2 and the Ft. Hood Behavioral Health team."

TATRC Participates in the Medicine Meets Virtual Reality (MMVR) Conference

For 16 years, TATRC's "MedSim" team has played a prominent role in the success of the Medicine Meets Virtual Reality (MMVR) Conference. In 2016, several TATRC leaders participated in MMVR to include Mr. Harvey Magee, Lab Manager, Medical Modeling & Simulation Innovation Center (MMSIC), Dr. Thomas Talbot, MD, MMSIC's former Chief Scientist, Mr. Geoff Miller MMSIC's Senior Research Scientist, and Ms. Lori DeBernardis, TATRC's Marketing Director. Also in attendance were Drs. Kevin Kunkler and Amber Linde from the Joint Program Committee - 1 (JPC-1), Medical Simulation and Health Information Sciences, as well as Mr. Hugh Connacher from the Congressionally Directed Medical Research Program. Approximately 275 people attended MMVR from 23 countries around the world. There were more than 180 educational sessions with a technical exhibit area featuring cutting-edge research demonstrations, where TATRC had a booth and was highlighted.

So what is the MMVR Conference anyway? In 1992, visionaries at the very first MMVR Conference, presented a bold image and road map of patient care and medical education transformed by computer technology. The evolving NextMed/MMVR became an engaging event at which a creative mix of unorthodox thinking researchers comprised of engineers, physicians, scientists, educators, students, industry, military, and futurists, communicated their commitment to intelligent healthcare and validated investigation.

NextMed/MMVR is an international conference that welcomes the participation of 1) physicians and other medical professionals who are interested in computer-enabled advances that make patient care more effective, accurate, and affordable, 2) IT engineers and medical device developers who must understand caregivers' needs in order to direct projects toward the best outcome, 3) medical educators and students involved with the transfer of knowledge to the next generation of physicians and fellow providers, 4) military medicine specialists addressing the special demands of battlefield care and warrior rehabilitation, and 5) biomedical futurists, investors, and policy-makers who need to evaluate scenarios for healthcare's future. It was critical that the MMSIC team engaged with this audience to ascertain and understand the latest technology developments and how they may contribute to solving identified training technology gaps in the DoD.

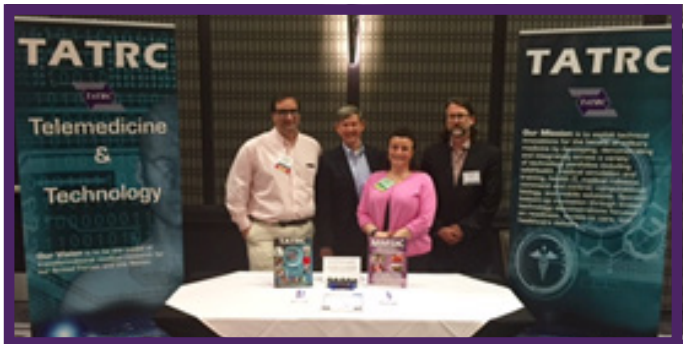
Dr. Brett Talbot speaks about Pushing the Envelope in Simulation Fidelity.

Presentations were chosen to educate participants on: 1) advances in simulation, modeling, and haptics that are upgrading medical education, skills training, psychotherapy, and physical rehabilitation, 2) novel imaging, visualization, and data fusion methods that make clinical diagnosis and therapy more precise and personalized, 3) robotics and sensors that extend the caregiver's reach and provide richer patient data, 4) medical intelligence networks that promote a collaborative healthcare environment and enhance decision making.

Dr. Thomas "Brett" Talbot, former Chief Scientist for MMSIC, delivered a presentation on "Natural Language: Understanding Performance and Use Considerations in Virtual Medicine Encounters" and was a presenter and panelist for a session entitled: "Fidelity for Simulation in Healthcare: Pushing the Envelope." Additionally, JPC-1's Dr. Amber Linde spoke along with Dr. Kevin Kunkler on "The Evolution of Medical Training Simulation in the U.S. Military."

Prominently featured in a half-day seminar, was one of MMSIC's primary projects, the BioGears® Open-Source Human Physiology Engine, which included multiple, interactive presentations and hands-on learning opportunities. BioGears® simulates whole body model human physiology in response to a variety of conditions, injuries, and interventions. BioGears®, available to the public as a FREE download (www.biogearsengine.com), enables accurate and consistent simulated physiology across training applications. Medical educators, trainers, developers, and manufacturers require medical training content that includes consistent, validated physiology responses. The BioGears® simulation software suite was conceptualized to provide that capability.

BioGears® is a research project by Applied Research Associates, under the leadership of Mr. Jeff Webb, Principal



Team TATRC staffing the technical exhibit booth at MMVR. Pictured L to R: Dr. Thomas Talbot, Mr. Harvey Magee, Ms. Lori DeBernardis, Mr. Geoff Miller.

MMVR

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Investigator, funded through the JPC-1 and managed by TATRC's MMSIC. Mr. Harvey Magee serves as the Grants Officer Representative. Presenters at this seminar were Mr. Jeff Webb, Dr. Rachel Clipp, and Mr. Aaron Bray. Four BioGears® posters were selected for the poster session as well.

During the two-day technical exhibit, The TATRC team engaged with numerous current and potential DoD research partners from government, academia, and industry. The team had the opportunity to interact with conference participants and inform them about both the latest initiatives and new mission within MMSIC.

MMSIC Lab Manager, Mr. Harvey Magee reflected on the event stating, "the MMVR conference continues to be "the place-to-be," serving as a unique and distinct melting pot for innovators and early adopters in the fields of virtual reality and medicine. With MMSIC's newly assigned mission to enable and assess technologies, it is important that the MMSIC team communicate this message to the community at large."

TATRC's OpTmed Lab Collaborates with MC4 on Upgrading eTCCC Card

TATRC's Operational Telemedicine Lab's Programmer, Mr. Todd Poling, worked directly with the Army PM Medical Communications for Combat Casualty Care (MC4) personnel, to complete the upgrade of the PM MC4 electronic Tactical Combat Casualty Care (eTCCC) Card, DD Form 1380. This Android Smartphone End User Device (EUD) application is used by both TATRC and PM MC4, as a research surrogate for the official Joint Operational Medical Information Systems (JOMIS) TCCC Mobile Computing Capability (MCC) Card application. This EUD application enables the TATRC Operational Telemedicine Lab to investigate wireless integration of various patient monitors for direct update to the eTCCC Card, to explore transmission of the eTCCC card over tactical communications systems, and serve as the primary medical record for conducting research in technologies, such as hands-free patient encounter documentation and combat medic telementoring at points of care, prior to the patients' arrival at medical treatment facilities (MTF) equipped with the AHLTA-T Theater-based electronic health record (EHR), or its future replacement, GENESIS.

Both MC4 and the Office of the Secretary of Defense for Health Affairs JOMIS, have modified their electronic versions of the DD Form 1380, formerly known as AHLTA-Mobile to run on Android EUDs like the Army Nett Warrior EUD. The previous version of the MC4 eTCCC card application did not incorporate the additional data requirements identified by the Joint TCCC Committee and approved as the current DD Form 1380. Since these additional data elements have already been added to the JOMIS version of the eTCCC card, known as the MCC Card, the recently completed TATRC/MC4 development effort ensures that both the MC4 eTCCC and the JOMIS MCC applications gather and report the same point of injury information.

The eTCCC Card/DD Form 1380 promotes the Department of Defense goals of capturing casualty medical documentation of pre-MTF medical interventions using a Mechanism of injury; Injuries; Signs & Symptoms; and Treatments format. Use of the eTCCC card is not limited to medical personnel; any combatant can generate a DD Form 1380 and any combatant who has a tactical Android EUD could create an eTCCC.

The new upgraded app now includes record fields for:

Patient's battle roster

Evacuation priority/precedence

Blood products

Extensive options to document circulation, airway breathing and vital signs

The MC4 version of the eTCCC card application does not require the synchronization of the EUD with the laptop PC to download the data, but rather, the MC4 eTCCC could be transmitted over tactical networks to be posted to a stand-alone PC, or cloud-based server version of the AHLTA-T EHR, thereby enabling the receiving MTF to be alerted of incoming casualties and prepare any special care needed, and potentially avoiding delays in critical treatment. Additionally, simultaneous TATRC research could allow direct posting to the eTCCC card of patient data acquired via newly developed wireless Ultra Wideband technology integrated with patient data devices such as a pulse oximeter, a finger mounted ultrasound, the USARIEM Warrior Personnel Status Monitor, or the USAISR experimental Compensatory Reserve Index pulse oximeter. Furthermore, the MC4 eTCCC Card could be transmitted over the Army's tactical SIPRNET radio network through a prototype Cross Domain Solution which verifies that the record is clear of classified data and subsequently forwards the record over the NIPRNET to the AHLTA-T EHR.

In the opinion of Dr. Gary Gilbert, Lab Manager for TATRC's Operational Telemedicine Lab, "TATRC could neither have developed these types of research prototype capabilities, nor evaluated them with soldier medics in the field, without the flexibility afforded by working with PM MC4 to develop separate-but-equivalent eTCCC card applications. This collaborative partnership with MC4 has been a productive 'win-win' for all."

Tele-Behavioral Health Capabilities Allow Deployed Service Members to Keep Their Options Open

We as Americans are used to selecting from a variety of goods, services, and providers. We research our options, and determine what best fits our needs. In a deployed setting, the options narrow considerably. There may only be one dining facility, a rotating PX, and limited places to go during down time. If we are looking for a Behavioral Health (BH) provider, there may only be one option in an area, or maybe the BH provider only visits every month. The luxury of getting an "off-post" referral while deployed is not possible. Having limited BH options in Theater can also put constraints on the variety of services that are offered in a remote Battalion Aid Station location. A provider may be limited in the type of specialized assessments and evaluations that can be offered based on the provider's training and expertise. The ability to reach out to another BH provider across Theater expands the capabilities, options, and privacy available to personnel receiving tele-BH services.

Currently, there is only one full-time BH prescriber in Afghanistan. Limited availability of BH Specialists in the CENTCOM - AOR is the ideal environment for the implementation of tele-behavioral health subspecialty skills like psychotherapy, psychopharmacology and administrative evaluations; these functions can be achieved without the risks and disruption of travel, according to Mr. Dave Williams, FACHE, TATRC, Project Manager for Tele-Behavioral Health (TBH) initiatives. TATRC provides monthly coordination of telehealth projects with Theater deployed forces in the CENTCOM areas of responsibility. TBH empowers a Provider to be virtually available wherever they are needed throughout the battlespace. Being able to consult with other medical providers about medication management or, to meet with complex patients via TBH, allows the prescriber to expand his/her reach, thereby bringing BH prescribing capabilities to remote areas. In one case, a Service Member would have squandered an opportunity for a key developmental position upon redeployment if a recruiter evaluation was not completed in Theater. Through the use of TBH, the Service Member was able to undergo the recruiter evaluation with a BH provider in another location, despite the local provider lacking the necessary training to complete the evaluation. Having a TBH platform facilitates the sharing of resources, provider capabilities, and expertise across Afghanistan.

CPT Mike Potoczniak, Psychologist MH Consultant, Kuwait, responds to a Provider-to-Provider "Patient Consultation" VTC request from SGT Susan Moses, NCOIC 254th MED DET (COSC), Afghanistan.

In addition to having decreased BH options in Theater, there is also an increase of dual-relationships between BH providers and potential patients in a deployed setting. A potential patient may be your roommate, or may live down the hall, or be part of a leadership team with whom you work closely, or a medical provider at the hospital, or even be another member of the BH team. When the relationships are just too close for a safe alliance to be built, or when conflicts of interest exist, TBH expands the pool of providers who can provide therapy or medication management. "In my case," commented CPT Walsh-Day, "I am pulled in several directions. I am a Clinician, a Consultant, and a Commander. As such, I have roles and responsibilities that sometimes conflict. The nature of what we do as a BH team can be tiring, overwhelming, and weighty at times. Not only do we support others as they experience operational challenges, but we also experience our own operational challenges and home-front issues. It gives me confidence to know that if one of my Soldiers is experiencing difficulties, I can connect the Soldier with a BH provider at another location who can offer the confidentiality and objectivity that I cannot as a dual-hatted Commander and Clinician." CPT Walsh-Day stated, "A Soldier working in the BH arena should not forfeit his/her right to receive BH services due to a potential conflict of interest with a local provider." CPT Allison Walsh-Day is a Licensed Clinical Social Worker, Commander 254th Combat Operational Stress, Company, (COSC), Afghanistan.