The Point

U.S. Army Medical Research and Materiel Command

Spring 2014

A colorized negative-stained transmission electron micrograph depicts a number of Marburg virus particles grown in an environment of tissue culture cells. Photo courtesy of the CDC.

Novel Drug Treatment Protects Primates from Deadly Marburg Virus

For the first time, scientists have demonstrated the effectiveness of a small-molecule drug in protecting nonhuman primates from the lethal Marburg virus. Their work, published online March 2 in the journal Nature, is the result of a continuing collaboration between Army scientists and industry partners that also shows promise for treating a broad range of other viral diseases.

According to senior author Sina Bavari, Ph.D., chief of molecular and translational sciences, the drug (known as BCX4430) protected cynomolgous macaques from Marburg virus infection when administered by injection as long as 48 hours post-infection. Bavari and his team at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) also found that BCX4430 protected guinea pigs exposed to Marburg virus by the inhalation route.

Marburg and its "cousin," Ebola virus, cause hemorrhagic fever with case fatality rates as high as 90 percent in humans. The viruses, which are infectious by aerosol (although more commonly spread through blood and bodily fluids of infected patients), are of concern both as global health threats and as potential agents of biological warfare or terrorism. Currently there are no available vaccines or therapies. Research on both viruses is conducted in Biosafety Level 4, or maximum containment, laboratories, where investigators wear positive-pressure "space suits" and breathe filtered air as they work.

According to the research team, BCX4430, which was developed by BioCryst Pharmaceuticals, Inc., also demonstrated activity against a broad range of other Ribonucleic acid (RNA) viruses -- including the emerging viral pathogen Middle East

Marburg continued on page 2

Burn Center Tests New Skin Growth Procedure

Researchers from the U.S. Army Institute of Surgical Research (ISR) Burn Center and the Armed Forces Institute of Regenerative Medicine (AFIRM) began clinical trials using ReCell® to treat burn patient wounds. ReCell® is manufactured by Avita Medical Americas and harnesses the body's natural ability to heal itself and is sprayed on a burn wound to generate functional skin.

"We are both excited and hopeful about these clinical trials," said ISR Burn Center Director, Col. (Dr.). Evan Renz. "Revolutionary technologies like this may well change the traditional way we treat burn patients."

ReCell® works by taking a small biopsy from a patient's skin and incubating it in a cocktail of enzymes for about 20 minutes. The incubated skin is then harvested to extract a substance that contains keratinocytes -- the body's natural regenerative cells that promote healing. After that, the keratinocytes are suspended in a solution that is sprayed on a wound, where it multiplies and creates new skin tissue.

A researcher works with a skin graft. Courtesy photo.

"We use a kit specifically designed for this process in the operating room," said Registered Nurse Bryan S. Jordan, a senior research nurse at the ISR. "From start to finish, the entire procedure takes about 40 minutes."

This procedure requires only a fraction of the time that it takes for the traditional methods of skin grafts and cultured epithelial autographs.

"Using traditional skin grafting techniques, we must remove a much larger amount of skin from the patient to cover a wound," said Renz. "We are hopeful that ReCell® technology will improve outcomes for our patients and improve the long-term quality of life for our wounded warriors."

The ISR is committed to optimizing combat casualty care by providing requirement-driven combat casualty care medical solutions and products for injured soldiers from self-aid through definitive care across the full range of military operations.

Article by Steven Galvan, USAISR PAO

Marburg from page 1

respiratory syndrome coronavirus (MERS-CoV) -- when tested in a cell culture.

“This study demonstrates the importance of government-industry collaboration,” said Col. Erin P. Edgar, commander of USAMRIID. “Developing filovirus medical countermeasures is a top biodefense priority for the United States. When federal assets like USAMRIID team up with cutting-edge partners in private industry, we can make real progress toward achieving that goal.”

The paper’s first author, Travis K. Warren, Ph.D., a principal investigator at USAMRIID, said findings from the work show the drug acts by interfering with the internal “machinery” of the Marburg virus, preventing it from replicating its genetic material. He said the team is currently planning additional studies to determine whether the therapeutic window can be extended beyond 48 hours. In addition, BioCryst plans to file investigational new drug applications for intravenous and intramuscular BCX4430 for the treatment of Marburg virus disease, and to conduct Phase 1 human clinical trials, according to Warren.

Collaborators on the study included USAMRIID, Fort Detrick, Md.; BioCryst Pharmaceuticals, Inc. Durham, N.C.; and MedExpert Consulting, Inc., Indialantic, Fla.

The work was supported by The Joint Science and Technology Office for Chemical and Biological Defense of the Defense Threat Reduction Agency. The National Institute of Allergy and Infectious Diseases of the National Institutes of Health, Department of Health and Human Services, also provided partial support for in vitro studies.

USAMRIID’s mission is to protect the warfighter from biological threats and to be prepared to investigate disease outbreaks or threats to public health. Research conducted at USAMRIID leads to medical solutions -- vaccines, drugs, diagnostics, and information -- that benefit both military personnel and civilians. The Institute plays a key role as the lead military medical research laboratory for the Defense Threat Reduction Agency’s Joint Science and Technology Office for Chemical and Biological Defense. USAMRIID is a subordinate laboratory of the U.S. Army Medical Research and Materiel Command.

Article by Caree Vander Linden, USAMRIID PAO

Issue Highlights

NEW! 2013 Command Accomplishments

Available Online

http://mrmc.amedd.army.mil/assets/docs/media/2013_MRMC_Accomplishments.pdf

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Soldier Feedback Used to Improve First Aid Kit

The U.S. Army Medical Materiel Development Activity worked with the Program Executive Office Soldier to develop a more compact and better equipped first aid kit in direct response to Soldier feedback.

The military issues a first aid kit to every Soldier to administer immediate self and buddy aid, as needed. Suffering a higher number of injuries during operations carried out on foot, deployed Soldiers requested that the kit include a second tourniquet. They also asked that developers modify the bag to be less cumbersome. According to Jaime Lee, product manager with the USAMMDA Medical Support Systems Project Management Office at Fort Detrick, Md, the original bag would catch on vehicle latches and impede rapid evacuation from vehicles under attack.

MSS PMO and the Directorate of Combat and Doctrine Development assisted the PEO Soldier, Soldier Clothing and Individual Equipment Project Management Office to develop and test a second generation, individual first aid kit, known as IFAK II. Developers designed the kit to weigh one pound and contain expendable medical items, including the sought after second combat application tourniquet.

The contents of the kit are packaged inside a U.S. Army Soldier Systems Center-produced, compact, yet expandable Generation II bag that attaches to a Soldier's tactical vest. The tourniquets, recognized as a lifesaver for wounded warriors, are stored in pouches that attach to the kit bag. The development team designed the pouches so that Soldiers could easily attach them to their tactical vest or store them in pants pockets, further reducing the size of the kit bag.

The IFAK II also includes a chest seal and eye shield. The chest seal can stop bleeding from a chest wound with a possible collapsed lung, allowing air into the lungs. The eye shield protects the eye from pressure caused by bandaging.

"The IFAK II can increase Soldier survivability by mitigating two leading causes of death on the battlefield, severe bleeding and inadequate airway," said Lee.

To enhance the overall functionality of the kit, designers added a Tactical Combat Casualty Care card, Sharpie pen and strap cutter.

National Institute for the Severely Handicapped employees assemble the kits. PEO Soldier SCIE PMO has been overseeing the program since 2007. The second generation kits are still in production, and fielding continues with 1,951,692 kits issued from fiscal years 2004-2013. The Defense Medical Materiel Program Office is coordinating transition of the IFAK with the joint services to Joint IFAK, known as JFAK, as a CORE program.

Artilcle by Merrie Aiken, Senior Technical Writer, USAMMDA Medical Support Systems Project Management Office

The kit includes newly added first aid supplies including an additional combat application tourniquet (top right), chest seal (bottom right), eye shield, and strap cutter (top center). Courtesy photo.

USAMMCE Meets Tight Deadline to Help Better Equip Afghan Security Forces

Staff with the U.S. Army Medical Materiel Center - Europe raced to successfully build and begin shipping ground ambulance sets to Afghanistan in early March to help Afghan security forces treat injuries suffered during anticipated heavy fighting this summer.

In late January, the Office of the Command Surgeon NATO training mission - Afghanistan, requested USAMMCE to build 325 ground ambulance sets for the Afghan National Army and Afghan National Police in 30 days.

"We were faced with some challenges as we had a very short time to complete the sets," said USAMMCE's commanding officer, Col. Thomas C. Slade.

According to Materiel Management Division Chief Lt. Col. Sean McMurry, the center modified business processes to meet their deadline. Management divided the ordering of supplies across two divisions and staff continuously assembled the kits, adding materiel upon arrival. McMurry added that their biggest challenge was obtaining IV fluids.

"Due to a shortage [of IV fluids] in the States, our prime vendors couldn't supply us, but we solved the problem by ordering directly from the manufacturer in England. This allowed us to ship the first 60 sets on 10 March," said McMurry.

U.S. Army Medical Materiel Center - Europe staff assembles ground ambulance sets. USAMMCE began shipping the sets to Afghanistan in early March as part of a multinational effort to help Afghan security forces respond to injuries inflicted during anticipated heavy fighting this summer. USAMMCE is a subcommand of the U.S. Army Medical Research and Materiel Command. Courtesy photo.

For their part, biomedical technicians with USAMMCE's Clinical Engineering Division played a critical role in the mission by inspecting and testing each set's procured suction apparatuses.

Joint Plans and Program Division Project Manager Joe Robinson noted that to assist the end user in easily locating items, the team packed each set uniformly and included pictographs.

According to Maj. Bruce Argueta, Chief of JPPD, the sets were flown into Bagram Air Base and transported by ground transportation into Kabul where they were turned over to the Afghanis.

Of the 50 to 60 civilian employees and Soldiers from USAMMCE who played a role in the effort, Slade stated, "It was a great team effort that required a lot of flexibility."

Article by Doris Crittenden, USAMMCE

Soldiers Earn Expert Field Medical Badge

Forty-five soldiers received their Expert Field Medical Badge (EFMB) at Joint Base McGuire-Dix-Lakehurst in N.J. April 2.

Almost 180 candidates from 13 units competed for EFMB at this year's competition, organized by the U.S. Army Medical Research and Materiel Command in collaboration with the Public Health Command, the Northern Regional Medical Command, and the Maryland Army National Guard.

To earn the badge, candidates must complete a series of warrior and medical tasks. They must also successfully finish day and night land navigation tests, as well as a written exam and a final 12-mile road march in less than three hours.

A cadre of 180 medical personnel from various units evaluated them throughout the competition.

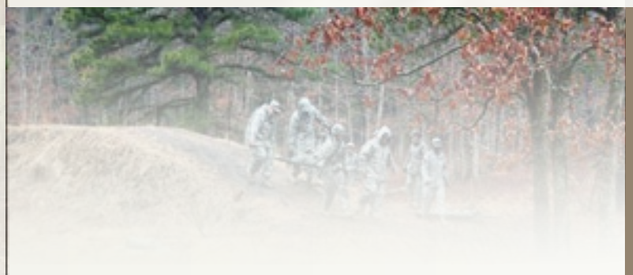
"The Expert Field Medical Badge is one of the toughest competitions in the military. If you are standing here it means you have persevered through all the testing, and all the rain, sleet, snow and wind that Fort Dix can throw at you. You have marched those 12 miles to stand here and finally join the EFMB ranks," said Maj. Gen. Joseph Caravalho Jr., USAMRMC and Fort Detrick Commander. "I am proud of all of you."

Capt. Laura Gibbons, assigned to the Warrior Transition Unit at Fort Belvior, Va., was named the EFMB honor graduate for having the highest overall evaluation score. Capt. Jason Mitchler, assigned to the Walter Reed National Military Medical Center, was recognized for the fastest time completing the 12-mile road march. Sgt. 1st Class Javier Najera, assigned to the Walter Reed Army Institute of Research (WRAIR), was recognized for having the highest test on the written exam.

Another soldier from WRAIR, Spc. Lewis Williford who is a lab technician normally working on malaria vaccine development, also earned the EFMB and said it was an experience he will not soon forget.

"There wasn't much that surprised me, except the road march. I didn't expect it to be that hard," explained Williford, "But, by the time you start, you are already so exhausted and hungry...I was ready, ready to cross the finish line."

Article and photos by Ellen Crown, USAMRMC PAO



"If you see a medic coming up to you in combat and they have that badge, you know that you are getting the best."

Sgt. 1st Class Royregus Cosby, 6th MLMC

Navigating to the Badge

About 50 soldiers huddle into a tent deep into the ranges at Joint Base McGuire Dix-Lakehurst, as the canvas walls shudder from unrelenting winds. The sounds of rhythmic blasts from other sites go off in the background but no one takes notice. Every soldier stays laser-focused on the instructions ahead for their land navigation portion of the Expert Field Medical Badge (EFMB).

The EFMB is one of the most coveted badges in military medicine. Candidates must pass a written test, a series of training lanes where they are tested on combat care and other military survival skills, perform day and night land navigation, and complete a 12-mile road march.

Most who have gone through it will say land navigation is the toughest part. One missed point is the end of the exercise and a ticket home.

Master Sgt. John Castillo, a lane leader from the U.S. Army Public Health Command, Aberdeen Proving Ground, Md., said it was the land navigation that knocked him out of the ranks the first time he tried to get the badge.

"You know I was a first sergeant -- a leader of soldiers -- and when it happened. I did not want to talk to anybody. But when I returned to my unit, the sergeant major came to me, offered tips and said the next time you go, you'll get it. He really helped me out," said Castillo.

In 2012, Castillo achieved his goal at Joint Base McGuire Dix-Lakehurst, the first time the base ever held an EFMB competition.

Sgt. 1st Class Royregus Cosby, a member of the cadre who is regularly assigned to the 6th Medical Logistics and Management Center, added that the achievement is more than a "chest mount."

Cosby said, "If you see a medic coming up to you in combat and they have that badge, you know that you are getting the best."

Article by Ellen Crown, USAMRMC PAO, and David Moore, U.S. Army Support Activity-Fort Dix

“Maj. Clo,” the U.S. Army Research Institute of Environmental Medicine’s thermal test manikin, bakes under the Solar Simulation Unit at the Natick Soldier Research, Development and Engineering Center’s Doriot Climatic Chambers during solar load testing. Photo by David Kamm, NSRDEC.

'Maj. Clo' Feels the Heat at Natick

If he’s a bit of a hot head these days, you’ll have to excuse him. “Maj. Clo” is just doing his job.

Lately, he’s literally been feeling the heat at work, because Maj. Clo is the thermal test manikin at the U.S. Army Research Institute of Environmental Medicine, known as USARIEM.

Maj. Clo has been getting a real grilling recently as USARIEM researchers placed him under solar lamps at the Doriot Climatic Chambers of the Natick Soldier Research, Development and Engineering Center in an effort to measure the thermal burdens of different-colored garments.

“Different materials absorb different amounts of solar radiation,” said Tony Karis, a research physical scientist at USARIEM, “and this testing will help us quantify how much solar radiation is being absorbed.”

Doriot’s Tropic Chamber became just the place to do that in January 2013, when it was outfitted with a Solar Simulation Unit that brought daylight conditions indoors. The 18 1,500-watt metal halide vapor lamps, arranged in three rows of six apiece, allow Doriot to produce artificial sunlight that replicates different climates in every season at various times of day -- in the mountains, desert and everywhere in between.

“All of the tests in the past that we’ve done for 50 years in this facility have been without sun,” said Josh Bulotsky, Doriot’s manager. “This is like real sunlight. You don’t realize how really hot it is.”

It was only a matter of time before Maj. Clo and his 5-foot-9-inch carbon fiber, epoxy resin and copper frame, featuring 200 sensors and simulated sweat pores, would be deployed there.

“There (are) not too many places that have these solar lamps that we can actually use a full-size manikin,” Karis said. “A lot of times, it’s done on a smaller scale. To be able to use a full-size manikin in an operational room is something that -- as far as I know -- no other place is doing.”

Karis explained that USARIEM researchers are measuring how much heat is being transmitted from the clothing to Maj. Clo.

“Another thing that complicates this is the coverage,” Karis said. “As coverage changes, the absorbtivity changes, too. Short-sleeve shirt versus long-sleeve shirt, shorts versus long pants -- each one of them, there’s different coverage, so there are different thermal burdens to each ensemble.”

Karis and his USARIEM colleagues have placed Maj. Clo in the chamber at 80 degrees and 50 percent relative humidity with a 3.5 mph breeze. Then they have hit him with either 1,000 or 500 watts of solar load.

“A thousand watts is a good choice for the highest value in most locations during the summer, but more extreme conditions may occur,” Karis said. “We also did 500 watts, which may be a more representative value for conditions between late morning and early afternoon for the warmer part of the year.

“The manikin measures heating over different parts of the body, and the heating just due to solar loading can vary widely for different parts of the body. But that’s the idea -- to monitor and measure the solar load on different garments and its effects on different parts of the body.”

This validates models that USARIEM already has.

“It’s nice to be reassured that your models are predicting correctly,” Karis said. “We will use this information to make our models more robust.”

Karis said USARIEM had done about a dozen tests with another half-dozen remaining. One day, the data could have real-world applications.

“The battlefield has changed from a jungle battlefield or woodland,” Karis said. “Now we’re in open desert or mountain regions where there’s very little overhead coverage from plant life. So now you’re in direct sunlight for the majority of the time.”

Article by Bob Reinert, USAG-Natick PAO

Students Explore Neuroscience during Brain Awareness Week

Nearly 500 local middle school students participated in the 15th annual Brain Awareness Week March 10-14 at the National Museum of Health and Medicine.

During the event, students learned about traumatic brain injuries, brain anatomy, neurons, how brain cells communicate and other science-related topics through hands-on activity stations.

“Students were provided with a life-impacting opportunity to interact one-on-one with area neuroscientists. They saw how nerves are being utilized to control prosthetics. They learned innovative ways that patients with speech disorders are being rehabilitated and they even had an opportunity to hold a human brain specimen,” said Andrea Schierkolk, NMHM public programs manager. “Hopefully, they will be inspired to pursue a career in the sciences, perhaps even the neurosciences.”

The event was coordinated through a partnership with NMHM, the Dana Alliance for Brain Initiatives, the Defense and Veterans Brain Injury Center, the Walter Reed Army Institute of Research, the Uniformed Services University of the Health Sciences and the Congressionally Directed Medical Research Programs.

Article by Shannon Sarino, NMHM PAO

(Above) Staff from the Audiology Clinic, Walter Reed National Military Medical Center, demonstrate the effects of hearing loss on balance to local area students. (Below) Michael Addis, from the Walter Reed Army Institute of Research, demonstrates to students the basics of neurophysiology by stimulating cricket legs. Photos courtesy of NMHM.

(Above) A student from the Uniformed Services University of the Health Sciences leads students through an exercise building neuron models. Photo courtesy of NMHM.

(Left) CDMRP’s Holly Campbell-Rosen, Ph.D, and Donna Kimbark, Ph.D., participated in Brain Awareness Week at the National Museum of Health and Medicine. They are introducing stress relieving “mindfulness” to young students. Photo courtesy of NMHM Photographer Matthew Breitbart.

Keeping the 'Bugs' at Bay

The U.S. Army Medical Materiel Development Activity collaborated with the Walter Reed Army Institute of Research together with industry partners to offer service members a safe and effective DEET-free insect repellent alternative.

The integrated team conducted laboratory and field testing to evaluate four spray and lotion repellent formulations with non-DEET (N,N-diethyl-meta-toluamide) active ingredients. Upon presenting results to DoD's Armed Forces Pest Management Board, the team successfully obtained a National Stock Number for Natrapel®, a non-DEET alternative.

Depending on where you are in the world, an insect bite can simply be an annoyance or it can lead to a life-threatening disease. Service members and travelers are at a much higher risk of contracting life-threatening and life-altering diseases, such as malaria, dengue and leishmaniasis, from biting insects.

While DEET is a proven safe and effective insect repellent that has been protecting service members since the late 1940's, some people dislike the feel and odor of the ingredient.

"The importance of having an alternative available to DEET is to improve compliance of DoD personnel wearing repellents when in areas where they are at risk of disease from biting insects," said Dr. Kendra Lawrence, senior scientific consultant for the Pharmaceutical Systems Project Management office at USAMMDA. "Those who are happy with DEET will continue using it, while those who aren't will have a choice and they may be more inclined to reach for that choice and protect themselves."

Natrapel® is a pump spray topical repellent with 20 percent Picaridin, a synthetic compound derived from the same plant family as the table seasoning black pepper. Developed in 1998, Picaridin has been a top-rated and widely used active ingredient in Europe and Australia, making its debut in the United States in 2005.

In 2006, researchers at WRAIR began to evaluate Natrapel® and other non-DEET repellents as possible alternatives to Ultrathon™, the military's standard, DEET-based repellent since 1990.

"Although Ultrathon™ is a highly efficacious repellent, we had anecdotal evidence that many soldiers were not using it, citing a greasy feel, pungent odor or unfounded claims of toxicity," says John Paul Benante, an investigator for the Entomology Branch at WRAIR. "We wanted to provide soldiers with a DEET-free alternative repellent that also offered excellent protection."

In 2010, this research transitioned to USAMMDA for advanced development and field testing.

"We tested several candidate repellents against insects from regions all over the world... i.e. North and Central Africa, Southeast Asia, South America and the United States." said Lawrence. "It's important to evaluate the effectiveness of these repellents against different insect species and in field conditions if possible, especially those that are significant disease vectors."

The four candidate products, including Natrapel®, are registered with the Environmental Protection Agency and their two active ingredients are recommended by either the World Health Organization or the Centers for Disease Control and Prevention.

Although the safety of the products was already established, the team knew that additional testing was needed to satisfy specific military requirements before making the product available to service members.

Evaluation participant collects mosquitoes during a repellent field test for non-DEET insect repellent options for service members. Photo courtesy of John Paul Benante, WRAIR.

The team assessed each product's shelf-life, whether it could withstand dramatic changes in climate, and if it could alter a service member's near infrared signature. User acceptability was especially important to evaluate because the most effective repellent is useless if service members fail to apply it.

The USAMRMC Test Branch completed a packaging durability evaluation. Containers were subjected to drop testing, vibration testing and exposed to extreme temperature shocks to make sure they would hold up in a tough military environment.

The International Center for Orthopaedic Advancement, Johns Hopkins University-Bayview Medical Center conducted mechanical and interface testing to evaluate the impact each repellent had on both the strength and visual appearance of interfacing materials. Completed tests provided data on the impact of repellents on the strength, stiffness, light transmissibility and the degree to which clear plastics were "fogged" once exposed to the repellent.

Natrapel® is now available to all service members for purchase under the NSN 6840-01-619-4795. Additionally, Natrapel® is commercially available to everyone at many department and sporting goods stores.

Article by Carey Phillips, USAMMDA PAO

USAISR Conducts Clinical Trial to Clear Device Through FDA

Researchers at the U.S. Army Institute of Surgical Research at Joint Base San Antonio-Fort Sam Houston, Texas are conducting a clinical trial on the Compensatory Reserve Index to gather data for submission to the Food and Drug Administration for 510(K) clearance.

Drs. Victor Convertino and Carmen Hinojosa-Laborde place the Compensatory Reserve Index and other monitoring equipment on a research participant's fingers for a clinical trial in a lower body negative pressure chamber. The CRI uses an algorithm that takes information from a patient using a non-invasive technique and gauges whether immediate medical attention is needed even though the patient may seem alert and responsive. Courtesy photo.

Victor A. Convertino, Ph.D, at USAISR developed the CRI in collaboration with colleagues at the University of Colorado, Children's Hospital Denver, and Flashback Technologies Inc. The CRI uses an algorithm that is designed to take information from a patient using a non-invasive finger pulse oximeter and gauges whether immediate medical attention is needed even though the patient may seem alert and responsive.

The tactical combat casualty care research task area team led by Convertino will use a lower body negative pressure chamber during the clinical trial to gather the data. Research participants are placed in the LBNP chamber which draws their blood to their lower bodies.

"It's a way of 'bleeding' someone without taking a drop of blood," said Convertino. That's because the human body has many physiological mechanisms that compensate to maintain a constant blood pressure when there's internal bleeding. The blood pressure can seem stable, but the patient can be losing their ability to continue to compensate. When the patient gets to the end of their compensation, their blood pressure falls rapidly, referred to by some as 'falling off a cliff,' and now they are in shock," Convertino continued.

According to Convertino, medics, corpsmen and emergency medical service providers have traditionally been trained to watch a patient's blood pressure. The CRI algorithm can gauge how much the body is compensating and how much the body has left to compensate. This presents them with enhanced information regarding when a patient is in danger of going into shock.

In order to measure a patient's reserve to compensate, Convertino focused on an arterial waveform that is created by blood going out into the vessels.

"Each time the heart pumps, a pulse of blood creates an arterial pressure wave that is actually made up of two waveforms," Convertino said. "The first waveform called the ejected wave is caused by the blood leaving the heart, and the second wave called the 'reflected' wave is caused by the blood being reflected off the arteries back to the heart. These events happen so quickly that the two pressure waves are merged so they look like a single waveform."

Convertino explained that researchers now have the capability to measure features of each arterial waveform that reflect the sum of all mechanisms of compensation that affect the heart. According to Convertino, this measurement is called the 'compensatory' reserve.

The FDA uses the 510(K) premarket submission to ensure that a medical device is safe for use on patients and can then be made commercially available.

"No one has done this before, but we're pretty confident that we can meet FDA requirements," Convertino said.

Article by Steven Galvan, USAISR PAO

Convertino Receives TACSM Honor Award

U.S. Army Institute of Surgical Research's Victor A. Convertino, Ph.D., received the Texas Regional Chapter of the American College of Sports Medicine Honor Award Feb. 28, at an annual conference at Texas Christian University in Fort Worth, Texas.

Convertino, a physiologist, researcher and tactical combat casualty care research task area program manager with USAISR, received the award for his "outstanding contributions to exercise and sports medicine in the State of Texas," as notated on the award plaque.

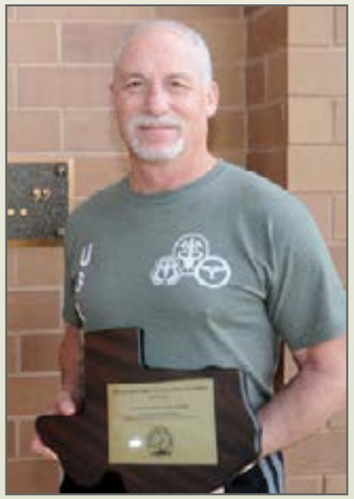
"This award recognizes the impact of research being conducted by the TCCCR task area which has broad implications for advancing the understanding of mechanisms and relationships fundamental to physiology," said Convertino.

Speaking before 400 researchers and students from academia and government, Convertino delivered his presentation, entitled "Career Paths with Training in Exercise Science: 40 Years of Lessons Learned."

During his lecture Convertino reminded the students that Albert Einstein challenged researchers with the notion that 'imagination is more important than knowledge.' He explained that one's imagination allows them to apply learned knowledge and develop new concepts and technologies that can be used to improve human quality of life.

"I believe we will change the physiology textbooks" Convertino concluded.

Article by Steven Galvan, USAISR PAO



USAISR researcher Victor A. Convertino, Ph.D., received the Texas Regional Chapter of the American College of Sports Medicine Honor Award Feb. 28. Courtesy photo.

USARIEM Soldier Finishes Second Boston Marathon

As he crossed the finish line of this year's Boston Marathon race, Capt. Craig Thompson took a moment to look around at the thousands of spectators cheering him on and enjoy the moment.

He had accomplished something that six years ago when he was stationed in Balad, Iraq would have never thought possible. At that moment he thought, it was all worth it.

In 2008, then 1st. Lt. Thompson was deployed to Iraq as a Platoon Leader in the 591st. Medical Logistics Company. One day a friend encouraged him to run the Boston Marathon Forward, a shadow race of the Boston Marathon that would be run at Camp Taji that April.

Thompson, who had never run a marathon before, thought this would be a great opportunity to stay motivated while deployed, as well as provide an opportunity to check something off of his bucket list, running a marathon.

"This was something I planned on doing once and then sitting back and being proud of it for the rest of my life.

"I trained for two months and just remember the day of the race there was nothing to look at but dirt and sand and having to run over and over the same patches of land as space on the post was limited," Thompson, now a medical logistics officer for the U.S. Army Research Institute of Environmental Medicine said.

After finishing the race in a time he now considers slow for himself, he felt a determination to do it again and do it faster. "This really kick started what I am doing now and sparked my passion for running these races," Thompson said.

From then until Marathon Monday 2014, Thompson has gone on to complete eight marathons, two 50-mile ultra-marathons and an Ironman Triathlon. He said, however, from the beginning the ultimate goal for him was to qualify for and run in the Boston Marathon.

"It's been a goal of mine since the beginning," Thompson said. "Only the most elite runners qualify for the race, so to run in the actual Boston Marathon, to me it's a big deal."

This goal became so much stronger after witnessing the events of 2013's Marathon bombing at the finish line. Thompson, who had regularly followed the marathon, remembers watching in horror the day's events unfold from Ft. Detrick, Md., where he was stationed at the time. His resolve to qualify for the 2014 Boston Marathon became so much stronger.

"I knew I would be in Boston this year and was planning on running it anyway, but suddenly it became so much more special. I wanted to be a part of the atmosphere this year that told the terrorists, you did not stop Boston. You made us stronger," Thompson said.

USARIEM medical logistics officer Capt. Craig Thompson completes his second Boston Marathon. Courtesy photo.

Thompson said he could feel that strength and energy from the thousands of racers and spectators that participated in the marathon this year. He said it gave him the boost he needed to finish the race with a qualifying time to run again next year "without a second to spare" at 3:14:59.

As Thompson completed his ninth marathon he said he felt very accomplished. He had achieved something that six years ago he didn't consider possible.

For now, Thompson said he will keep on running. He has his sights set on another Ironman competition in September.

Article by Kelly Field, USARIEM PAO

Army Teams With Boston Marathon to Prevent Heat Injury

As runners prepared for the Boston Marathon, many took part in training programs aimed at helping them succeed, whether they worked towards achieving their best time, reducing physical injuries, or simply finishing the race.

With all the preparation, many may have been surprised to find out about the wild card - the weather.

In 1967, snow squalls accompanied the runners through the first five miles. In 2004, temperatures reached midsummer levels, topping out at 86 degrees. In 2012, as many as 2,100 runners were treated at medical tents along the 26.2-mile course for dehydration, heat exhaustion and other ailments as temperatures soared into the upper 80s, smashing records.

"April is a very volatile month in Massachusetts in terms of weather," explained Samuel Cheuvront, a research physiologist with the U.S. Army Research Institute of Environmental Medicine. "Conditions can vary greatly from extreme cold to extreme heat. Extreme heat can be challenging for marathon runners who have been training in the cold for months. This can lead to excessive heat injuries."

Since 2012, USARIEM has been an official course weather monitoring authority for the Boston Athletic Association. Collaborative research between USARIEM and the BAA is focused on determining how many locations are required for monitoring along the 26.2-mile route, as well as to determine if a 72-hour forecast would give accurate results for race day planning.

According to Cheuvront, USARIEM provides real-time, hourly WetBulb Globe Temperature (WBGT) measures on the course for race officials.

"Since last year, our researchers have been stationed at three places along the marathon route with portable WBGT devices that provide real time readings of the conditions as racers go by," Cheuvront said. "We have also done and will continue this testing through September to give us more data to help us achieve long term accurate readings."

Cheuvront said the BAA chose USARIEM for this task partly because of their long standing partnership since the 1970s, when Soldier medics would volunteer in caring for runners in medical tents while simultaneously conducting light weather monitoring. The other and more scientific reason is the military's expertise in the use of the WBGT index and its important use in sports medicine.

The WBGT index measures heat stress in direct sunlight, which takes into account humidity, temperature, wind speed, sun angle and cloud cover (solar radiation). Cheuvront said it is a more sophisticated measurement than a simpler heat index, which accounts for air temperature and humidity only, and was not designed with heavy activity in mind.

"Our hope is that by measuring the WBGT on the course we can provide more accurate information than airport weather given many miles away," Cheuvront said. "We also hope that accurate 72 hour forecasting may be possible."

"If the WBGT can be accurately forecasted, and we know that race day's flag will be red, for example, then the organizers can plan for more water stations, more ambulances and more signage to alert runners that they may have to take it easier on the course," he added.

This research is not just going to benefit marathon runners. It will also be used to update the guidance that USARIEM provides to service members through the doctrine they publish for heat injury management.

"The information we learn here will be taken to update the guidance we push out to the field to help protect the Soldier from heat injury. That is always a huge priority for us," Cheuvront added.

Article by Kelly Field, USARIEM PAO

Burn Center Addition Helps Patients Transition

Personnel at the U.S. Army Institute of Surgical Research Burn Center discharged their first patient to use their Activities of Daily Living (ADL) skills room designed to prepare recovering wounded warriors for independent living, March 27.

The Burn Center Rehabilitation Clinic provides injured Soldiers with tailored therapy to help them realize their goals. The skills room is a mock-up of a one bedroom apartment. An addition to the rehab center, the room lets patients experience living independently before being discharged from the Burn Center.

“It’s a way for patients who have been here for months to transition back into a routine without leaving the hospital,” said USAISR Burn Rehabilitation Occupational Therapist, Emily Welsh. “They get to spend the night and do things for themselves like what they’ll have to do when they are discharged.”

1st Sgt. Matthew Deller, a member of the 232nd Medical Battalion at Joint Base San Antonio-Fort Sam Houston, Texas, first used the room. Prior to spending the night, staff took Deller to the post commissary to shop for items to cook for supper that evening.

“The purpose of the trip to the commissary was to acclimate the patient back into the community,” said Maj. Erik J. Johnson, Chief of Burn Rehab. “It gets them to interact with people and to see how they react to their injuries.”

Deller said that it felt good to be out shopping at the commissary.

“I needed to see how it was going to be and how much my body can tolerate,” he said.

The oldest boy out of 10 children, Deller admitted he had always been independent. He said that he was looking forward to cooking his first meal in the ADL, something he had not been able to do in months.

“It was a good experience for him,” said Welsh. “One of the biggest fears that some wounded warriors have is learning how to get back into a routine. Going to the commissary and spending the night in the ADL eases that tension.”

Welsh added, “He is a special Soldier. He has had a remarkable recovery and is always pushing himself to get back to where he was before.”

Deller was discharged from the Burn Center after spending 109 days being treated to a burn that covers 77 percent of his body. He was burned at home when a cracked gas line ignited while starting a fire in his fireplace. He will spend at least another year at the Burn Center rehab gym working on getting his “normal” life back.

Of his recovery Welsh said, “I know that he will. That’s how he is. He’s always looking at what’s next. He’s remarkable.”

Article by Steven Galvan, USAISR PAO

1st Sgt. Matthew Deller shopped at the post commissary for items to prepare his first meal in months at the Burn Center Activities of Daily Living Skills room. Courtesy photo.

Team Teaches Emergency Care for Burn Patients

The Burn Flight Team from the U.S. Army Institute of Surgical Research Burn Center at Joint Base San Antonio-Fort Sam Houston, Texas, trained members of the 21st Combat Support Hospital on the emergency care of burn patients at Ft. Hood, Texas, March 19-21.

CSH personnel will deploy later this year to support overseas contingency operations where they may need to care for burn patients.

“This training will not make us experts in burn care, but can provide us the insight that can help us care for a burn patient effectively,” said Maj. Michael Plueger, a critical care nurse with the CSH.

The training included classroom presentations on a number of critical care topics including the emergency care of burn patients, burn resuscitation and the use of the Burn Navigator, an algorithm-based decision assist system used to manage the fluid resuscitation of a severely burned patient. Instructors presented information on managing a patient with an inhalation injury, and preparing a burn patient for transport. Team members also served as subject matter experts and provided guidance during a hands-on field training exercise.

“Burn patients have specific needs that if not addressed appropriately can cause detrimental results,” said Maj. Michael P. Meissel, Burn Intensive Care Unit critical care registered nurse and BFT chief nurse. “We want to emphasize these needs and highlight the resources available to units to provide the right care at the right time.”

Maj. Michael Meissel, Burn Intensive Care Unit critical care registered nurse and Burn Flight Team chief nurse, demonstrates the Burn Navigator to Pfc. Christopher Larsen of the 21st Combat Support Hospital. Courtesy photo.

Meissel added that BFT’s involvement in the exercise was essential because the lessons learned in recent conflicts have led to improved outcomes for burn patients.

“I hope the CSH knows they have the Burn Center and the USAISR Clinical Practice Guidelines as resources available 24/7,” said Meissel.

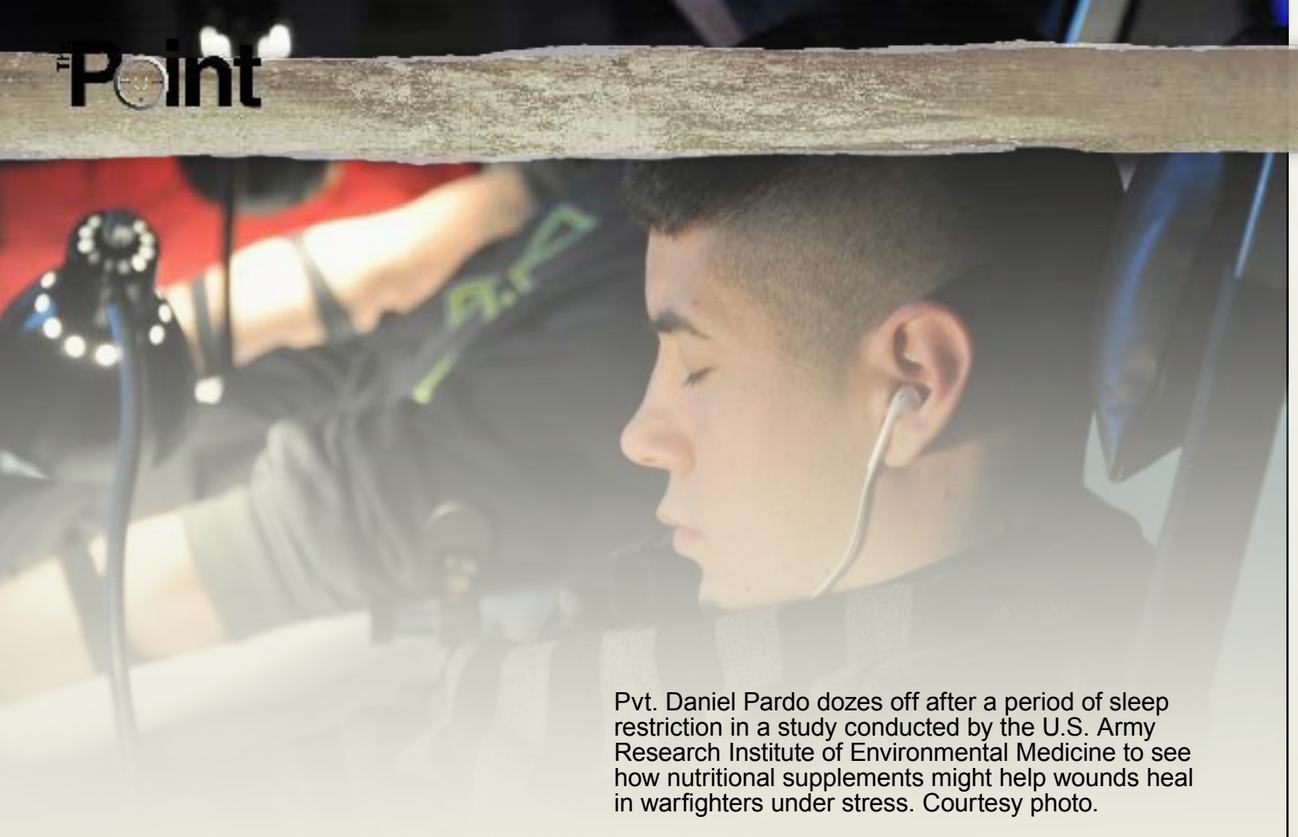
BFTs are composed of five team members assigned to a burn intensive care unit including a general surgeon trained in burn and surgical critical care services, a critical care registered nurse, a licensed vocational nurse, a certified respiratory therapist, and an operations noncommissioned officer.

Burn Center Chief of Nurses, Lt. Col. Paul Mittelsteadt noted that the training serves the USAISR mission of advancing combat casualty care.

“It’s not all research. Sometimes it’s assessing practical applications derived from combat casualty care research,” said Mittelsteadt.

BFTs have been deployed throughout the world since 1951 to provide expertise in burn care and transporting burn casualties to the burn center. This has been crucial in saving hundreds of lives on and off the battlefield.

Article by Steven Galvan, USAISR PAO



Pvt. Daniel Pardo dozes off after a period of sleep restriction in a study conducted by the U.S. Army Research Institute of Environmental Medicine to see how nutritional supplements might help wounds heal in warfighters under stress. Courtesy photo.

Natick Study Examines Effects of Stress On Soldiers' Immune Systems, Cognitive Ability

Training and operations can put such tremendous physical and psychological stresses on warfighters that their immune systems may be compromised.

A study being conducted by the U.S. Army Research Institute of Environmental Medicine, or USARIEM, at Natick Soldier Systems Center, will examine how sleep restriction -- the stressor -- affects wound healing and whether nutritional supplements can help offset the effects. In a sub-study, the effect of sleep restriction on friend-foe recognition during marksmanship is also being observed.

"Immune responsiveness is suppressed in warfighters exposed to physical and psychological stress," said Tracey Smith, Ph.D., a research dietitian with USARIEM's Military Nutrition Division, who used Ranger School and Special Forces Assessment School as examples. "Research has shown that modest improvement in immune responsiveness, as determined from blood markers, was noted when Soldiers were provided a nutritionally fortified energy bar during Special Forces Assessment School."

Smith said the Special Forces research didn't focus on whether nutrition helped wounds to heal or defend against a virus, however.

"Immune markers measured from blood samples provide an indication of systemic immune response," said Smith, "but the systemic immune response does not necessarily reflect the functional status of the immune system -- for example, wound healing time."

In the study, male and female Soldiers were given suction blisters on their forearms. Some volunteers slept at least seven hours per night, and the current group is undergoing 50 hours of sleep restriction, with Soldiers allowed just two hours of sleep per night over that period.

"This was the amount of time that we thought would cause decrements in healing time and immune responsiveness at the wound site in young adults," Smith said. "This model may provide a way to more effectively study effects of stress on wound healing, and a means to test prototype countermeasures, like nutrition interventions, to stress-related effects on healing.

Capt. Adam Cooper, Ph.D., a research psychologist at USARIEM, piggybacked his marksmanship research on Smith's study.

"We are interested in how sleep restriction differentially affects marksmanship performance during a simple versus mentally challenging friend-foe task," Cooper said. "The factors we are examining are reaction time, accuracy and correct decision.

"Once it is known what factors are affected during low versus high mentally demanding marksmanship tasks, leaders can make more informed decisions concerning what types of missions their Soldiers will be able to successfully complete given their current state of rest."

Smith said that the marksmanship "keeps the volunteers awake, engaged and, hopefully, adds to the sleep restriction stressor."

The USARIEM study is using 60 volunteer Soldiers, split into groups of four per session. Smith and her colleagues will soon examine preliminary data from eight volunteers to see if the sleep restriction is an adequate stressor to slow healing time. Once they are confident with the stressor, they will move on to test nutrition interventions to promote immune recovery.

"Immune responsiveness is suppressed in warfighters exposed to physical and phchological stress."

Tracey Smith, Ph.D., research dietitian, USARIEM's Military Nutrition Division

"Blister wounds typically heal in five days for volunteers who receive adequate sleep," Smith said. "We expect healing time to be delayed by one to two days in volunteers who are sleep restricted, and we expect that healing time will be back to five days in volunteers who consume a specially prepared nutrition beverage during sleep restriction and in the recovery period."

Smith and her colleagues hope to provide warfighters with a food item or beverage that they can consume during and after periods of stress that will support their immune system and promote recovery.

Article by Bob Reinert, USAG-Natick PAO

Chemist Marches to Honor WWII Servicemen

When Rick Smith, a senior analytical chemist at the U.S. Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, Md., turned 60 years old in early 2014, he decided, "to treat [himself] to a unique experience."

The experience Smith chose was a 26.2-mile march through the high desert terrain of the White Sands Missile Range in New Mexico. But it wasn't just any long-distance march. It was an annual event honoring the thousands of servicemen who while serving in the Pacific in WWII were captured by the Japanese, on April 9, 1942, and then marched through the Philippine jungles to a prisoner of war camp, in what became known as the Bataan Death March.

Thousands died.

Some, however, survived the march and their subsequent internment in the camps.

"The driving force behind my participation in the Bataan Memorial Death March," said Smith, "was the fact that each year at least several of the actual survivors of the Bataan Death March travel long distances to attend this event. These gentlemen are now in their nineties and the reality is that they will not be with us for too many more years. When I read about the march a couple of years ago, I knew I would have to participate sometime soon."

Smith also had a more personal reason for marching.

"My uncle was a U.S. Marine taken prisoner on Wake Island in December 1941," explained Smith. "Like these men, he spent all but the earliest stages of WWII in Japanese prisoner of war camps. While my uncle survived the POW experience, he died a relatively young man due in part to injury and disease sustained during that time."

"I only remember meeting him one time, but on occasion my mother would pass on stories of the little bit she knew about her brother's time as a POW. Evidently, he talked very little about it, but the massive scar in his shoulder made it impossible for him to shield his family about an incident when he was punished by having a bayonet thrust into his shoulder, and his captors made him leave it embedded for an extended period of time," he explained. "So while the event is held to commemorate those individuals that suffered or died during the Bataan Death March or the POW camps that followed, I wanted to use the event to honor the sacrifices and the memory of my uncle," said Smith.

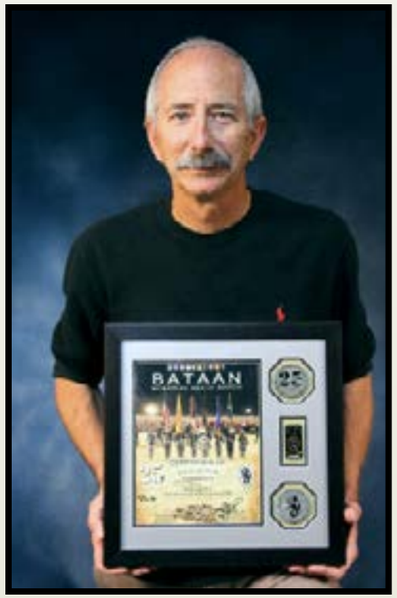
This year's memorial march was held on March 23. Like many participants from military organizations, Smith brought with him a USAMRICD Commander's Coin from Col. Bruce Schoneboom. Unit coins are displayed throughout the in-processing period and then transferred to the White Sands Museum.

Smith, a runner who occasionally does a 10-mile race or a half marathon, said that he didn't do anything special to train for the long march. He chose to participate in the individual civilian light category. There are several individual and team, military and civilian, light and heavy categories. Those in the heavy divisions complete the march carrying a pack weighing a minimum of 35 pounds. In the spirit of brotherhood and mutual assistance that sustained many of the original marchers through their ordeal, participants are encouraged to help each other through the course, and many in the heavy divisions also weight their packs with non-perishable food, which is later donated to the Roadrunner Food Bank.

Honorary marchers, those who wish to participate but may not have the endurance for the full 26.2 miles, complete a shorter 14-mile course.

"On the morning of the event there were thousands of runners and walkers crowded together in the darkness trying to endure a torturous cold wind," Smith recalled. "The names of the Bataan veterans that had passed away over the previous year were read followed by a roll call of the 13 survivors in attendance. As each name was read, a cry of 'Here' pierced the silence and the darkness. Everyone stood at attention at the playing of the national anthem while high overhead flew an enormous US flag whipped about by the winds. As the morning light took form, a spectacular backdrop of mountains began to reveal itself."

"Despite the cold and the early morning hour, we were met by several of the Bataan survivors who shook our hands as we started off on our 26.2-mile endurance test. Thinking of the unbelievable hardships that these men endured, it was a great honor and a very emotional experience to meet and shake the hands of these proud and stoic men," said Smith.



Upon completing the 25th Annual Bataan Memorial Death March, MRICD chemist Rick Smith received a commemorative plaque, which he had signed by the original march survivors who were present at the event. Photo by Darrell Jesonis, USAMRICD.

Smith was also in awe of some of his fellow participants.

"Much of the course is sandy desert terrain and the elevation ranges from about 4,100 to 5,300 feet," said Smith. "Incredibly, this marathon has become a regular event for the Wounded Warrior Project and Warfighter Sports, a program of Disabled Sports USA. To navigate through the sand and dirt as a single or double amputee is an amazing physical and mental challenge and was certainly an inspiration to the rest of us."

"My intent was to run as much as possible for the full marathon" Smith said. "I hoped to complete the course in six hours; in reality, I just wanted to say I completed the full 26.2 miles."

But Smith surprised himself by finishing fifth in the 60-69 age group and 213th overall, out of 3,350 finishers.

More information on the Bataan Memorial Death March and on the original march in WWII can be found on the website http://www.bataanmarch.com/.

Article by Cindy Kronman, USAMRICD

U.S. Army Medical Materiel Agency Project Manager Kevin T. Curry discusses work with Assistant Project Manager for Medical Materiel Solutions Dan Kennedy. Courtesy photo.

Project Manager Accepted to Eisenhower School of National Security and Resource Strategy

The U.S. Army Medical Command selected U.S. Army Medical Materiel Agency Project Manager Kevin T. Curry to attend the Dwight D. Eisenhower School for National Security and Resource Strategy located at Fort Lesley J. McNair, Washington, D.C., from Aug. 7 - June 12.

The Dwight D. Eisenhower School for National Security and Resource Strategy prepares selected military and civilians for strategic leadership and success in developing our national security strategy and in evaluating, marshalling, and managing resources in the execution of that strategy. Upon successful completion, graduates are awarded a Master of Science degree in national resource strategy. Curry, a project manager for medical devices with USAMMA, applied to the program in October 2013.

"I've always had a passion and drive to learn more - be able to accomplish more - not just in support of DoD but the government as a whole," said Curry.

The Eisenhower school accepts 330 military, government and private sector civilian students each year. Administrators reserve a specified number of seats for each category of students. According to Curry, the application process entailed the submission of a detailed resume, qualification justification, and endorsement from his first flag officer - Dr. Kenneth Bertram, the U.S. Army Medical Research and Materiel Command principal assistant for acquisition. USAMEDCOM then recommended Curry for selection to the school and forwarded his application.

Curry is the only USAMEDCOM applicant accepted into this year's program.

In his current position at USAMMA, Curry leads, mentors, and inspires a staff of 47 professionals in the acquisition life cycle management of 260 unique medical devices and 180 medical equipment sets in support of the operating force. He also serves on three Joint Product Committees supporting DoD Health Affairs in research and development for national priorities such as Traumatic Brain Injury diagnostic research. Curry is responsible for advanced development in Army and joint initiatives, modernization, production, deployment, sustainment, and disposal of medical devices, and associated support equipment and supplies, across the U.S. Army deployed medical force, valued at approximately $1.96B.

"Your selection to the Dwight D. Eisenhower School of National Security and Resource Strategy is a testament to your unlimited potential," wrote USAMMA Commander Col. Alex Lopez-Duke in a message congratulating Curry. "I know you will take this opportunity to grow professionally and personally while educating other senior leaders on MRMC and the AMEDD."

Curry said, "I am excited that I was going to have this opportunity and the challenges ... and opportunities that it represents for the future."

Article by Heather Duong, USAMRMC PAO

USAMRICD Civilians Meet AMEDD Civilian Corps Chief

U.S. Army Medical Research Institute of Chemical Defense civilian employees gathered at a special town hall meeting on April 10, to meet Charles "Gregg" Stevens, chief of the Army Medical Department Civilian Corps.

"Mr. Stevens' visit to the USAMRICD provided the civilian community with a great opportunity to learn more about the AMEDD Civilian Corp and to dialog with one of the key leaders in the AMEDD about issues affecting civilians," said Dr. James Dillman, the institute's acting director of research.

Stevens visited USAMRICD to share the Corps' "thought process for civilian education and training." He discussed the Civilian Education System explaining that the program's intent is to train the future civilian leaders of the Army. According to Stevens, this effort will help develop the future workforce. He estimated that 1 percent of the individuals taking the training would rise up through their career and become an enterprise leader or manager, and 12 percent would attain the level of functional leader or manager.

The AMEDD corps chief promoted the Army team and described the Army profession as encompassing the military and civilians on equal terms. Additionally, he reviewed the goals and objectives of the Chief of Staff of the Army, the Surgeon General, and the AMEDD 2020 Campaign Plan to improve readiness, save lives, and advance health in support of the total force.

Article by Cindy Kronman, USAMRICD

World Health Day Focuses on Infectious Disease Research

Senior leaders from several Fort Detrick and Fort Detrick-Forest Glen Annex agencies commemorated World Health Day 2014 with a special proclamation signing ceremony at the National Museum of Health and Medicine April 7.

This year's World Health Day, with a theme, "small bite, big threat," spotlighted vector-borne diseases such as malaria and dengue.

"Infectious diseases have traditionally been the greatest threat to Soldier health and readiness. That's why the U.S. Army Medical Research Institute of Infectious Diseases, Walter Reed Army Institute of Research and our overseas labs are dedicated to rapidly detecting and protecting our Soldiers from infectious diseases," said Maj. Gen. Joseph Caravalho, Jr.,commanding general, U.S. Army Medical Research and Materiel Command and Fort Detrick, during a video greeting at the proclamation ceremony. "We've created and deployed rapid detection kits for West Nile and other viruses that Soldiers can use anywhere, even on the battlefield. We continue to work on vaccines and treatments, including promising steps toward a malaria vaccine."

The leaders that gathered at NMHM represented the DoD's major investment in research to protect service members affected by vector-borne diseases and to highlight ongoing efforts to develop new treatments, including a potential future vaccine for malaria. Speakers included Rear Adm. Bruce A. Doll, Director for Research and Development at the Defense Health Agency; Capt. Keith A. Syring, deputy commander, USAMRMC; Capt. John W. Sanders, commanding officer, Naval Medical Research Center; Dr. Keith Carter, senior leader on malaria, regional office of the World Health Organization; Col. Shanda M. Zugner, executive officer, WRAIR; Capt. Gregory M. Beavers, director, Armed Forces Pest Management Board; and Dr. Adrianne Noe, director, NMHM.

Noe described the unique role of the military's medical museum in furthering our understanding of disease transmission throughout the nineteenth and twentieth centuries, and in providing platforms to facilitate public education.

NMHM and the other Forest Glen organizations also held a World Health Day Open House April 12. Staff from AFPMB, NMRC and WRAIR showcased their research, as well as educated the public about insects, the importance of honey bees, and the latest advancements in insect repellents.

Added Doll, "You … have captured in 'small bite, big threat' a way to convey the message that it may not be in our backyard all the time, but it is a worldwide threat and it deserves a worldwide effort to eradicate each of these significant threats that we face."

Article by Tim Clarke, NMHM PAO

A museum visitor holds a Madagascar cockroach as Lt. Cmdr. Alexandra L. Singer, Naval Medical Research Center (left), compares harmless insects to harmful insects (like mosquitoes and sandflies) during the World Health Day Family Program April 12, at the National Museum of Health and Medicine in Silver Spring, Md. Photo courtesy of the National Museum of Health and Medicine.

USAMMDA medical writers help write, edit and review technical and scientific documents. Courtesy photo.

USAMMDA Medical Writers Play Key Role Preparing Documents for FDA Review

You are an investigator toiling away at an investigational new drug application that you and your team are under a tight deadline to submit to the U.S. Food and Drug Administration. The clock is ticking. You sit in front of your computer wrestling with the table of contents in Microsoft Word. You change gears and begin writing and re-writing your general investigational plan, but no matter how hard you try, your paragraphs fail to flow together logically. If this fictional character sounds like you, perhaps it's time you make arrangements to access the services of your local medical writer.

The U.S. Army Medical Materiel Development Activity's Regulatory Operations branch employs four medical writers poised to assist both internal U.S. Army Medical Research and Materiel Command staff and external specialists that work on FDA-regulated studies for USAMRMC-supported projects.

USAMMDA's medical writers work with investigators, scientists, program managers and subject matter experts to write information packages that effectively and succinctly describe a project in a way that is easy for others to understand, according to Christine Gallo, a medical writer with USAMMDA for seven years.

When researchers determine that an USAMRMC initiative is a viable candidate for further development, the team collects data to establish that it will not expose humans to unreasonable risks during clinical studies. By working through their Regulatory Affairs Scientist, subject matter experts can coordinate medical writing assistance to clearly communicate pivotal information about the effort, so that the FDA, in turn, can review and approve the request.

Medical writers help break down highly scientific terminology and explain pharmacological concepts and procedures in laymen's terms. According to Tracy Ulderich, chief of USAMMDA's Regulatory Operations, USAMMDA's medical writers have more than 75 years of combined experience writing, editing, revising, and reviewing technical and scientific documents.

Gallo shared that with oversight from the designated Regulatory Affairs Scientist, she and her teammates can either work with a subject matter expert to develop a submission in its entirety, or edit and revise documents at various stages in the document preparation process. In addition to helping their clients create a concise, easy-to-understand package, the team is well-versed in FDA submission and formatting requirements.

USAMMDA's medical writing team works most often on Investigational New Drug applications which include animal pharmacology and toxicology studies, manufacturing information and clinical protocols, and investigator information. On its website, FDA states that these components help the FDA determine whether the product is reasonably safe for initial testing in humans; whether a company can adequately manufacture and supply consistent batches of the drug; and whether initial trials will expose subjects to unnecessary risks.

"Depending upon the product, these submissions can be thousands of files or as few as five," said Gallo.

Commenting on the support he received from the medical writing team in developing documentation for a new experimental protocol, USAMMDA Product Manager Lt. Col. Keith Scorza said, "I am a subject matter expert, not a writer. They walked me through the editorial process and shaped the document, while shaving time off the schedule." Scorza added that the team was a "lifeline" and extremely responsive to deadlines.

> "Documents that go through medical writing are more consistent, easy-to-read, and compliant with submission requirements, which can improve the efficiency of other reviews."
>
> *Christine Gallo, USAMMDA medical writer*

Despite the challenges the medical writing team tackles editing and formatting massive amounts of information, their biggest challenge is getting potential clients to understand that the team can help them, Gallo admitted.

"We understand that when teams are working under tight deadlines, they may not want an additional reviewer. However, documents that go through medical writing are more consistent, easy-to-read, and compliant with submission requirements, which can improve the efficiency of other reviews," said Gallo.

To learn more about the services provided by USAMMDA's medical writing team or to formally request team assistance send an email to usarmy.detrick.medcom-usammda.mbx.drac-medical-writers@mail.mil stating the project type and the deadline.

Article by Heather Duong, USAMRMC PAO

USAMRIID Soldier Wins USAMRMC NCO of the Year

Sgt. Ochir Palam of U.S. Army Medical Research Institute of Infectious Diseases is the U.S. Army Medical Research and Materiel Command Noncommissioned Officer of the Year. Pictured left to right are Maj. Gen. Joseph Caravalho, Jr., Commanding General, USAMRMC and Fort Detrick; Col. Erin Edgar, USAMRIID commander; Sgt. Ochir Palam; and Sgt. Maj. Darryl Warren, USAMRIID Sergeant Major. Photo by Sgt. Dereck Abbey, USAMRIID Visual Information.

USARIEM Soldier Wins USAMRMC Soldier of the Year

Spc. Travis Crook, a Bioscience Specialist with the U.S. Army Research Institute of Environmental Medicine, navigates through the obstacle course during Army Medical Command's Best Warrior Competition. Crook was named Soldier of the Year during the weeklong competition at Camp Bullis, Texas, after braving a series of challenging events meant to test Soldiers' physical and mental stamina. He will represent MEDCOM at the Army-wide Best Warrior Competition later this year. Photo by Army Medicine.

USAMRAA Employees Earn Awards

Kathy Berst, U.S. Army Medical Materiel Development Activity deputy commander of acquisition presented five Commander's Awards for Civilian Service and 10 Certificates of Appreciation to U.S. Army Medical Research Acquisition Activity employees at the Community Activities Center, Fort Detrick, Md., March 19.

Kathy Berst, U.S. Army Medical Materiel Development Activity deputy commander of acquisition, presented Dana Kavitski, U.S. Army Medical Research Acquisition Activity contract specialist, with a Commander's Award for Civilian Service, March 19. Courtesy photo.

USAMMDA leadership recognized award recipients for their valuable and hard work.

"The USAMRAA team manages the solicitation, award, administration and close out of contracts that allow us to partner with industry to accomplish our mission and deliver new products to the service member," said Berst. "The USAMRAA team consists of procurement technicians, contracting specialists, contracting officers and many other specialties that are all required to support those contract awards."

Amber Baughman, director of the USAMMDA Administrative Services Division, played a critical role coordinating the tribute. Baughman explained how the relationship between the two organizations became a partnership, and one could not exist without the other.

"At USAMMDA, we are bridging the gap between 'us and them.' We have experienced a paradigm shift and now we are more unified with USAMRAA," said Baughman. "We understand their challenges and they understand ours and we are moving forward together."

Berst explained how the work performed by those recognized saves the lives of soldiers.

"The USAMRAA team awards highlighted impressive accomplishments including, contract award within 24 hours for lifesaving countermeasures, contract support for a new diagnostic that will be fielded in the near future, award of assistance agreements for novel new technologies to fully rehabilitate and restore service members suffering from traumatic injuries, and award of contracts for products required to treat hemorrhage in a battlefield setting," said Berst.

"Contracting teams are often accused of delaying program schedules and just saying "no" but the USAMRAA team has demonstrated that they can comply with the Federal Acquisition Regulations yet remain flexible to the program's requirements, award urgent contracts expeditiously for lifesaving products and always negotiate agreements that are in the best interest of the Government," said Berst.

Recipients of the Commander's Award for Civilian Service included: Amanda Best, Kelly Green, Dana Kavitski, Shannyn Scassero and Barry Sayer. Recipients of the Certificate of Appreciation included Ron Antonio, Burzie Baker, Elena Bane, Micaela Bowers, Michelle Byrd, Wanda Harper, Gay Hayden, Brenda Mena, Vera Pollard and Capt. Dieu Rushbrook.

Article by Erin Bolling, USAMMDA PAO

Spc. Bart Taylor, a soldier assigned to WRAIR, gets surprised by smoke as he rushes to put on his gear during the tactical testing phase of the Best Warrior competition April 1 at at Joint Base McGuire-Dix-Lakehurst in N.J. Ultimately, Taylor was named the Best Warrior Competition's Soldier Runner-Up. Photo by Ellen Crown.

USAMRMC Names 2014 Best Warriors

The U.S. Army Medical Research and Materiel Command 2014 Best Warrior Competition came to an end Apr. 3, after seven days of challenging and physically taxing Soldier-specific tasks. The best warriors include:

BWC Non-Commissioned Officer Winner:
Sgt. Ochir Palam, U.S. Army Medical Research Institute of Infectious Diseases

BWC Non-Commissioned Officer Runner-Up:
Sgt. Carlos Diaz-Rivera, Walter Reed Army Institute of Research

BWC Soldier Winner:
Spc. Travis Crook, U.S. Army Medical Research Institute of Environmental Medicine

BWC Soldier Runner-Up:
Spc. Bartholomew Taylor, WRAIR

The Best Warrior competition consists of several events, including the Army Physical Fitness Test; Day Land Navigation; Warrior Tasks and Battle Drills; a written exam and essay; a board appearance; and a mystery event.

This year's other participants included Spc. Jessica Bowman, USAMRIID; Staff Sgt. Shaun Morand, USARIEM; Spc. Dawn Peterson, U.S. Army Medical Research Institute of Chemical Defense; Sgt. Andrew Ludescher, U.S. Army Institute of Surgical Research; Spc. Daniel Wendorff, USAISR; Sgt. Jojo Ada, U.S. Army Medical Materiel Center, Europe; Private 1st Class Stephanie Bridgeforth, USAMMCE; and Staff Sgt. Hosea Bickerstaff, U.S. Army Aeromedical Research Laboratory.

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