

May 2016

NSSC This Month



U.S. Army Garrison Natick Public Affairs Office

The Right Stuff?

Developing food for Mars astronauts



2013 and 2015 U.S. Army Maj. Gen. Keith L. Ware Awards - First Place, Digital Publication



Commander's Corner

Lt. Col. Ryan Raymond
USAG Natick Garrison Commander



We Do It All Together



I want to sincerely thank all of you for your support during a very busy month of May. I can't help but notice that everything we do well, we do together: the anti-terrorism exercise, the Holocaust observance, the veterans' clothing drive, the Public Affairs team's repeated recognition, installation clean-up/turn-in, and hosting the IMCOM commanding general ... none of these events happens without teamwork.

I'd like to particularly recognize the Natick Contracting Division, as they are vital to everything we do here. They are sometimes overlooked because their office is split between Natick and Milford; however, I couldn't be more appreciative of their support.

As we move toward summer, and the end of the school year, I ask for your increased focus on safety. Summer recreation will increase the presence of children on the installation; they can't speed up, so we need to slow down. I have asked the police force to strictly enforce policies that ensure safe conditions on post. Summer will also welcome another softball season – a great time for friendly competition and bonding. Please ensure that you look out for one another's health and safety. If you drink, leave your car on post until morning; we will not ticket or tow you overnight.

Thank you for your teamwork. I hope June is as productive as May, and that we can have an accident-free summer.

Lt. Col. Ryan Raymond
USAG Natick Garrison Commander

NSSC This Month

NSSC
Senior Mission Commander
[Brig. Gen. Thomas H. Todd III](#)

Garrison Commander
[Lt. Col. Ryan Raymond](#)

Command Sergeant Major
[Command Sgt. Maj. Erika M. Gholar](#)

Public Affairs Officer
[John Harlow](#)

Editor
[Bob Reinert](#)

About this newsletter
NSSC This Month is a monthly newsletter covering NSSC news within the Army and commercial media.

NSSC This Month is maintained by the USAG Natick Public Affairs Office.

To subscribe to NSSC This Month, please contact Bob Reinert at robert.j.reinert.civ@mail.mil.

On the Web: www.army.mil/natick

Cover photo: NASA

Table of Contents

May 2016

NSSC This Month

Photo: NASA



NSSC News Briefs.....4

IMCOM commander visits....5

Remembering the Holocaust.6

Natick holds exercise.....7

Clothing Homeless Veterans...8
NSSC drive collects 2,100 pounds

Eccles says goodbye.....10

The Right Stuff?.....12
Natick develops breakfast food for space missions

Jungle Fabric.....14
25th ID helps NSRDEC test new uniforms in Hawaii

Far East FAST.....16
NSRDEC's Wood takes part in South Korea exercise

By the Bootstrap.....18
NSRDEC program encourages innovation

Life-saving Equipment.....20
Soldier reunited with helmet that kept him alive

Preparing for Zika.....22
Mosquito-borne virus linked to birth defects

The Right Stuff? - p. 12



NSSC News Briefs ...

GEMS Summer Program

USARIEM and NSRDEC will be sponsoring the GEMS program once again this summer at Natick Soldier Systems Center.

The one-week paid extracurricular science education program enables students to experience science in a real laboratory setting. Participants will conduct interesting biology and chemistry experiments, receive interactive lectures on engineering, mathematics and new technology, and tour NSSC facilities to learn about exciting, ongoing research efforts.

GEMS I: Session 1, July 5-8; Session 2, July 11-14
GEMS II: Session 1, July 18-21; Session 2, July 25-28
GEMS III: Session 1, Aug. 1-4; Session 2, Aug. 8-11

If you have a student who qualifies and is interested in participating, please email usarmy.natick.medcom-usariem.mbx.usariem-gems@mail.mil for more information.

ACS Financial Readiness

Free and confidential one-on-one counseling sessions are available for active-duty service members and their families through an agreement with the Financial Planning Association of Massachusetts. They can assist with planning for retirement, paying for college, buying a home, managing debt and credit, managing a spending plan, and more. To schedule a session with a certified FPA financial planner, contact Diane Magrane, ACS Financial Readiness Program manager, at diane.k.magrane.civ@mail.mil.

Flag Status

If you are looking for information about the flag status on the installation, go to the NSSC Portal home page at <https://natiportal/default.aspx> and click on the small waving flag next to "Today's Date." Or, you may go directly to the NSSC Flag Status Page at https://natiportal/garrison/DPTMS/Lists/Flag_Status/AllItems.aspx, to see why and when it is being displayed at half-staff, along with the proclamation authorizing it.

Main Gate closure

Continuing through Sept. 30, the Main Gate entrance will be closed for construction. During this time: All traffic will enter the installation using the Service Gate located at the end of [General Greene Avenue](#); Between the hours of 6 a.m. and 6 p.m., all traffic will exit the installation using the Main Gate; Between the hours of 6 p.m. and 6 a.m., all traffic will exit the installation using the Service Gate; weekend entrance and exit will be through the Service Gate. Please direct all questions regarding the entrance/exit plan to the Law Enforcement Desk at ext. 4201.



Photo: John Harlow, USAG Natick Public Affairs

USAG Natick welcomed local veterans May 20 for its annual Armed Forces Day lunch in the dining facility. It was a chance for them to interact with the current generation of Soldiers.

Hunter Auditorium

Since we are still waiting on confirmation for the dates that the renovation and repair work in Hunter Auditorium will be taking place, it can be reserved on a case-by-case basis until then. If you have an upcoming event that requires a large seating capacity, contact Russ Stokes, DPW director, at ext. 4409, or russell.e.stokes.civ@mail.mil, to see if it is available for use at that time.

IT Expo

The NEC will be sponsoring the 16th Annual Information Technology Products and Services Expo on Tuesday, June 14. We are looking for your suggestions on technologies and/or vendors that you are interested in seeing. Email your suggestions to Diane Mercier, diane.o.mercier.civ@mail.mil.

Red Sox tickets

The NSSC Civilian Welfare Fund is once again offering Boston Red Sox tickets. All tickets are for the Lower Bleacher section. Ticket prices are \$35 or \$45 for the following games: Saturday, July 23 - Red Sox vs. Minnesota Twins @ 7:10 p.m.; Saturday, Aug. 13 - Red Sox vs. Arizona Diamondbacks @ 7:10 p.m. Tickets are first-come, first serve, and there are no refunds. Each ticket includes a \$3 service fee, which goes to the CWF to help fund the NSSC Organization Day, as well as other installation activities. Contact Duane Young at ext. 5609 or duane.l.young.civ@mail.mil.

Lt. Gen. [Kenneth R. Dahl](#), commander of the [U.S. Army Installation Management Command](#), or IMCOM, visited the [U.S. Army Garrison Natick](#) and [Fort Devens](#) May 16-17.

While at Natick on May 16, Dahl went to the Doriot Climatic Chambers, heard about the Physical Demands Study, toured the [Natick Soldier Research, Development and Engineering Center's](#) Department of Defense Combat Feeding Directorate and the USAG Natick logistics area.

On the following day, Dahl visited the training areas at nearby Fort Devens.

"I got a fresh perspective because I had been to Natick years ago, and I have been here to Devens years ago, as well," Dahl said. "Frankly, I walked away very impressed. I think I've seen an increase and a growth in the capacity and ability at both Natick and Devens."

Dahl pointed out that the work done at Natick is critical not only to the Army, but the entire joint force.

"Everything that I wear and use is tested at Natick," Dahl said. "All the Soldiers that we support ... what they use and what they wear and all their capabilities are, in one way or another, touched by the ... scientists and research experts and medical folks there at Natick. So it's critical."

Dahl said he was struck by how Natick works with the industry, academic, research and laboratory communities in Massachusetts.

"There is a synergistic effect between Natick being located where it is and having similar expertise right outside the installation," Dahl said. "Not a very large place, but, boy, they really punch way above their weight in terms of the impact that they're having on the Army."

He came away equally impressed with the Devens training areas.

"I mean, the ranges are very, very high quality," Dahl said. "Lots of capacity. It's obvious that they get quite a lot of use from military forces throughout New England, throughout the Northeast. And it's not just Army. It's also Marines and law enforcement professionals and other parts of the U.S. government."

According to Dahl, that makes Devens a success story.



Photo: John Harlow, USAG Natick Public Affairs

Lt. Gen. Kenneth R. Dahl, IMCOM commander, walks with Lt. Col. Ryan Raymond, USAG Natick garrison commander, during a May 16 visit to the installation.

IMCOM commander visits

By USAG Natick Public Affairs/ NATICK, Mass. (May 18, 2016)

"In today's environment, where we have constrained resources, the federal government really needs to come together and take advantage of our capabilities, rather than everybody having their own," Dahl said. "The taxpayer money that's being spent here at Devens is being spent very well, and we're getting a big return on every dollar spent because so much of it is contributing to the readiness and the capabilities of military forces but also other U.S. government agencies."

Dahl has made it known that infrastructure is his No. 1 priority as IMCOM commander.

"Without infrastructure, you're not going to have readiness, and the work that's being done down there at Natick is contributing to our readiness," Dahl said. "If we're going to recruit the young talent in America to come work for the federal government at Natick, then we need to be providing them with facilities that enable that work."

Though people often enter federal government to serve rather than make money, they should not be expected to work in substandard conditions, Dahl said.

"There (are) investments that need to be made at Natick, certainly, to improve the infrastructure and the facilities that they have there so we're not discouraging people from coming," he added.

Dahl said he wanted the workforces at Natick and Devens to know that he trusts them.

"I would like them to know that I recognize that, particularly with the civilians, they are part of the Army profession and that they're doing marvelous work, and it may not always be recognized," Dahl said. "I've had the opportunity over the last six months to visit 35 installations, and, boy, has it opened my eyes."

Because he spends so much time working with Army civilians, Dahl said he makes it a point to share their stories with Army leadership.

"I'm helping them to understand what a fabulous, professional, dedicated, loyal and trustworthy workforce that we have out there," Dahl said. "Serving others and serving with the population of people that you work with every day and the satisfaction that comes with that is compensation in itself. If you were working somewhere else, you might be making a little bit more money, but you would be lacking that compensation."

"That's why I'm still doing what I'm doing, and I think that's why many of you are still doing what you're doing. I think every once in a while it's worth reminding ourselves of that. I am proud to be part of the team."

Holocaust survivor Dr. Ludwik Szymanski shared his experiences with the workforce of the [Natick Soldier Systems Center](#), May 3.

It is estimated that 11 million people were killed during the [Holocaust](#), with six million of those killed being Jewish.



Dr. Szymanski

Szymanski said it was necessary for him to join the Natick workforce to commemorate the Holocaust.

“Educating Soldiers, particularly about this story, is the most important thing because the most important weapon is the Soldier,” said Szymanski. “That’s why I am so happy you have this program.”

Szymanski grew up Wloclawek, a middle-sized, provincial town in Poland. Even during the [Great Depression](#), Szymanski said his family lived happily.

When [World War II](#) began in 1939, Szymanski said his childhood, “effectively ended,” as Poland was quickly defeated by the Nazis.

“We were lucky in that our nuclear family survived,” said Szymanski, “but tens, if not hundreds, of our extended family perished.”

Growing up after the Holocaust, Szymanski said, was especially tough for him.

“Out of 17,000 Jews in a town of about 70,000 people, there were about 100 survivors, but most of them left before I left my town,” he said. “I was the only Jewish teenager in that town and (in) the school, and bullying the surviving Jew was the thing of the day.”

Szymanski also mentioned that in order to live in his town of Warsaw, he had to adapt to some rather unconventional ways.

“There were several factors that decided whether you would survive hiding or not hiding,” said Szymanski. “It was not so much hiding physically, but rather, living hidden in plain sight.”



Photo: Pvt. H. Miller, National Archives

Remembering the Holocaust

Survivor shares his story at NSSC observance

By Tazanyia Mouton, USAG Natick Public Affairs / NATICK, Mass. (May 12, 2016)

Szymanski said that he got accustomed to living minute-by-minute and had the constant fear of someone approaching him to ask for proper documentation, which happened on a number of occasions.

“Obviously, we were scared,” he said, “but you had to hide it because people on the street would recognize that you were scared and they would look at you and they would approach you.”

After the war, Szymanski said he never denied what happened to him, but he made sure that he didn’t dwell on his experiences, either.

“You do not forget, you do not deny, but what you do is refuse to spend your life in survivor mode,” he said.

After the war ended, Szymanski graduated from high school and was accepted on a conditional basis to a university, but since his father was not a Communist, the family decided to immigrate to Israel.

Szymanski was accepted to the Hebrew University Medical School in Jerusalem, even though he didn’t even know the Hebrew alphabet.

Determined, he worked in the fields half the day and studied Hebrew late into the night.

In 1959, he received his medical degree and served two years as a regimental physician in a tank regiment with the Israeli Defense Force.

Szymanski arrived in the United States in 1962 and became a resident in pediatrics at Bellevue Hospital in New York City, followed by a residency in psychiatry at Mount Sinai Hospital.

After completing training in Child and Adolescent Psychiatry at the Boston Children’s Hospital, he joined the Developmental Evaluation Center, where he developed and directed the clinical and training program in Psychiatry of Developmental Disabilities.

Natick holds annual exercise

Highlights coordination between installation, outside agencies

By Bob Reinert, USAG Natick Public Affairs/ NATICK, Mass. (May 6, 2016)

Shortly after 9 a.m. May 5, shots suddenly rang out inside Building 42 at [Natick Soldier Systems Center](#).

A little more than an hour later, more gunfire erupted and an improvised explosive device was detonated in the north campus area of NSSC. In the aftermath of the two incidents, 11 people, including both of the attackers were dead, and 10 more were wounded.

Fortunately for all involved, rather than an actual terrorist attack, the incident was the installation’s annual, full-scale exercise, designed to test the response of emergency personnel to such incidents.

The simulated attack began inside the building that houses the [U.S. Army Research Institute of Environmental Medicine](#), when an active shooter killed four and wounded five other personnel. The shooter was killed minutes later by responding U.S. Army Garrison Natick Police, and the post went into lockdown.

“Control, be advised we have one shooter down,” one USAG Natick officer reported over the radio. “All officers are good.”

[Town of Natick Police and Fire Departments](#) and [Fallon Ambulance Company](#) personnel arrived to find role players with realistic wounds, who were taken to [MetroWest Medical Center](#).

In the next scenario on the other side of the installation, the second attacker opened fire and then set off the IED, which released hazardous materials. This action produced five dead and five wounded. The wounded were also removed from the scene and transported to MetroWest Medical Center.

The second shooter then fled across the installation and attempted to escape by swimming across the choppy waters of Lake Cochituate on this cold, damp day. His body was later recovered by members of the Natick Dive Team.

In a pair of news conferences, USAG Natick Public Affairs personnel provided details to and took questions from the media, played



Members of the Natick Dive Team operate in the waters of Lake Cochituate May 5 during the Natick Soldier System Center’s annual, full-scale exercise.

Photo: Jeff Siano, NSRDEC Public Affairs

“This exercise and its critique are not intended to ‘grade’ ourselves. We’re here to learn and improve; we can only do that if we are candid in our review.”

Deputy Chief Victor Lipoma of the Natick Fire Department was in full agreement about the focus on communications.

“That’s one of our toughest issues,” Lipoma said. “We had a dive going on – active shooter, EMS, (decontamination). Just trying to bring all those things together, experience-wise, that’s huge.”

Success begins with planning, said Lt. Brian Lauzon of the Natick Police Department.

“Getting everybody together around the same table to plan the exercise assists with the communications,” Lauzon said. “Communications, obviously, is No. 1. But planning and (understanding) each other’s craft and what their needs are, I think, is very, very important.”

Dr. Kim Springer of the Office of the Chief Medical Examiner for Massachusetts said that her organization’s priority is positively identifying the deceased in such incidents and reuniting them with their families as soon as possible.

“It’s always important in (any event) that has more than one (deceased) person to make sure that the identity stays intact throughout and that we do our job as quickly and efficiently as we can,” Springer said. “So, it’s very important practice.”

According to Jimmy Santoro, USAG Natick police chief, the installation must rely on a collaborative effort in emergencies.

“Without it, we can’t exist,” Santoro said. “We rely heavily on Natick because we’re such a small installation. Our people have to learn their measures, and they need to learn how we operate.

“Every year, we learn something new. It’s the only way to learn.”

“This exercise emphasized the importance of maintaining continuous relationships with the community throughout the year.”

Lt. Col. Ryan Raymond, USAG Natick garrison commander

by students from the [Connecticut School of Broadcasting](#).

All of the exercise participants agreed that establishing and maintaining communications between the various organizations was critical.

“This exercise emphasized the importance of maintaining continuous relationships with the community throughout the year,” said [Lt. Col. Ryan Raymond](#), USAG Natick garrison commander. “As a commander, I can’t overstate my appreciation for the longstanding support we receive from public and private agencies throughout the MetroWest region.

Clothing homeless veterans

NSSC drive collects 2,100 pounds of donations

By Tazanyia Mouton, USAG Natick Public Affairs/NATICK, Mass. (May 13, 2016)

In the latest in a series of highly successful drives organized by Sarah Ross of [Natick Soldier Research, Development and Engineering Center](#), during the week of April 25-29, the [Natick Soldier Systems Center](#) workforce went through their closets and drawers at home to come up with more than 2,100 pounds of clothing and personal hygiene items for area homeless veterans. We asked some members of the NSSC community why they thought it was important to contribute.

“I believe it is everyone’s responsibility to help those in need. It is hard to believe these men and women and their families could be put in the category of ‘homeless’ when they have done so much and sacrificed so much. If there is any program or something I can do to help, I’ll do it.”

*Christine Arcidiacono,
Network Enterprise Center*

“We need to pay attention to veterans’ needs because they are people who have served. If you can stop and help someone along the way – why not? Every chance I can donate, I try to.”

*Lorraine Veglia,
Lessing’s Cafe*

“I am a veteran, and my wife and I both understand the trials that veterans and their families may go through. They are literally ‘our own,’ and helping them is the right thing to do.”

LaVern Olmstead, USAG Natick

“Everybody needs a little help. Having done the transition from being in the military, to being a civilian, you never know when the next job is coming.”

*Tony Rodgers,
Design Test Analysis Branch*

“I contribute because it is the right thing to do. These veterans made a sacrifice to ensure the people of the United States continue to enjoy the benefits of freedom, and our support for veterans should not end when their time in uniform ends.”

*Don Lee,
Warfighter Directorate*

“As a veteran now, this is just one of the ways I can support others that have served. It gives me a sense of personal pride when I can help another veteran.”

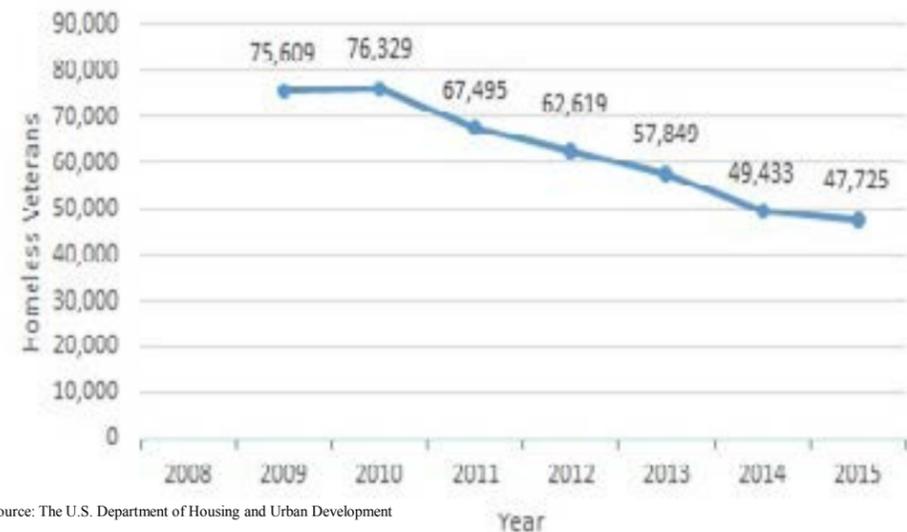
Deborah Lee, PM FSS



Photo: Veterans Administration

Infographic: Tazanyia Mouton, USAG Natick Public Affairs

Veteran Homelessness in America



Source: The U.S. Department of Housing and Urban Development



Photo: Veterans Administration

Did you know?

There are close to 300,000 veterans residing in Massachusetts.

Boston’s total number of homeless individuals has declined 14.5% since 2007.

In March, Lynn became the first Massachusetts city to end veteran homelessness.

Eccles says goodbye

USARIEM commander bound for Lewis-McChord

By Bob Reinert, USAG Natick Public Affairs/NATICK, Mass. (May 26, 2016)

On his first day as commander of the [U.S. Army Research Institute of Environmental Medicine](#) in June 2014, [Col. Thomas Eccles III, M.D.](#), was approached by a longtime [Natick Soldier Research, Development and Engineering Center](#) employee.

“This older fellow walks up to me, and he’s kind of coiling up a coax cable around his elbow, and he says, ‘So, you’re the new (colonel) here. I knew a Tom Eccles,’” Eccles recalled. “It turns out, after a little bit of a cat-and-mouse discussion, that my grandfather was his high school English teacher.”

It was the perfect welcome-home moment for Eccles, who grew up in Simsbury, Connecticut, as an avid Red Sox fan and got his bachelor’s and master’s degrees at [MIT](#) before attending medical school at the [Uniformed Services University of the Health Sciences](#).

“It was like coming back home,” Eccles said. “I hadn’t lived in New England since I was in grad school back in 1987.”

Since he assumed command, Eccles has enjoyed catching up with family and old friends while leading USARIEM. That time will come to an end when he relinquishes command June 13. As that day approached, Eccles took a few moments to reflect on the past two years.

Before he arrived, Eccles had worked with such USARIEM knowledge products as the heat-injury-prevention tables and water-use tables. He also had colleagues who had rotated through the organization.

“I definitely knew about USARIEM’s work,” Eccles said. “What I didn’t realize was just how forward-thinking the



“I can’t say enough how thankful I am to have had this opportunity and to have worked with all the folks here at USARIEM and NSRDEC and all the other organizations across (Natick Soldier Systems Center). It’s just a wonderful group of people.”

Col. Thomas Eccles III, M.D.

organization was. I think the scientists and the leaders here have also made me realize what a team sport this is. Certainly, everyone’s passionate about their work.”

Much important work has been carried out during Eccles’ tenure, but nothing has

drawn as much attention as the Physical Demands Study that USARIEM conducted for the [Training and Doctrine Command](#) before women were integrated into combat arms slots. The study, begun under his predecessor, Col. Deborah Whitmer, required that researchers find “creative ways to test and analyze people’s ability to meet the physical demands of these combat (Military Occupational Specialties),” Eccles said.

With that accomplished, there was even more for USARIEM to do.

“As they say, the reward for good work is more work,” Eccles said.

The Physical Demands Study gave rise to the Occupational Physical Assessment Test, or OPAT, Study. The result was a four-event test involving a deadlift, broad jump, medicine ball push, and a variation on the shuttle run. According to Eccles, in the future the OPAT could be used to test recruits and meet the physical demands of certain specialties.

“As the Army gets smaller and stays smaller, we’re working more to get the right people in the right jobs and then do it in a way that helps prevent musculoskeletal injuries and maintains the health of the force,” Eccles said. “I think the work that we’re doing here is very much aligned with that.”

Researchers at USARIEM are also looking at multiple environmental stressors. Eccles used the Pacific Rim operational environment as an example.

“You’ve got 14,000-foot mountains, but they’re also in tropical rain forests,” Eccles said. “You’ve got all these interesting environments interacting with each other. It was exciting to see the progress folks

are making looking at physiology in these combined, stressful environments.”

Nutrition remains one of USARIEM’s core research areas, Eccles said.

“Understanding the gut microbiome and realizing at this point what we don’t know has opened up a whole new line of research that’s going to have definite benefit for Soldiers’ overall health,” Eccles said. “We’re going to develop better understanding of what Soldiers need not just in terms of the nutritional macronutrients and proteins, carbohydrates, fats, vitamins, etcetera, but also what it takes to keep the gut healthy that in turn keeps the brain healthy. All in all, it’s part of fine-tuning the ability to optimize performance.”

Recognizing that Soldier health and fitness can be tied to family life, USARIEM embarked on another study under Eccles.

“The Healthy Families, Healthy Forces Study is looking at intervention and weight-management for spouses and family members of active-duty service members,” Eccles said. “The hypothesis is that if you can get people to make good nutrition decisions at home – you get families to purchase healthful foods and prepare them in a healthful way – then that’s going to help the fitness of the Soldier, as well.”

As Eccles pointed out, [Chief of Staff of the Army General Mark A. Milley](#) has made Soldier readiness his No. 1 priority.

“I think the work that we do as an organization is all about keeping and making Soldiers ready and figuring out ways to improve their health and performance but, ultimately, readiness to do what the Army needs them to do,” Eccles said. “Certainly, I think that we’re well-positioned as an organization to address not only the current challenges, but the ones that we’re envisioning through Force 2025 and beyond.

“There will be new questions and new challenges, and I think our folks will continue to stay on the cutting edge and anticipate the new challenges and move the research in that direction.”

Eccles will depart USARIEM for [Joint Base Lewis-McChord](#), Washington, where he will become the [I Corps](#) surgeon. It will be a bittersweet move.



Eccles hosted plenty of high-level visitors during his time as commander of the U.S. Army Research Institute of Environmental Medicine, but the trained pediatrician had a knack for making everyone – big or small – feel welcome in his office.

“In one sense, it’s heartbreaking to leave Natick and to leave USARIEM, but the Army’s given me a great consolation prize, because it’ll be a chance to work again with Soldiers in an operational setting to improve their readiness and health,” Eccles said. “Really, that’s a lot of what the mission is. It’s about ensuring medical readiness across a huge formation that’s currently aligned with both FORSCOM and USARPAC to resource the Army’s rebalancing effort towards the Pacific.”

In USARIEM, Eccles leaves an organization and a region that he clearly will miss.

“I can’t say enough how thankful I am to have had this opportunity and to have worked with all the folks here at USARIEM and NSRDEC and all the other organizations across ([Natick Soldier Systems Center](#)),” Eccles said. “It’s just a wonderful group of people.”

The Right Stuff?

Developing food for Mars astronauts

By Jane Benson, NSRDEC Public Affairs/NATICK, Mass. (May 23, 2016)

“For NASA astronauts, when they first get to Mars, this will be their primary food source until they are able to establish alternative food sources.”

Michelle Froio, Combat Feeding

When designing food processing and packaging for a future mission to Mars, researchers at the U.S. Army Natick Soldier Research, Development and Engineering Center, or NSRDEC, recognize the gravity of their task.

To best nourish Mars astronauts and maintain a quality of life, devising the right food packaging, combined with compatible and effective food processing techniques, is just as important as the food that's in it.

Danielle Froio, a materials engineer in NSRDEC's Combat Feeding Directorate, or CFD, is investigating the effects of various processing techniques and packaging materials on vitamin stability and shelf life. Froio's work on packaging is part of a larger CFD project with NASA that also involves Ann Barrett's work investigating matrix effects on vitamin stability and Michelle Richardson's work perfecting a breakfast meal replacement bar.

“Sometimes people assume that you can just put food in a package, but a lot has to go into designing a package for a specific food item,” said Froio. “If you want to keep the moisture out, you need to use different materials than if you want to keep the oxygen out. It's important to design a package that meets the specific needs of a particular food item.”

NASA reached out directly to CFD researchers for their expertise.

“We've had relationships with NASA over the years, so it is a really good fit because both the military and NASA have the same need

for extended shelf life and even more so now with NASA trying to plan for a five-year shelf life for the Mars mission,” said Froio. “They are prepositioning the food on Mars so it will be there before the astronauts get there -- that's why we need the five-year shelf life. The food will be their initial food source.”

Froio is working on packaging and processing for a main entrée. One type of entrée is investigated at a time to better enable the selection of the most effective processing and packaging.

“I'm working on a retort food item, creamy Cajun chicken, which is very similar to an entrée that you would find in an MRE (Meal, Ready-to-Eat),” said Froio. “Part of this effort is looking at a high-water-activity food item, rather than the low-water-activity items that Michelle and Ann are investigating.”

CFD is investigating packaging structures from previous MRE studies as well as commercially available pouches. The packaging will then be combined with different processing methods.

“With the MRE we use a retort process that is essentially like a pressure cooker,” said Froio. “It sterilizes the food using a high temperature so that you can keep it on the shelf for up to three years and it is still safe to consume. For this project, we were looking at comparing the retort process, which can be thermally degrading to food, to some of these other novel-type processes that are not as thermally aggressive, like radiation, microwave-assisted thermal sterilization, or MATS, and also pressure-assisted thermal sterilization. Each of these processes reduces the integrated time-temperature exposure of

the foods, which may help reduce vitamin loss. The three different processing techniques are being used with three different packaging materials to see what the effects of these processing methods are on the packaging alone.”

CFD is investigating which packaging would survive which processes and then will determine what will be the best candidate to use in a three- or five-year shelf-life study, which will show which processing methods and/or packaging structures result in the most nutritious and highest quality food. CFD also did some testing to see if processing has any effect on the pouch seal, as well as a burst test to see how much pressure will cause the pouch to burst.

“We measured the mechanical properties of the different types of packaging and how strong they are both before and after processing,” said Froio. “Another important property is oxygen and water vapor barrier performance, because that is an essential component to extending product shelf life.”

It's scientifically challenging to come up with the right type of packaging since both the military and NASA demand a degree of uniformity.

“The military and NASA don't want to have 12 different pouches,” said Froio. “They want to have one pouch that fits the bill for every different type of food item that they have. For these retort items, we have quad-laminate structures that have foil and three other layers of material. And for snack items we use a tri-laminate. All foods have to be able to be served in these two types of pouches.”



Photo: David Kann, NSRDEC

For Froio, it's exciting to be working on a project that could impact a future Mars mission.

“Morale is tied very tightly to food,” said Froio. “If you have a good meal that's tasty, then you will probably be in a lot better mood than when you have something that's cold and not tasting so well. For NASA astronauts, when they first get to Mars, this will be their primary food source until they are able to establish alternative food sources.”

It's also rewarding to know that her work helps both warfighters and astronauts alike.

“Our work benefits both the military and NASA,” said Froio. “Some of the pouches were developed for military applications, and now we are looking at them for NASA applications. And the work we do for NASA could also advance the processing and packaging technologies used for the military. They really do leverage each other very nicely.”

Photo: NASA



Jungle Fabric

25th ID helps NSRDEC test new uniforms in Hawaii

By Sgt. Ian Morales, 25th Infantry Division Public Affairs / SCHOFIELD BARRACKS, Hawaii (May 13, 2016)

Over the last few months, [Tropic Lightning](#) Soldiers have had the opportunity to test new uniforms designed specifically for jungle operations at the 25th Infantry Division's Jungle Operations Center.

Representatives of the [U.S. Army Natick Soldier Research, Development and Engineering Center](#) visited to gain insight and log data on how Soldiers conduct operations in a jungle environment for their Jungle Fabric and Architecture Development Effort, or JFADE.

"We're looking at various commercial materials, basically what the industry tells us is going to work in this environment," said Melynda Perry, project lead for JFADE. "We have a variety of materials, fiber blends, weave types and finishes that we're looking at, and the entire point is to get feedback from the Soldiers."

The feedback is critical to JFADE's research into what could become the new standard for jungle uniforms across the entire military. Since the Soldiers were engaged in exercises in the jungles of Hawaii, the data collected on the test uniforms gave JFADE's developers an environment for instant feedback.

"The idea is that if we can correlate the user feedback with the laboratory testing, it will help us better inform requirements for a jungle material as well as a jungle uniform," Perry said. "We've already done three tests based on fabrics and are now testing architecture."

25th ID's Lightning Academy has become the epicenter of testing for JFADE, as it's used courses such as the Pre-

Ranger Course and Jungle Warfare School. During the Natick personnel's visit, they met with students of a recently completed Jungle Warfare School who had been issued a number of test uniforms with different types of fabric.

"I like the M4 uniform a lot compared to what I normally wear for the Marine Corps. The uniforms we wear for the jungle are usually pretty thick, and they rip pretty easily," said Marine

Cpl. John Verduco of [2nd Battalion, 3rd Marine Division](#). "This one dries very quick, they don't tend to rip, especially in the groin area, and they're very lightweight."

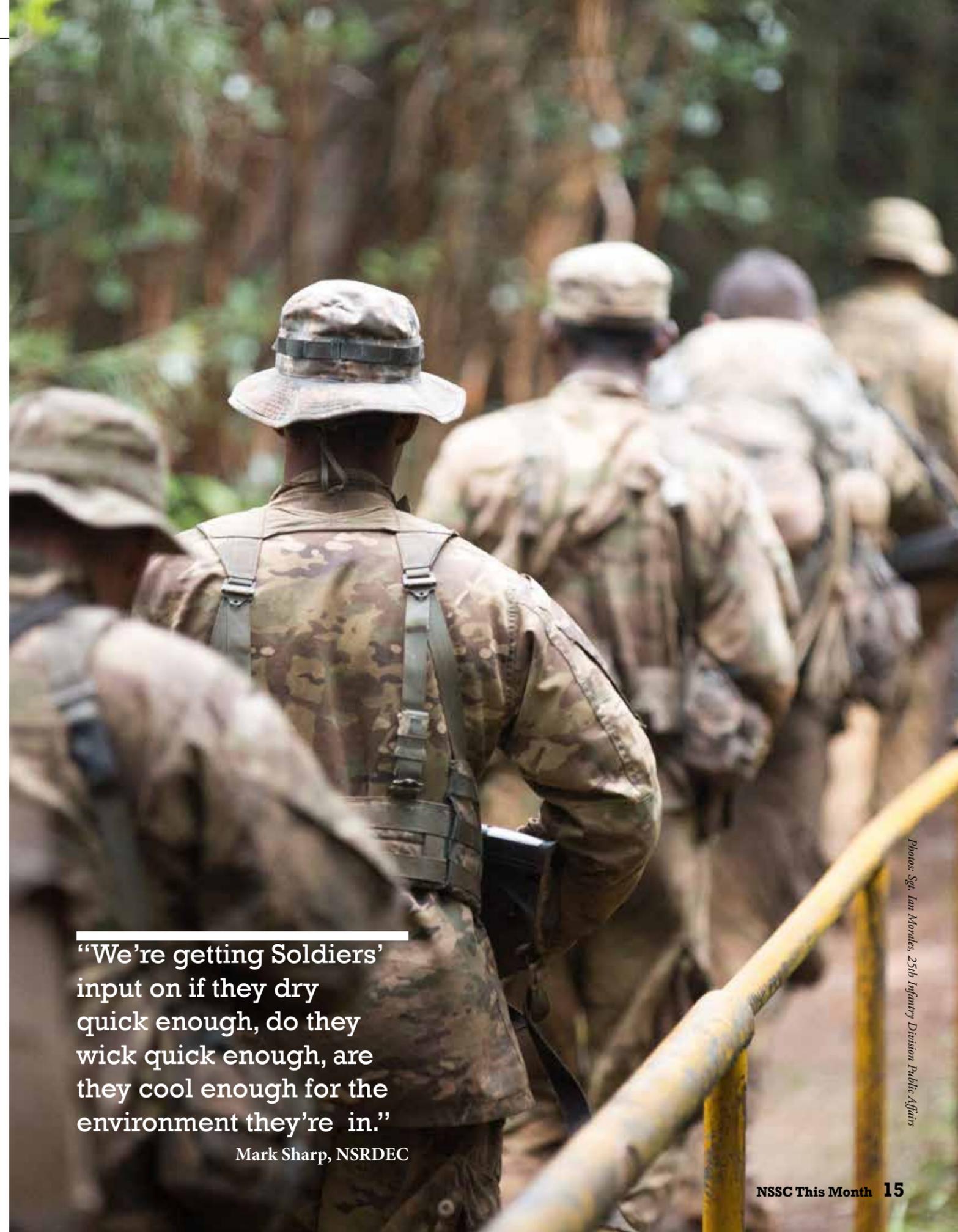
Some of the differences in the prototype uniforms include new moisture wicking, yet breathable materials; added ventilation ports to the jackets on the chest and back, to allow for faster cooling; and removal of pockets that interfere with the wear of body armor.

Mark Sharp, equipment specialist for JFADE, says with the latest group, the project focused on

where pockets and vents are placed on the different styles of uniforms.

"We're getting Soldiers' input on if they dry quick enough, do they wick quick enough, are they cool enough for the environment they're in," said Sharp. "Our 50-meter target is figuring out what we call a down-select. Take the best two to three uniforms out of what we have here, and go ahead and build them the way the Soldiers want, then test them again."

According to Perry, the goal is to continue testing on the down-selected uniforms during fall 2017.



"We're getting Soldiers' input on if they dry quick enough, do they wick quick enough, are they cool enough for the environment they're in."

Mark Sharp, NSRDEC

Photos: Sgt. Ian Morales, 25th Infantry Division Public Affairs



Far East FAST

NSRDEC's Wood takes part in South Korea exercise

By Dan Lafontaine, RDECOM Public Affairs/ABERDEEN PROVING GROUND, Md. (April 22, 2016)



Photos: U.S. Army

Maj. John Kelly (left) and Lt. Col. Brian Wood stand at the Rodriguz Live Fire Complex in South Korea during the Key Resolve and Foal Eagle exercise.

U.S. Army technology advisors converged for an exercise in South Korea March 7-18 to talk with Soldiers about topics such as combat vehicles, weapons systems, aviation and satellite communications.

Army Reserve officers deployed for the annual Key Resolve and Foal Eagle exercise to augment the full-time Field Assistance in Science and Technology team.

Lt. Col. Marc Meeker is the forward-deployed FAST advisor at U.S. Forces Korea.

"Our goal is to leverage RDECOM's engineering expertise to expedite technology to the Soldier, while taking requirements back to our labs that will guide the development of future technologies," Meeker said.

The Army Research, Development and Engineering Command stations FAST advisors around the world to provide commanders with access to its thousands of subject matter experts.

The Reserve officers, who are assigned to Army Sustainment Command's Detachment 8, are selected for their knowledge in scientific and engineering disciplines, Meeker said. They met with units to identify and discuss capability gaps, which are then directed to RDECOM's network for evaluation.

Soldiers of the 25th Infantry Division's 1-2 Stryker Brigade Combat Team commented on all variants of the Stryker wheeled personnel carrier.

Maj. John Kelly, a Detachment 8 officer who has a doctorate in electrical engineering, said his Field Artillery experience helps him

understand the wheeled and tracked vehicle systems as part of RDECOM's Tank Automotive Research, Development and Engineering Center.

"I spent several years working for the automotive industry, and there are many similarities between Army vehicles and what people drive," Kelly said.

FAST advisors fielded questions about the Remote Weapons Station; interoperability of communication systems; and challenges with the subsystems on the Nuclear, Biological, Chemical, Reconnaissance Vehicle. The team relayed input to engineers at TARDEC and RDECOM's Armament Research, Development and Engineering Center.

"There was a challenge with the interface between the M2 .50 Cal and the Remote Weapon Station. ARDEC engineers, working with Project Manager Soldier Weapons, were able to provide an immediate solution," Meeker said.

Lt. Col. Brian Wood works as a full-time Army civilian at RDECOM's Natick Soldier Research, Development and Engineering Center.

"The Soldier is a complex platform with a wide array of requirements from clothing, shelter and equipment to nutrition, physical and cognitive well-being, all of which must be considered and in synch to continue to field the best-equipped, most capable fighting force," Wood said. "It is exceptionally important to meet with and understand the needs of our Soldiers from their perspective and communicate these back to RDECOM for solutions."

Aviators and air crews from the 3-25 General Support Aviation Battalion suggested improvements to CH-47 Chinook fast-rope systems and a novel idea on developing biodegradable over-the-water targets for aerial gunnery, Meeker said. RDECOM engineers are evaluating those as well.

Sgt. 1st Class Jeff Miller of the 319th Expeditionary Signal Battalion provided subject matter expertise on networks and satellite communications as the team traveled in South Korea.

"Having him on board was great, since most of us have a mechanical engineering background," Meeker said. "He assisted in the cyber side of things at USFK as well because he has exactly the right skill set, and we were fortunate to have him on loan during the exercise."

The team spoke with about 120 students at Seoul American High School on the benefits of a career in the science, technology, engineering and math fields.

"We covered different paths to success and the importance of working hard and keeping doors open for future opportunities," Wood said. "We were able to share our different paths to success in STEM-related careers and field their questions about scholarships, internships and careers as a scientist working on the coolest new technologies for our warfighters."

"The Soldier is a complex platform with a wide array of requirements from clothing, shelter and equipment to nutrition, physical and cognitive well-being, all of which must be considered and in synch to continue to field the best-equipped, most capable fighting force."

Lt. Col. Brian Wood, NSRDEC





By the Bootstrap

NSRDEC program encourages innovation

By Jane Benson, NSRDEC Public Affairs/NATICK, Mass. (April 21, 2016)

The [U.S. Army Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, has used the Bootstrap Initiative and Pitch Day for the second consecutive year to encourage innovative ideas from employees while reducing obstacles and red tape.

NSRDEC introduced the Bootstrap Initiative as an exciting new way to spark ingenuity, out-of-the-box thinking, risk-taking and employee participation. The program accepts proposals from government civilian NSRDEC employees, who may submit ideas for new technologies, research projects, business processes or administrative processes. The innovations must support NSRDEC's mission, which includes researching and developing cutting-edge food, clothing, shelter and airdrop technologies.

This year's Bootstrap Initiative resulted in 29 proposals, with 14 groundbreaking ideas being chosen by NSRDEC employee voters to receive funding. Proposals ranged from multi-compartment ration pouches to a new way to study gut bacteria to an airborne load assistance device.

The Bootstrap Initiative is driven by employee enthusiasm, participation and empowerment. Employees are the ones who come up with the innovative ideas, and they are also the ones who vote and decide which ideas will receive funding.

NSRDEC's Dr. Ken Desabrais, a research aerospace engineer, conceived the idea for the Bootstrap Initiative and led the Bootstrap Implementation Team.

"Bootstrap empowers anyone at NSRDEC to propose an idea that they think could help our organization in achieving its mission of supporting the Soldier," said Desabrais. "The unique community voting process used to select projects for funding encourages grassroots participation of the workforce to learn more about the ideas and interact with their colleagues from across the organization. Over 200 people attended the Pitch Day event this year and 68

percent of the workforce participated in the voting process. This level of involvement creates opportunities for people to interact with each other to form new relationships that can lead to future collaborations."

"Bootstrap empowers anyone at NSRDEC to propose an idea that they think could help our organization in achieving its mission of supporting the Soldier."

Ken Desabrais,
NSRDEC research
aerospace engineer

"As an organization, we are committed to creating and supporting a culture of innovation," said Tom Merle, chief innovation officer at NSRDEC. "We are constantly looking for ways to provide the inspiration, tools, environment and methods that allow our teams to deliver creative and valued innovation to the Soldier.

"The Bootstrap Initiative is one of our flagship efforts. It is a unique, inclusive and empowering program that encourages creative ideas, big and small, from across the organization and then relies on the broad community at NSRDEC to decide which programs best support our Soldier-focused mission. This entire initiative begins and ends with the creativity and passion of the people at NSRDEC."

"The Bootstrap Initiative is a great opportunity to provide funding for projects that I would not otherwise get to work on," said Eric Brack, whose NSRDEC Bootstrap project investigated the effectiveness of iodine and chlorine tablets on hazardous chemicals that could potentially contaminate emergency drinking water.

The creativity, originality and enthusiasm encouraged by the Bootstrap Initiative was on full display at NSRDEC's Pitch Day, which provided proposers the chance to win employee voter support through demonstrations, interactive displays and show-and-tell sessions.



Eric Brack participated in NSRDEC's Bootstrap Initiative by submitting an idea for investigating the effectiveness of iodine and chlorine tablets on hazardous chemicals, which can potentially contaminate emergency drinking water. Brack (left) is pictured here with Michael McPartlin at NSRDEC's Bootstrap Pitch Day.

"The Bootstrap Initiative has provided a uniquely fun forum for NSRDEC scientists to conceive smaller-scale projects that can rapidly be turned around," said Dr. John Ramsay, an NSRDEC research biomechanics engineer. "Our project, the Low Cost Airborne Soldier Load Assistance Device, was submitted because of a direct load carriage need that arose from our ongoing relationship with the 82nd Airborne."

"I'm glad to see that so many people liked our idea," said NSRDEC chemical engineer Laurel Doherty, who devised a new way to study gut bacteria. "We've had it in mind for a while, but we didn't have the resources to carry it out. This Bootstrap money will let us streamline our idea into our ongoing research projects instead of waiting to fit the work into a new proposal."

"Having colleagues at NSRDEC hear our pitch and find value in the simple solution we are providing to the Airborne Soldiers is exciting," said Ramsay. "It reinforces the idea that, at our core, we are all here to support the Soldier and are eager to make their job easier and comfortable."

"The outcome from last year's Bootstrap projects has not only created new technical solutions and increased our capabilities, but it has also created new collaborations both within NSRDEC and with outside organizations based on new connections formed through the Bootstrap Initiative," said Desabrais. "This diversity of ideas moreover helps create an environment for developing innovative and creative solutions for solving the problems of our Soldiers."

Life-saving Equipment

Soldier reunited with helmet that kept him alive

By Beth Reece, Defense Logistics Agency/ FORT BELVOIR, Va. (April 21, 2016)

Army Staff Sgt. Thalamus Lewis was searching for hidden explosives in Afghanistan on Oct. 4, 2012, when a bullet from enemy fire knocked him to the ground. Gunfire continued and Lewis bowed to instinct, lying still in the middle of the road until the unit's lead vehicle approached and gave him cover to move to safety.

Lewis eventually escaped danger, never knowing he'd been shot in the head until he was in a medical facility back on base.

"Once they told me I took a round to the ACH [Army Combat Helmet], my first thing was, I want to see it. I looked and it and I was like OK. The inside of it where I took the round was all puffed out, so that is when I started saying, 'It actually works.'"

The helmet that saved Lewis' life was returned to him April 19 at Fort Belvoir, Virginia, by Program Executive Office Soldier, which routinely reunites Soldiers with body armor and helmets that protected them from death. Such presentations often bring healing and closure to recipients, said Army Col. Dean Hoffman IV, who oversees Soldier protection and individual equipment for PEO Soldier.

Equipping Soldiers with personal protective gear, which ranges from boots and helmets to body armor, is a collaborative effort that involves organizations such as the Defense Logistics Agency, PEO Soldier, the U.S. Army TACOM Life Cycle Management Command, Army Research Laboratory and Army Test and Evaluation Command.

"DLA's role is to keep Soldiers supplied. The Army doesn't have a logistics system to continue to sustain the item after it's fielded, so DLA buys and stocks the item for them. As a result, we can quickly

get helmets to troops in Afghanistan or even here at Fort Belvoir," said Keith Ford, deputy director of clothing and textiles for DLA Troop Support.



Photo: Beth Reece, DLA

"Once they told me I took a round to the ACH [Army Combat Helmet], my first thing was, I want to see it. I looked and it and I was like OK ... I started saying, 'It actually works.'"

Staff Sgt. Thalamus Lewis

Test and Evaluation Command, which continues testing clothing and protective gear after new contracts are signed to ensure the items meet Army requirements and standards. And when Army officials update an item with new technology or to make equipment more suitable for Soldiers' needs, DLA usually knows well in advance.

The lifecycle management of protective equipment begins at the Maneuver Center of Excellence at Fort Benning, Georgia, where Soldiers' needs and requirements are determined. Those requirements are then documented and outlined at the U.S. Army Training and Doctrine Command. Next, PEO Soldier creates the equipment based on the requirements and new technology discovered by the Army Research Lab at Aberdeen Proving Grounds, Maryland, as well as prototypes developed by the Army Natick Soldier Research, Development and Engineering Center at Natick, Massachusetts.

Once PEO Soldier creates and fields the initial equipment, it is transferred to DLA for sustainment. The transition is a critical phase because several things can go wrong, Ford said.

"The biggest challenge is that you have one contractor in the initial fielding stage. It's a competitive business, so somebody else could get the contract for sustainment," he said.

PEO Soldier now collaborates with DLA Troop Support on contracts, allowing the agency to use or maintain existing contracts during transition so there's no interruption in support to soldiers, Ford added.

DLA also works closely with the Army



Photo: Conrad Johnson, ARL
Dr. Shawn Walsh, of the U.S. Army Research Laboratory, explains the structure and design of the Advanced Combat Helmet to Staff Sgt. Thalamus Lewis during a tour of ARL April 20. Lewis later was reunited with the ACH that saved his life during a ceremony at the Army Test and Evaluation Command's Aberdeen Test Center.

"We know when potential changes are coming, and we're ready to modify our contracts with the manufacturing industry when needed," Ford said.

Much of the clothing and personal equipment DLA buys goes to TACOM LCMC, which acquires equipment from DLA Distribution and issues it directly to Soldiers who use it. Harry Veneri, director of clothing and heraldry for TACOM LCMC, said his staff reaches out to DLA by email or phone at least 30 times a day to make sure equipment is available where and when it's needed.

"There's constant communication, demand planning, backorder reviews and management meetings that allow us to partner and mitigate issues that come up," he said.

Just before Operation Atlantic Resolve, a series of multinational training and security cooperation activities that took place early this year in Eastern Europe, Veneri's staff discovered an urgent need for cold weather boots, which come in 117 sizes.

"DLA ramped up production for us and we collaborated on sizing, which wasn't easy. But in the end, we made it possible for thousands of Soldiers to participate in Operation Atlantic Resolve with the right protective equipment," Veneri said.

The weight and comfort of the gear he was issued before deploying to Afghanistan evoked plenty of grumbling among the soldiers in his unit, Lewis said. Now, he knows that the planning and technology behind that gear is the result of work from lots of people and numerous organizations dedicated to ensuring Soldiers have the best. He's a walking testament.



Preparing for Zika

Mosquito-borne virus linked to birth defects

By Kirk Frady, Army Medicine (Feb. 5, 2016)

What is it, where is it and how is it spread?

Zika is a mosquito-borne virus closely related to yellow fever, dengue, and West Nile viruses. A Zika virus outbreak was identified in Brazil in early 2015; since then, it has spread to more than twenty-five other countries in Central and South America and the Caribbean. The Centers for Disease Control and Prevention (CDC) issued a Level 2 Travel Alert (Practice Enhanced Precautions) for areas where Zika virus transmission is ongoing. This includes the recommendation that women who are pregnant, or trying to become pregnant, consider postponing travel to any area where Zika virus transmission is ongoing.

Prevention - what can I do to prevent catching it?

The best way to prevent diseases spread by mosquitoes is to avoid being bitten. There is currently no vaccine for Zika. Mosquitoes that spread Zika virus bite mostly during the daytime and prefer to bite people, and live indoors and outdoors near humans. The best prevention is to minimize standing water in items like buckets, bowls, animal dishes, flower pots and vases.

What if I am pregnant or want to become pregnant?

If you are pregnant and plan to travel to an area with ongoing Zika virus transmission, consider postponing travel until after delivery. If you are pregnant and traveled to an area with ongoing Zika virus transmission, your provider can arrange for testing

to see if you were infected, even if you never experienced symptoms. If you are not yet pregnant, there is no evidence that Zika infection prior to conception poses a risk for any future pregnancies. If you think you've been infected, what should you do?

If you think you may be infected, see your primary care provider immediately. If you have recently traveled abroad, tell your healthcare provider when and where you traveled. Your healthcare provider may order blood tests to look for Zika or other similar viruses like dengue or chikungunya.

What are the symptoms?

- About 1 in 5 people infected with Zika virus become ill (i.e., develop Zika).

- The most common symptoms of Zika are fever, rash, joint pain, or conjunctivitis (red eyes). Other common symptoms include muscle pain and headache. The incubation period (the time from exposure to symptoms) for Zika virus disease is not known, but is likely to be a few days to a week.

- The illness is usually mild with symptoms lasting for several days to a week.

- Zika virus usually remains in the blood of an infected person for a few days but it can be found longer in some people.

- Severe disease requiring hospitalization is uncommon.

- Deaths are rare

Treatment

- There is no current vaccine available to prevent Zika infections.

- There is no specific treatment for Zika infections; instead, treat the symptoms.

- Your healthcare provider will recommend supportive treatment such as rest and rehydration.

- If you have Zika, prevent mosquito bites for the first week of your illness.

- During the first week of infection, Zika virus can be found in the blood and passed from an infected person to another mosquito through mosquito bites.

- An infected mosquito can then spread the virus to other people.

What are the Army and DoD doing?

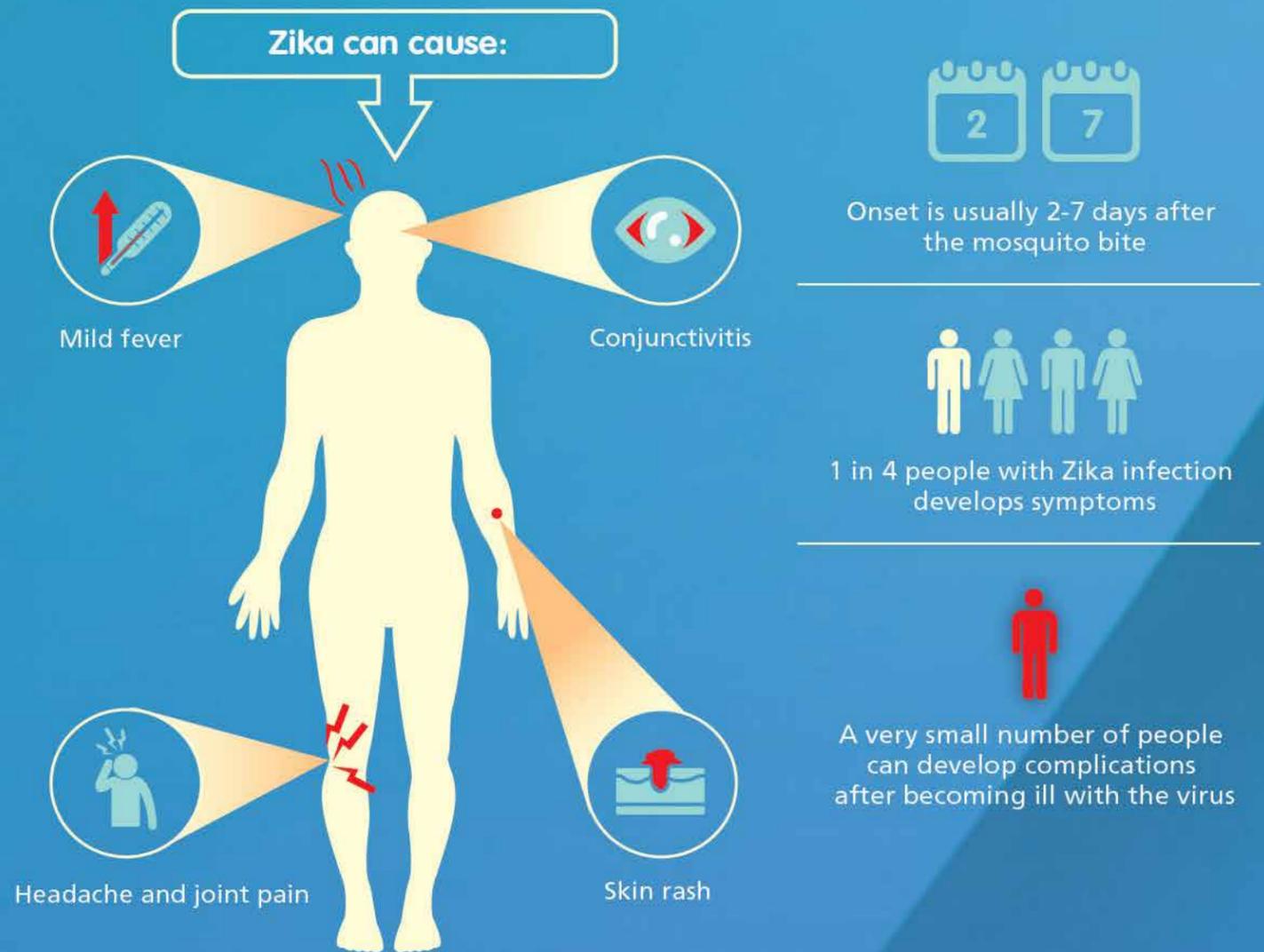
Department of Defense (DoD) labs are enhancing techniques to test mosquitoes for Zika. Southern Command (SOUTHCOM) is offering voluntary relocation out of affected areas to all pregnant DoD employees and beneficiaries, and all Army medical facilities have been notified of the concerns surrounding Zika infections and are prepared to assist patients who may have been infected. The Armed Forces Pest Management Board recommends wear of permethrin-treated uniforms/clothing, use of approved insect repellent, and removal of standing water that may serve as mosquito breeding sites to prevent bites.



ZIKA VIRUS

What is Zika?

Zika is a virus transmitted by the *Aedes* mosquito, which also transmits dengue and chikungunya.



Pan American Health Organization

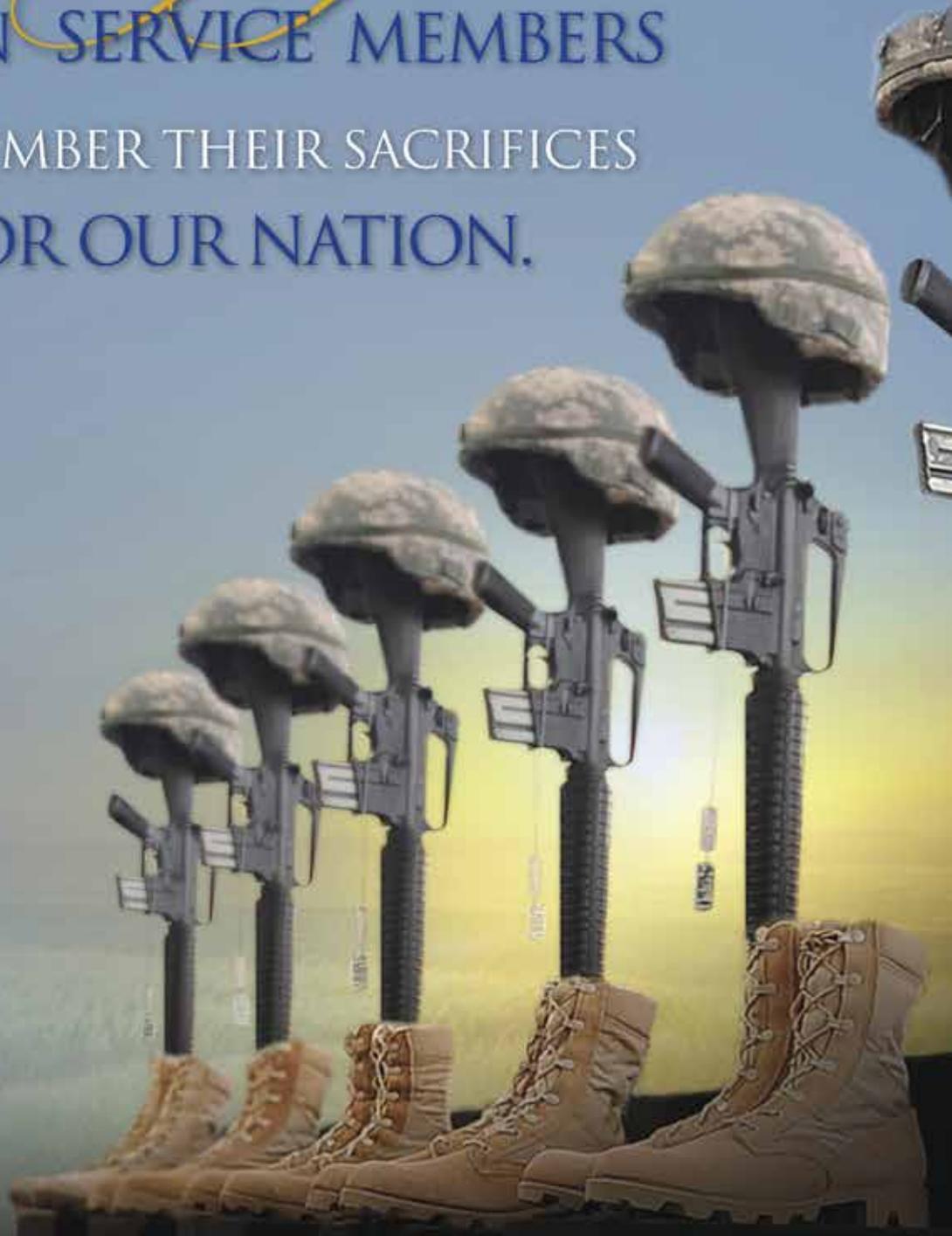


World Health Organization
REGIONAL OFFICE FOR THE Americas

#zika
#FightAedes
#ZikaVirus
www.paho.org/zikavirus

ON MEMORIAL DAY

TAKE TIME TO HONOR
THE *Legacy* OF
FALLEN SERVICE MEMBERS
& REMEMBER THEIR SACRIFICES
FOR OUR NATION.



| SymbolsofHonor.org | www.sos.army.mil |

