

November 7, 2014

# NSSC This Week



U.S. Army Garrison Natick Public Affairs Office

# The 40000 Suicide Crisis

*Our country and military  
battle an epidemic*

# 13 minutes

2013 Department of Defense Thomas Jefferson &  
U.S. Army MG Keith L. Ware Award-winning Digital Publication



# Publisher's Note

John Harlow  
USAG-Natick and NSSC Chief of Public Affairs



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# NSSC This Week

## 22 Is Too Many



There is a good chance that by the time you finish reading this newsletter, a veteran will have taken his or her own life.

The numbers are staggering ... 22 veterans every day take their own lives. That is 22 men or women who at one time raised their right hands to protect and defend the Constitution of the United States. They came to think that life was too much, and ended it.

We lose more veterans to suicide each year than we have lost in 13-plus years of combat in Afghanistan and Iraq.

There is no easy way to talk about suicide. My first and, thankfully, only experience with a suicide attempt was my first night of Basic Combat Training. The guy in the bunk below me was talking all day about how he was missing his wife and kids, how he wasn't sure he could graduate from Basic, and how he was already worn out. I never thought it was something I needed to pay attention to. I thought that he was someone who just needed a good night's sleep and that he would be ready to go tomorrow.

When I woke up for my turn at fire guard, I jumped out of my bunk and slipped when I landed and fell on the floor. I wound up slipping into a pool of blood from my bunkmate, who had slit his wrist with his razor. I ripped my shirt and tied it around his wrist and applied pressure until the drill sergeants arrived.

I was glad that I was able to help, but I have always wondered what happened to him. He was taken to the hospital and chaptered out of the Army.

Thankfully, times have changed. There is help available, and if you ask for help, it isn't a career killer.

We have all been through suicide prevention training. I hope we all know what we are supposed to do when we think someone is suffering in silence.

Ask them if they are OK. Ask them if they are going to hurt themselves. Ask them if you can help. Many do that, but many don't follow through. If you are going to ask the questions, please follow through. You just might be the one person they can trust and you might help them see that life is worth living.

Losing 22 veterans a day is too many. Please do your part. Look in on a veteran who might be your neighbor. Take a moment and thank them for their service. You just might be the person who saves a life.

John Harlow  
USAG-Natick and NSSC Chief of Public Affairs

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# 2014 Fall/Winter Safety Day

By Bob Reinert/USAG-Natick Public Affairs / NATICK, Mass. (Oct. 7, 2014)

Immediate supervisors should talk to new employees about safety on their first days of work.

That was the advice of [James A. Kaufman, Ph.D.](#), the featured speaker Oct. 3 at Hunter Auditorium during the [Natick Soldier Systems Center](#) 2014 Fall/Winter Safety Day.

Kaufman, who works for the [Labor Safety Institute](#), said that only five percent supervisors he has met actually do that. He added that the most important thing to change in a workplace is the safety culture.

"Improving the safety culture in any organization takes time," said Kaufman, who. It's a lot of people doing a lot of small things the right way that really makes a big difference."

Kaufman works with organizations in 30 countries and across 130 different kinds of industries.

"What we're really interested in is improving safety programs," Kaufman said. "We want you to be able to go from good to better to best."

According to Kaufman, there are four elements to a good safety program: a new employee safety orientation, a safety manual, a safety committee, and a rules agreement. He also mentioned the three "Cs" of safety: choices, consequences and convincing people to care.

"We really need to understand the hazards of what we're doing," Kaufman said. "The issue is there are certain things that we don't ever want to have happen."



Photos: Teanya Noman, USAG-Natick Public Affairs

## Fit Kit

### Studying the link between body armor, Soldier performance

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (Oct. 9, 2014)

Body armor has saved countless lives in Iraq and Afghanistan, but an Improved Outer Tactical Vest, or IOTV, that doesn't fit properly can actually hinder a Soldier's performance in combat.

That's why members of the Anthropology and Human Factors Teams at the [Natick Soldier Research, Development and Engineering Center](#) are conducting a range-of-motion and encumbered anthropometry study to better understand the link between fit and performance with the IOTV Gen III.

"We have this belief that if the fit of the body armor is really good, then the performance is going to be maximized," said Dr. Hyeg joo Choi, the principal investigator for the study. "So the question is, how can we quantify a good fit so that Soldiers' performance is maximized?"

To help answer that question, Choi and her fellow researchers collected measurements from 23 Soldiers at Natick, including 21 males and two females.

"We look at the body size first," Choi said. "And then everybody is tested in approximately three different (vest) sizes. Out of these sizes, we basically look at what the best performance size would be."

According to Human Factors project lead Blake Mitchell, after the IOTV was introduced in 2007, fit was identified as an issue for some wearers. Mitchell said this was a particular problem for female Soldiers.

In 2009, along with a team of human factors subject-matter experts, Mitchell and anthropologist Dr. Todd Garlie went to the field and measured 139 female Soldiers. Their results contributed to the 2012 issuance of IOTVs designed specifically for women.

Data collection began in June for the current two-year study, which used the vest portion only of the Gen III IOTVs.

"There wasn't any mission-essential gear included with this study, which might impact performance a little bit more," Garlie said.

Choi's early data suggest the current legacy size chart should be updated to reflect body size changes, which will be consistent with what Natick's [ANSUR II](#) anthropometric survey revealed in 2012 -- today's Soldiers are bigger than they were 20 years ago. The key measurement for IOTV fit, said Choi, is chest circumference.

"There are some people who are not really affected by the body armor size," said Choi, "and then there are some people who didn't really perform that well in any of the sizes."

Mitchell said she hopes that Choi's work will provide not just updated sizing information for the IOTV Gen III, but design guidelines going forward.

"So that it's not just this body armor system," said Mitchell, "but it can help drive future body armor system designs."

The study may also support the development of other protective clothing and equipment systems.

# A special Halloween

By John Harlow, USAG-Natick Public Affairs / NATICK, Mass. (Oct. 29, 2014)

Sapphira Murphy doesn't have an easy life. She suffers from mental health issues, which create challenges in many things that kids take for granted.

Sapphira has spent the last six years in and out of various placements, including hospitals, emergency rooms, residential treatment centers, day schools, community-based acute treatment, etc. This year has been especially difficult for her and her whole family because she spent three months in the hospital, two of those months 100 miles from home. Since May she has been in a residential treatment facility 60 miles from home.

Sapphira has faced challenges for her entire life, yet she remains positive. More than anything, Sapphira has a huge and giving heart for others.

While most families are preparing to take their kids out trick-or-treating, her mother, Linette, was heartbroken because that would be just too overwhelming for Sapphira. She blurted out that she just had to go trick-or-treating so that she could get a big huge bag of candy to send to our military troops overseas. With that statement, she broke her mother's heart.

The right people find ways to turn lemons into lemonade. That is what Linette Murphy intended to do.

So this Facebook page <https://www.facebook.com/pages/Sapphiras-Virtual-Trick-Or-Treat-for-Troops/1562763020613982> was established so that people could "virtually trick-or-treat" along with Sapphira. The thought was that individual families could post pictures of themselves and their kids in their costumes with the box of goodies

that they were shipping off to "Operation Gratitude." Sapphira could see the pictures of everyone in their costumes and all the huge boxes of candy being shipped. It has grown beyond that.

A little girl in New Hampshire is taking along an extra bucket trick-or-treating with a picture of Sapphira and the Operation Gratitude logo. She will trick-or-treat for Sapphira and then contribute the candy. She also got up the courage to stand in front of her church congregation and tell them about the project. The church has had a collection box out all month, and at their Halloween party, the kids will be writing thank-you notes to troops.

In northern Maine, throughout the month of October, the kids in the church that her mother grew up in, and where Sapphira was baptized, are collecting donations, writing thank-you notes, and making paracord bracelets.

A karate school in Massachusetts is asking that all the kids coming to the Halloween party bring donations of candy and toothbrushes.

A little girl in Massachusetts who has food allergies and can't eat a lot of her Halloween candy is going to send her candy to Operation Gratitude.

Corporate offices around the country have collection boxes out. Which office will collect the most donations?

The Girl Scouts of Eastern Massachusetts profiled Sapphira's virtual trick-or-treat for troops page on their "Troop Tuesday" segment of their website.



Courtesy photo

"I share the posts and pictures and stories with Sapphira each week when I visit her, and she is so amazed and happy to see that even though she may not be able to leave the confines of her circumstances to trick-or-treat, she certainly can make a difference," Linette said. "My hope is that Operation Gratitude will get a bag of candy as huge as Sapphira's heart."

For shipping instructions, consult the Operation Gratitude page (<http://opgrat.wordpress.com/2013/07/18/halloween-candy-for-the-troops/>). Be sure to include the donation form in all your boxes. On the line that says "Organization," please fill it out with "Sapphira's Virtual Trick-Or-Treat for Troops." You can also add the name of your own organization there.

Please send in all packages by November 15 and post pictures to the site of anything you send in so Sapphira can keep track of all the virtual trick-or-treating.

NSSC Video News

## 'Wheels That Heal'

As reported in the last issue of *NSSC This Week*, Staff Sgt. Eric Murray did the "Minuteman Challenge" 365-mile bike ride. A video report on his experience is at [bit.ly/13QJSXS](http://bit.ly/13QJSXS).

## Military Family Month

November is Military Family Month. To honor the service and sacrifice of Natick's current and retired military families, Army Community Service is hosting two special workshops.

On Tuesday, Nov. 18 from 11:30 a.m. to 12:30 p.m. at Lord Community Center, there will be a preview of "Scream Free Parenting," an eight-week parenting series. Email [douglas.h.lehman2.civ@mail.mil](mailto:douglas.h.lehman2.civ@mail.mil).

A "Principles of Healthy Relationships and Marriages" seminar will take place Wednesday, Nov. 19 from 11:30 a.m. to 12:30 p.m. at Lord Community Center.

To register, email [diane.k.magrane.civ@mail.mil](mailto:diane.k.magrane.civ@mail.mil).



# Reducing the Tail

## Advancing base camp technology at the BCIL

By Bob Reinert, USAG-Natick Public Affairs / FORT DEVENS, Mass. (Oct. 24, 2014)

As the Army rightsizes and transitions to a more expeditionary force, how efficiently its Soldiers can live during deployments becomes increasingly important.

Current and future technologies that will help realize that goal by saving fuel, water and money were on display here, Wednesday, during the annual stakeholders meeting at the Base Camp Integration Laboratory, or BCIL, which contains systems that are already deployed, those being tested, and new technologies.

Katherine Hammack, assistant secretary of the Army for Installations, Energy and Environment, supported this event, hosted by Lt. Gen. Gustave Perna, the Army G-4,

and Scott Davis, program executive officer for Combat Support and Combat Service Support. They and other attendees saw everything from energy-efficient rigid-wall shelters to next generation photovoltaics.

“Operational energy is about force protection,” Perna said. “You’re going to see some great efforts on how we are improving our capabilities to reduce operational energy, eliminate requirements in the force structure because of that, which will eventually save lives.”

As Lt. Col. Ross Poppenberger, with Product Manager Force Sustainment Systems, pointed out, the BCIL is more than just an impressive technology display.

Katherine Hammack, assistant secretary of the Army for Installations, Energy and Environment, listens as Bob Graney explains details of the energy-efficient rigid-wall shelter system, Oct. 22, 2014, at the Base Camp Integration Laboratory on Fort Devens, Mass. Hammack was on hand for the annual stakeholders meeting at the BCIL, where new base camp technologies are tested.

“It’s proving those technologies so that those things go to the fight and make a difference for Soldiers (who) are in those fights,” Poppenberger said. “At the end of the day, it’s about rapidly integrating new technologies and putting capability in the Soldiers’ hands.”

Among technologies assessed at the BCIL already deployed in operational environments with Soldiers, are the shower water reuse system that recycles 75 percent of the water it uses, and a microgrid that reduces fuel usage by 30 percent. The ultimate goal is a “zero footprint” base camp.

**“I am impressed by the great work that Natick Soldier Systems (Center) and PEO Combat Support & Combat Service Support are doing in reducing the logistical tail of fuel and water in our contingency base camps.”**

Katherine Hammack

“It’s really all about, within the force structure and funding constraints, how do we protect the real tooth of our formations by reducing the tail and not requiring as much support to sustain our formations?” Davis said.

“I am impressed by the great work that Natick Soldier Systems (Center) and PEO Combat Support & Combat Service Support are doing in reducing the logistical tail of fuel and water in our contingency base camps,” Hammack said.

The BCIL is getting plenty of practical use. According to Lt. Col. Steve Egan, the Fort Devens garrison commander, more than 35,000 Soldiers have stayed at the base camp over the past three years while training at Devens.

“We expect those numbers to increase as word gets out there,” Egan said. “It’s been a great opportunity for the Soldiers and a great capability for Fort Devens.”

“They get to see what they’re going to encounter downrange, which is huge,” Egan said. “Given our primary customers are the [Army] Reserve and [National] Guard, this maximizes their training time. So this is a huge benefit.”

# Productive Reuse

## Army assistant secretary visits Fort Devens

By Bob Reinert, USAG-Natick Public Affairs / FORT DEVENS, Mass. (Oct. 24, 2014)

In her first official visit here Oct. 21, the Assistant Secretary of the Army for Installations, Energy and Environment pointed to U.S. Army Garrison, Fort Devens as a model for “productive reuse” of former active Army posts.

“As we look at the Army inventory and consider another round of Base Realignment and Closure, (we’re) looking at models of how bases can be productively reused,” Katherine Hammack said. “And in this case, it’s to benefit the Army Reserve; it’s to the benefit of some of our testing commands, (such as) Natick Labs, (which) does work here.”

“And it’s good to see other services -- whether it’s FBI or Guard units or police -- all have beneficial reuse.”

Fort Devens closed after 79 years as an active Army installation on March 31, 1996, re-emerging the following day as the Devens Reserve Forces Training Area. In May 2007, it became U.S. Army Garrison Fort Devens. Its current mission is to serve as a training resource for thousands of Army Reserve and National Guard Soldiers spread throughout the six New England states.

“If you want to conduct maneuver training, or if you need classroom buildings or weapons qualification ranges, we’re one of the only games in town,” Lt. Col. Steve Egan, the USAG-Fort Devens commander, told Hammack. “We have a lot of throughput and conduct a significant amount of training here.”

Fort Devens features 26 training areas, 25 ranges and 27 training facilities, including an active drop zone. It also boasts 16 web-enabled classrooms, with 700 networked computer stations. An average weekend finds 2,000 Soldiers training here.

The installation’s ranges can accommodate weapons from sidearms through the M-240 machine gun, as well as grenades, mortars and demolitions.

“I’m impressed with the ranges,” Hammack said. “You are doing a great job in improving ranges, keeping them current, and that improves the capabilities of all of our Soldiers. So that’s a great thing to see.”

Ray Prisk, Fort Devens director of Public Works, briefed Hammack on energy and environmental

initiatives, which include an emphasis on developing renewable energy sources such as geothermal, ground source heat pumps, and fuel cells.

“By 2020, we have in motion all the actions we need to break the net zero requirement by 2025,” Prisk told her. “That’s the bottom line.”

Outside the gates, land once owned by the installation before Base Realignment and Closure now bristles with successful businesses.

“That is great, productive reuse that benefits the community,” Hammack said. “So, sometimes the story is not told that there is life after active Army reorganized, that there’s great use for the community and the Reserve Components.”

**“As we look at the Army inventory and consider another round of Base Realignment and Closure, (we’re) looking at models of how bases can be productively reused. And in this case, it’s to benefit the Army Reserve; it’s to the benefit of some of our testing commands, (such as) Natick Labs, (which) does work here.”**

Katherine Hammack

**Editor's note:**

*The following article was reprinted from USA Today. It details the growing crisis of suicides in America. It includes a section about Capt. Justin Fitch of Natick Soldier Research, Development and Engineering Center, who devotes his time to cutting veteran suicides from their current alarming average of 22 per day.*

# The Suicide Crisis

By Gregg Zoroya, USA Today

# The suicide crisis

'Get them before they're up on the bridge'

Standing high above the San Francisco Bay, perched on an I-beam outside the Golden Gate Bridge railing, the man dressed neatly in khakis and a button-down shirt hesitated.

Kevin Briggs stood a few feet away, imploring him not to jump. In nearly 20 years as a California Highway Patrol officer policing the famous span, Briggs had more success than failure in talking troubled souls back from the ledge.

He and two other officers persisted for nearly an hour on this day in 2007, and the man, perhaps 35 years old, seemed touched by their earnestness. He reached over three separate times to shake Briggs' hand.

Then it was suddenly over. "He said, 'Kevin, thank you very much,' " Briggs recalls quietly, "and he left."

The man plummeted to his death in the waters below.

There's a suicide in the USA every 13 minutes.

A short ride from the Golden Gate Bridge where about 1,600 of these deaths have occurred over the years, actor-comedian Robin Williams took his life at his Tiburon home in August.

Americans are far more likely to kill themselves than each other. Homicides have fallen by half since 1991, but the U.S. suicide rate keeps climbing. The nearly 40,000 American lives lost each year make suicide the nation's 10th-leading cause of death, and the second-leading killer for those ages 15-34. Each suicide costs society about \$1 million in medical and lost-work expenses and emotionally victimizes an average of 10 other people.

Yet a national effort to stem this raging river of self-destruction — 90% of which occurs among Americans suffering mental illness — is in disarray.

In a series of stories this year, USA TODAY explores the human cost of allowing 10 million Americans with mental illness to languish without care. On the dark edge of that spectrum is a consuming urge to die, and those committed to understanding suicide say there are potential solutions if there is a national will to seize on them.

The country seems almost complacent with this staggering death toll. America's health care community remains mired in confusion over how to tackle suicide mostly because the public — and with it, the federal government — never gets serious about finding crucial answers.

Basic questions about whether suicide is a public health problem, whether it can be prevented on a broad scale, whether suicidal thoughts and actions are a disorder or a symptom of other disorders, remain widely debated.

Perhaps as a result of this scattered approach to what is clearly a health crisis, greater sums of money and research are devoted to curing diseases and social ills that kill far fewer Americans despite clear historical evidence that more investment translates into more lives saved.

"Is there the kind of concerted effort (for suicide) that's been made with HIV, with breast cancer, with Alzheimer's disease, with prostate cancer?" asks Christine Moutier, chief medical officer for the American Foundation for Suicide Prevention. "There's never been that kind of concerted front."

"When we invested in HIV/AIDS and breast cancer, we dramatically reduced the rates of death," says Jill Harkavy-Friedman, vice president of research for the foundation. "If we invest in suicide prevention — really invest in it — then we have a good shot at bringing it down."

The National Institutes of Health — the largest source of research money — spends a small fraction on suicide compared with diseases such as breast and prostate cancer that result in as many or fewer American lives lost. The suicide research budget for the National Institute of Mental Health (NIMH) has actually been shrinking since 2011.

The Centers for Disease Control and Prevention promotes several "winnable" priorities, among them motor vehicle injuries and HIV. Suicide, though more costly in lives than either of those categories, is not on the list.

Lawmakers' agendas are heavily influenced by public disinterest and a persistent view in the USA that anyone bent on killing themselves cannot be saved. Briggs saw the worst of this

during suicide crises on the bridge when drivers passing by would yell out, "Go ahead and jump."

"If the public doesn't think you can do anything about it, they won't support it," says Alex Crosby, a CDC epidemiologist who focuses on suicide prevention.

"Can you really stop somebody who wants to kill themselves? I still hear that," says Jane Pearson, chair of the NIMH research consortium. "Changing that perspective is really critical."

If we invest in suicide prevention — really invest in it — then we have a good shot at bringing it down."

Jill Harkavy-Friedman, American Foundation for Suicide Prevention

Only in one area did Americans react to suicide. When soldiers started killing themselves in record numbers during two arguably unpopular wars in Iraq and Afghanistan, a groundswell from the public and Congress drove the military to respond.

The Army suicide rate tripled from 2004 to 2012 as more than 2,000 GIs took their lives. A new RAND study says that since 2005, about \$230 million was poured into suicide research, more than two-thirds of it from the military.

"All the military research is likely to benefit civilians as well," says Michelle Cornette, executive director of the American Association of Suicidology.

A centerpiece effort is a \$65 million study — the cost split between the Army and NIH — analyzing soldier suicides and tracking tens of thousands of troops over a period of years to understand self-destructive urges.

"The level of detail we are getting ... nobody has ever done anything on that scale in any population relating to suicide risk," says NIMH study scientist Michael Schoenbaum. "We have an enormous amount to learn."

Briggs, who retired from the CHP last year, says answers are long overdue. Promoting crisis management and suicide prevention, he says the nation must find a way to treat despair before the only resort is a police officer begging someone not to jump.

"Get them before they're up on the bridge," Briggs says, "because when you're up on that bridge, it's almost game over."

## Matthew Milam's short life story

'As a parent, you really don't know what else to do'

When Matthew Milam smiled, dimples on his broad face ran deep, and his cheekbones grew round and high — the infectious look of someone who could light up a room.

"As a little kid, I used to always tell him he had heart," says his mother, Debbie.

Medication was the key after he grew up. Without it, Matthew toggled emotionally between a sweet, compassionate 24-year-old who loved to cook and was terribly shy around strangers — to someone consumed with paranoia who dug his own grave in the backyard and stood outside in a lightning storm, begging God to strike him down.

"It'd be like a light bulb going off," says his father, Pat, vice president of sales for an oil field service company in New Orleans.

Those with severe mental illness such as Matthew, diagnosed with paranoid schizophrenia at 24, illustrate the gaping challenges researchers face in finding solutions to suicide. Half of those with schizophrenia, an illness marked by delusions and hearing voices, attempt suicide. One in 10 succeed.

Matthew's parents said his emotional state began to grow worse after he found his younger brother Michael dead at 18 of a heroin overdose in the family home in Harahan, La., in 2007.

Within a few years, Matthew was diagnosed with bipolar disorder and later with schizophrenia as more severe symptoms emerged.

He was institutionalized for brief periods four times in 2011, once after cutting his throat with a steak knife, according to his medical files. Each time, Matthew improved with medication and promised to stay on it. Each time after coming home, he would stop — a problem common to those suffering from bipolar disorder who believe the drugs dull their manic periods of elation.

Matthew's parents said they felt helpless to prevent their worst fears from coming true.

Equally frustrating, they said, was an inability to collaborate more closely with Matthew's



There's a suicide in the USA every 13 minutes

doctors because of their son's privacy rights under the federal Health Insurance Portability and Accountability Act, or HIPAA. The law restricts release of personal medical information for anyone 18 and older.

"As a parent, you really don't know what else to do. You try to go to doctors and talk to them and ask them what in the hell is going on?" Pat Milam says. "The first thing they always say is 'Oh, we can't talk about it. HIPAA. HIPAA.'"

In 2011, the year Matthew's life was in crisis, suicides across America had been on a steady rise for 12 years despite modest investments in research. A private-public partnership formed in 2010 called the National Action Alliance for Suicide Prevention decided to go back to basics.

**"If we invest in suicide prevention — really invest in it — then we have a good shot at bringing (the rate) down."**

Jill Harkavy-Friedman, *vice president of research, the American Foundation for Suicide Prevention*

The alliance formed a task force of leading experts and published a way forward on research this year. It asked fundamental questions: Why do people commit suicide? How can they be identified? What works? Where is most research necessary?

Some of the ideas could have been drawn right from Matthew Milam's short life story — how to prevent a second suicide attempt after a first try, how to continue needed care.

The challenge in cases like Matthew's is when potential answers clash with individual rights,

says Eric Caine, who assisted the alliance task force and directs the Injury Control Research Center for Suicide Prevention at the University of Rochester Medical Center.

Pat Milam says his son would be alive today if there had been a way to keep him medicated.

Some states allow for court-ordered treatment plans. No studies have been done on whether this could prevent suicides, another example of gaps in knowledge, Caine says. Such ideas, he says, lie "at the edge of what we know and what we don't know."

HIPAA restrictions, though frustrating to parent/caregivers of troubled adult children, enshrine coveted American principals of individual privacy protection, Caine says. Changing this would require substantial social debate.

The net result, he says, are many "fracture points or cracks or chasms that people can fall through." The despairing Matthews of the world "push away many, block those who would intervene and challenge our notions of individual autonomy," he says.

On Oct. 21, 2011, Matthew went into his closet and killed himself with a small home-made explosive. He fashioned it in secret. His parents were downstairs, waiting to take him to his next therapy session.

Sarah Clingan contemplated suicide before getting the treatment she needed. She now is on the other side, offering advice and counsel to people haunted by suicidal thoughts.



Photo: Scott Eklund, Red Box Pictures

## Sarah Clingan's journey

### 'I am alive, and it is a grand thing'

Sarah Clingan says severe depression feels like drowning, "where I can look up and see the bubbles from my nose rising toward the water's surface and am aware of every breath I can't take."

There is a profound sense of being alone, she says.

"One of the hardest things about mental illness is you can't walk into a hospital and show them you're broken," says Clingan, 30, a former preschool and kindergarten teacher who lives in Seattle.

The oldest child of a pediatrician father and a mother who is a speech therapist, Clingan grew up in Port Orchard, Wash., outside Seattle and was first diagnosed with depression during college.

The illness grew more severe after graduation when she began contemplating ways of overriding feelings of oppressive gloom whether it was through eating disorders, cutting herself or even suicide, Clingan says.

"It's wanting to escape," she says, "feeling like I had worked really hard and tried everything and knowing that my depression and mental

illness was affecting the people around me that I cared about and not wanting to be a burden on them anymore."

Twice she tried to kill herself at age 26 with a medication overdose. During this period, she was finally introduced to one of the few tools validated in curbing suicides.

**One of the hardest things about mental illness is you can't walk into a hospital and show them you're broken."**

Sarah Clingan

Known as Dialectical Behavioral Therapy or DBT, it is an intense, team-therapy treatment. In the beginning, Clingan had access to a therapist round-the-clock. During therapy, she learned ways to avoid falling into familiar patterns of anxiety and developed tools to better tolerate feelings of sadness and hopelessness.

Last month, an American Journal of Preventive Medicine edition devoted to suicide identified five other promising therapies for

curbing suicide attempts or self-harm. A small number of medications have shown promise as well.

"That's how early we are in the science around the interventions for suicide," says Moutier of the American Foundation of Suicide Prevention. "People are now turning

toward it. Have they turned fully? No. Are they in the process? Yes."

Clingan says her therapy continues. She's enrolled in a master's program in social work at the University of Washington and began to blog about her life this year.

"I am alive," she wrote in a moment of exhilaration last May, "and it is a grand thing."

Photo: Josh T. Reynolds for USA Today



I've always wanted to focus on trying to leave the world a better place."

Army Capt. Justin Fitch

## Justin Fitch's race

### 'Maybe I can inspire other people'

There is a sense for some that time is short and too many are at risk. A new World Health Organization study estimates that globally, there is a suicide every 40 seconds.

Urgency is all Army Capt. Justin Fitch thinks about. Time is running out for him personally, and he says there is too much left to do to stop suicides.

The 32-year-old commander of a headquarters unit at the Army's Soldier, Research, Development and Engineering Center in Natick, Mass., nearly succumbed to suicidal urges during his first combat deployment to Iraq seven years ago.

pounds of trigger pressure," he remembers. Fitch hesitated. He later reached out to a counselor on the base, and with the help of medication and therapy, he began coping with his depression. "It took time," he says.

Today, he cannot recover from colon cancer diagnosed in 2012 that doctors declared terminal last year. In June, they said he had only months left. Faced with his own mortality, Fitch consulted his wife, Samantha Wolk, and reflected on the 22 veteran suicides occurring each day. He chose to devote his remaining time to prevent others from committing suicide.

**"It was at the point where you have a gun up to your head, you can taste the carbon of a barrel in your mouth."**

Army Capt. Justin Fitch

A combination of depression, loss of sleep and combat stress left him alone one day with his M-4 rifle in his shipping-container sleeping quarters.

"It was at the point where you have a gun up to your head, you can taste the carbon of a barrel in your mouth, and the only thing that stands between me and being a statistic is 4.5

"I've always wanted to focus on trying to leave the world a better place," he says.

This sentiment, shared by others, has fueled modest victories in the war against suicide. "In pockets, there's been progress," says Rochester University researcher Caine.

Biological research led scientists in recent years to assert that suicidal behavior is a

disorder that deserves to be included in the bible on mental health illnesses — the Diagnostic and Statistical Manual of Mental Disorder — so doctors could better diagnose, identify and move into treatment those who are suicidal.

American Psychiatric Association officials who periodically revise the manual want more study.

"It's really a shift to consider it a disorder unto itself," says Maria Oquendo, a psychiatry professor at Columbia University who urged that suicidal behavior be recognized as a disorder in the manual. "They (the authors) said it's an idea that obviously needs to be considered but is not quite ready for inclusion."

One fact about suicide that research has firmly established is that reducing access to lethal means reduces suicide. The result has been a national initiative to erect barriers at sites where suicides occur, most prominently a \$76 million project to build steel nets along the Golden Gate Bridge. A record 46 suicides occurred there last year.

Prevention advocates say the death of Robin Williams shocked the public and led to a national discussion about suicide.

In what time he has left, Fitch is intent on tapping into this growing awareness to raise funds for his dream: completion of a retreat for at-risk veterans and their families on a 144-acre parcel of land in Shepherdsville, Ky. Despite chemotherapy that has drained him of strength and weight, Fitch has immersed himself in fundraising through the Active Heroes organization devoted to reducing suicides in the military.

To raise money, he's led "ruck marches," in which participants carry weighted backpacks or military rucksacks on long hikes. The most recent one weeks ago left him "physically destroyed, spiritually strengthened."

**National Suicide Prevention Lifeline:**

**1-800-273-TALK (8255)**

"Maybe I can inspire other people," he says. "It's OK to seek help. And when they raise their hand, everything humanly possible should be done to take care of that person. Because suicide is completely preventable."

# A More Dignified Return

## Natick designs custom-fitted flag for remains transfers

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (Oct. 8, 2014)

When the remains of a fallen U.S. service member arrive at Dover Air Force Base, Delaware, from overseas, an American flag is always draped over the transfer case borne by the carry team.

Because a standard flag is used, it can shift position or be affected by wind during movement from the aircraft. With great respect for the solemn occasion, a combined team at [Natick Soldier Systems Center](#) has designed a custom-fitted flag for the transfer case that is now undergoing 90 days of testing in five locations. Evaluations will then be reviewed.

The project began when Lee Green, director of the [Joint Mortuary Affairs Center, or JMAC](#), at Fort Lee, Virginia, contacted Tim Benson of [Product Manager Force Sustainment Systems](#) at Natick with the concept.

"They were looking for ... a stitched version of the flag," Benson recalled. "They had actually prototyped something in-house themselves, but they wanted to take it to the next level and eventually try to get it into the ... supply system.

"I know nothing about fabric products, so I approached the experts here at ([Natick Soldier Research, Development and Engineering Center](#)) to try and take that on."

Benson went to Annette LaFleur, the Design, Pattern and Prototype Team leader at NSRDEC. LaFleur turned to clothing designer Dalila Fernandez of her team and later enlisted Pete Stalker of the Parachute Shop to help verify the design templates, table of operations and manufacturability.

"I felt really good having these folks work on it," LaFleur said. "They both have really great work ethic, and they immediately handled this project with the greatest respect."

The team faced a unique set of challenges in turning out a prototype from a standard flag.

"There are regulations in regards to altering or changing the appearance of the flag," LaFleur said. "The flags have to be returned to their normal state when they're disposed of. That's the procedure. It was a learning experience."

Fernandez began by making the corners fit around the case, which wasn't as easy as it sounds. As she pointed out, because of the stitching, actual flag sizes can vary by inches.

"So I designed a template ... to be used for all the flags that come in, so that at least the finished product is (uniform)," Fernandez said. "I like my end product, as far as presentation, to be a hundred percent. One of the things I wanted to do is to give this project the honor that it deserves."

Stalker suggested that they use filament thread -- about the thickness of fishing line -- attached to a thin needle to avoid damaging the flag. He also suggested a different stitch type that would be more readily available at numerous manufacturing facilities.

"Every flag was form-fitted on the (transfer) case at the Parachute Shop," Stalker said. "It was like it was never sewn."

Fernandez also worked to make sure that the flag folded just right so that it would be "presentable to the eye."

According to LaFleur, JMAC finally settled on a design. Then Fernandez and Stalker produced 25 flags that are now out for three months of evaluation. Users will provide feedback by completing questionnaires created by Alan Wright of NSRDEC's Consumer Research Team.

"We tried to take into consideration the perception people might have when they looked at these (flags)," Wright said. "So when we formulated the questions, we were trying to take a broad view."

Early feedback on the custom-fitted flags has been positive.

"I think the users at the Joint Mortuary Affairs Center are very pleased," Benson said. "Obviously, this wasn't in the PM's bailiwick, and I couldn't be happier with the way (NSRDEC) picked up and ran with this project."

"It was a really nice collaboration between four teams in different areas/organizations," LaFleur said. "I'm glad that Tim came to seek us out. It was a great opportunity."

To a person, those involved in the project at Natick spoke of how honored they were to be included.

"It was more like an emotional project," Fernandez said. "(Pete and I) were working one day, and we actually teared (up) together, because we were talking about what an honor it is. There's something about the flag when you look at it -- it's just gorgeous; it's beautiful."

Wright said it was important to him that fallen service members and their families be remembered properly.

"There's a lot of heartfelt feeling about what the flag represents and what it means to the Soldiers and their families when they make that ultimate sacrifice," Wright said. "For me, personally, it's a great honor to participate."

"I've worked at Natick ... for over 46 years, and I never got so emotionally involved in a project," Stalker said. "If you look at that flag, it's meant for somebody. It's very moving."

**"I've worked at Natick ... for over 46 years, and I never got so emotionally involved in a project. If you look at that flag, it's meant for somebody. It's very moving."**

Pete Stalker, Parachute Shop

A joint team at Natick Soldier Systems Center has designed a custom-fitted American flag for the remains cases used in "dignified transfer" ceremonies such as this one held April 20, 2012, in Papua New Guinea, where a standard flag was used.



# Keeping It Clean

## Natick fabric goes commercial

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (Sept. 17, 2014)

Quoc Truong, a physical scientist at the [Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, is making sure that it all comes out before the wash.

Truong provided technical guidance and direction to NSRDEC's industry partner, Luna Innovations, Inc., to successfully develop a durable, "omniphobic" coating used to produce [self-cleaning fabrics](#). The technology, which was developed for use in Soldier clothing, has now made its way to the commercial market.

The coating greatly reduces how often Soldiers need to clean their clothes and enhances chem-bio protection. The omniphobic-coated fabric significantly lowers dirt and dust attraction, and repels water, oil and many liquid chemicals.

"It's omniphobic. That means it hates everything," Truong said.

Truong's technical guidance and leadership were provided to Luna's scientists and engineers through close communications with Luna principle investigator Bryan Koene. Truong's oversight continued through various stages of lab-bench testing and evaluation, ensuring that the optimized, omniphobic-coating formulations were compatible for use with various Army fabrics.

"Care was taken to also ensure minimal impact to Army fabrics' original physical properties and performances, such as comfort, while providing added repellency to water, oil and toxic chemicals," said Truong.

The self-cleaning clothing then underwent field testing to assess field durability, performance and user acceptance.

"We tested it, and the Soldiers really liked it," said Truong. "The treated fabric also has an anti-microbial additive. It slows microbe

growth that causes odors. Some Soldiers had asked to keep their uniforms after the field tests. However, it was essential to collect these field-tested uniforms for a post-field-test evaluation to assess their liquid-shedding performance and durability."

The omniphobic coating's predecessor, Quarpel, is a durable, water-repellent coating that has been used for the past 40 years. Compared with Quarpel, the new coating is more repellent to oil and toxic chemicals. It is also "greener" than its predecessor.

"What we developed with our industry partner, Luna, is based on a C6 chemistry," said Truong. "It contains shorter, six-carbon molecular side chains containing fluorine atoms as compared to its predecessor having longer, eight-carbon chains, and C6 chemistry is considered by the Environmental Protection Agency to be environmentally friendly."

Even greener versions without fluorine are planned for the future.

UltraTech International, Inc., has been working with NSRDEC partner Luna Innovations to market the omniphobic coating, and it has made this material available commercially under the name of Ultra-Ever Shield™. So far, UltraTech has 150 potential business leads for the product. The technology is being applied to everything from outdoor wear to diapers. One country is even interested in using this self-cleaning coating to make bank notes more water- and stain-resistant.

"It would give new meaning to 'laundering' money," said Mark Shaw, chief executive officer, UltraTech International.

In an unusual sequence of events, the technology is making its way to the commercial market before becoming widely available to Soldiers.

"This new coating became commercialized before the Army has adopted it to replace its older Quarpel coating, but we are working on that," said Truong.

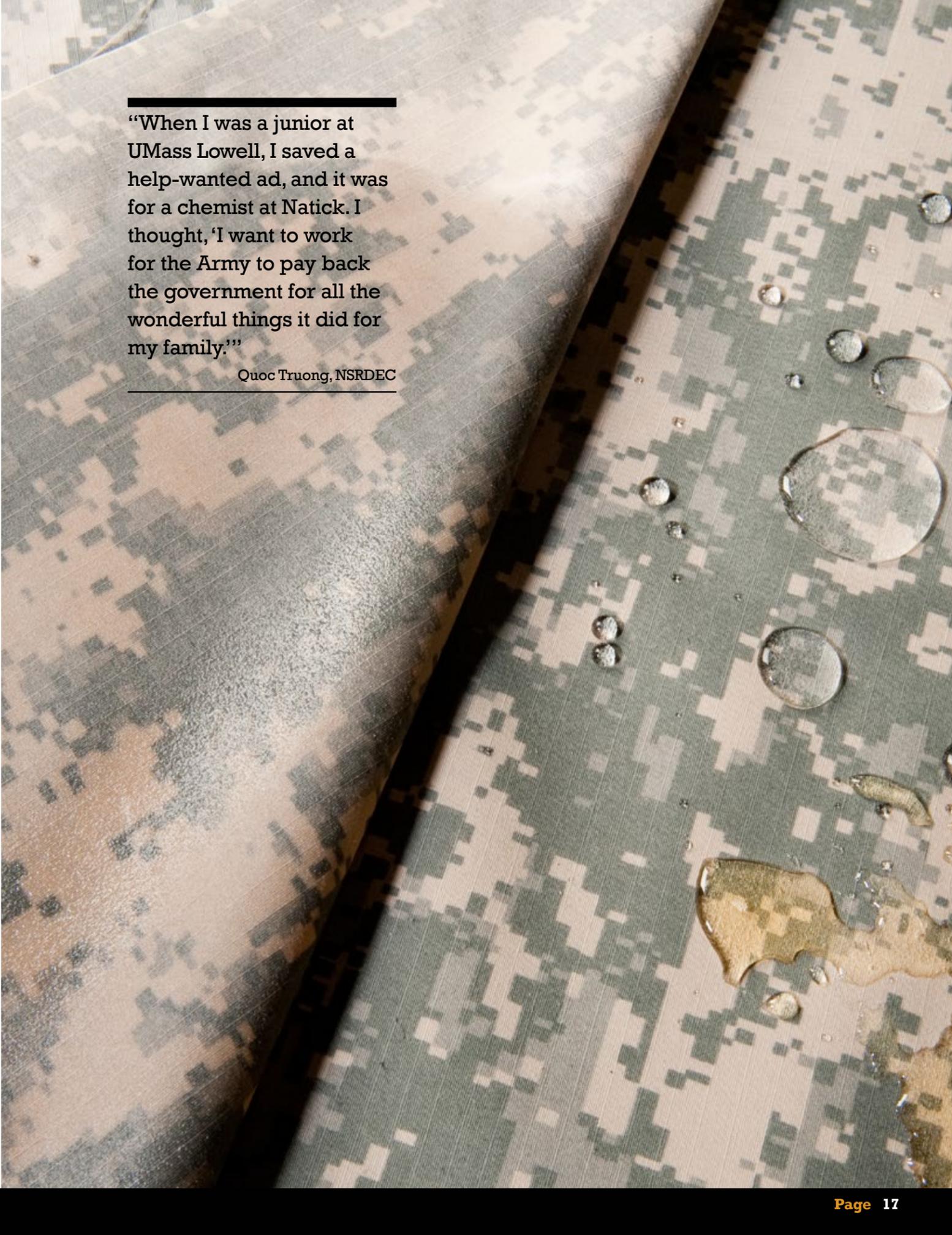
Additional military uses are also already in the works. Truong said that right now the coating is for textiles, but NSRDEC is working with a team of academic and industry partners to develop super-omniphobic coatings. The next generation of self-cleaning technology could be used on leather boots and gloves. Down the road, the self-cleaning technology may be possibly applied to flexible/hard surfaces, such as goggles, visors, shelters, and marine structures such as ship hulls.

"We've just scratched the surface, as far as applications go," Truong said.

Truong has been working on leading-edge technologies and the development of advanced, innovative materials and textiles for decades. He has personal reasons for his dedication to his work for the Soldier.

"When I came here (from Vietnam), I was only 15," said Truong. "The American government and people were so helpful and so welcoming to our family. As a result, my eight brothers and sisters are now productive citizens. We will forever remember the kindness of our American friends."

"When I was a junior at [UMass Lowell](#), I saved a help-wanted ad, and it was for a chemist at Natick. I thought, 'I want to work for the Army to pay back the government for all the wonderful things it did for my family.' When I graduated, I was hired by Natick. I feel really fortunate that I have this job with the opportunity and the freedom to explore new ideas. Some ideas may seem crazy, but they can be done."



"When I was a junior at UMass Lowell, I saved a help-wanted ad, and it was for a chemist at Natick. I thought, 'I want to work for the Army to pay back the government for all the wonderful things it did for my family.'"

Quoc Truong, NSRDEC

# Bug Out

**Ensuring  
insect-repellent  
clothing is safe,  
effective**

Photo: World Health Organization

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (Oct. 14, 2014)

When it comes to insect repellent, the [Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, makes sure Soldier uniforms are treated just right.

The Textile Materials Evaluation Team, or TMET, evaluates uniforms before they are issued. The team verifies that the insect repellent treatment meets the requirements of the specification, which are derived from the [Environmental Protection Agency](#), or EPA, application rate. The verification ensures that the uniforms are treated at the appropriate levels with permethrin and provide adequate protection from biting insects.

In the past, the Individual Dynamic Absorption Kit, or IDA Kit, was used by Soldiers in the field to apply permethrin to individual combat uniforms. A two-gallon sprayer (hand can) was also used to treat multiple uniforms, but it could only be used by certified applicators.

For many uniforms, these methods were later replaced by industrial application in factories, which provides more uniformity and consistency in permethrin application. It also helped ease the logistical burden since uniforms that are issued to Soldiers are already treated. Therefore, the Soldiers don't need to carry the supplies with them, and they don't have to dispose of containers and repellents after use.

"Logistically, it gets rid of that extra step," said Amy Johnson, NSRDEC textile technologist. "So when Soldiers are getting ready to deploy, it is not yet another thing they have to do. A senior commander doesn't need to make sure that everyone did it. It's already done. And a big benefit is that (factory application) lasts through multiple launderings. We found in testing that it lasts much longer than the aerosol individual treatment methods."

"Factory Treatment has better durability," said Melynda Perry, an NSRDEC textile chemist.

"It is good for the life of the garment," Johnson said.

Although the factory application improved the consistency in the amount of permethrin applied to the uniforms, the garments still

*Natick makes sure insect-repellent clothing treatment is at safe and effective levels. Bites from sand flies, which carry the disease leishmaniasis, are a problem for Soldiers. Natick evaluates permethrin insect repellent levels in uniforms to ensure adequate and safe protection from sand flies and other insects.*

need to be evaluated by NSRDEC through an extraction process.

"Permethrin, because it is an insect repellent, is regulated by the Environmental Protection Agency," Perry said. "Extraction and analysis must be done to make sure the uniforms are meeting EPA-approved levels. Prior to moving forward with factory treatment, the doses were run through the U.S. Public Health Command to ensure that the amount of permethrin being applied was well below toxicity levels for people."

"Insect repellent textiles that require testing are sent to TMET for extraction of the active ingredient, which is measured and quantitated on the gas chromatograph/mass spectrometer," said Lauren Heim, a textile technologist/technician with Battelle Memorial Institute (contractor)/NSRDEC. "This testing is performed on treated end items and on developmental fabric and garments."

The team works collaboratively with project officers to provide input into fabric and end-item specifications.

"We require a certain dose rate based on the fabric weight," said Perry. "We provide the minimum and maximum requirements that go into the specifications (for the factory application). "(Percent) Bite Protection" requirements are based on the fabric type. It's not just the permethrin that helps prevent bites -- it's the permethrin in conjunction with the fabric construction. The fiber type or blend and the weave type also come into play."

"So there is a lot of work done upfront," Johnson said.

Insect bites are not only a nuisance, they can be dangerous. Mosquitoes, sand flies, ticks and other insects can carry diseases, such as malaria, leishmaniasis, Lyme disease and West Nile disease. Illnesses carried by insects can impact Soldier morale, health, performance and survivability.

"Some of these diseases can cause death or cause a Soldier to be incapacitated for a period of time, which can affect the mission," Perry said.

Perry emphasized that the permethrin-treated clothing is only one element in the [Department of Defense Insect Repellent System](#).

"It is important to note that permethrin is a contact repellent," Perry said. "It will not repel mosquitoes from exposed areas of skin. So

even if you are wearing a permethrin-treated uniform, if you are not wearing your topical repellent, such as DEET, on your hands, face and other exposed areas, you're not going to be protected on those areas. All components of the DoD Insect Repellent System must be used. The system consists of the treated uniform, worn properly, and topical insect repellent on exposed skin, applied as necessary."

The system also includes using bed netting while sleeping and taking anti-malarial medication. NSRDEC's work protects those serving in the Army, Navy, Marines and Air Force.

Currently, permethrin is only approved for use on outer garments. NSRDEC is looking to expand protection through the development of novel textiles and methods that will help prevent insect bites, especially from insects that are known to carry pathogens. NSRDEC is also starting to investigate the development of base camp protection to minimize the threat of insect-carried diseases within the camp.

"We're not just focusing on permethrin, we're investigating other ways to protect the Soldiers, as well," Perry said. "NSRDEC is investigating natural oils and spatial repellents (to be used in base camps or on gear). DEET and permethrin are contact repellents. We want to prevent the mosquitoes from even reaching the Soldiers. Soldiers are often most vulnerable when they get back to the base camp and they take off their (treated) uniforms. So, we are looking into repellents that could possibly be incorporated into PT (physical training) uniforms and other items."

"We are also looking into spatial repellents that could potentially be used to treat a shelter or even a latrine or placed around base camps. In the future, we could look into placing attractants outside the base camp, where we could lure insects away."

The team is dedicated to its work.

"It's rewarding to know that the work we do protects the Soldier and that the work we do is relevant to morale, mission and comfort," Perry said.

"It helps keep them more mission ready," said Johnson. "It keeps them safe."

"It keeps me going in the lab," Heim said. "I just focus on the Soldier. This is why I am driven to keep the extraction testing process going every day."

# Working Up a 'SWET'

USARIEM app helps determine body's water needs

By Kelly Field, USARIEM Public Affairs / NATICK, Mass. (Oct. 24, 2014)

Clean, potable water is one thing the world universally cannot live without. It hydrates. It cleans. It keeps us alive and well. No doubt, water is very valuable to Soldiers.

However, as many mission planners know, water planning can be a nightmare. Too much water can strain already heavy combat loads, perhaps forcing some Soldiers to pack too little in favor of a lighter pack. When Soldiers don't have enough water, dehydration could set in, decreasing performance and increasing the risk of serious heat illnesses.

"Water is a huge logistical problem for training and field missions," said Dr. Nisha Charkoudian, a research physiologist from the [U.S. Army Research Institute of Environmental Medicine](#), known as USARIEM, [Thermal and Mountain Medicine Division](#). "Obviously, planners do not want too much, but having too little can lead to serious problems. Dehydration exacerbates symptoms caused by heat and altitude exposure, and makes a lot of things worse, including the ability to perform physical tasks in hot and high-altitude environments."

To help solve this logistical problem, Charkoudian worked with researchers from USARIEM -- Dr. Sam Chevront, Dr. Robert Kenefick and Ms. Laurie Blanchard -- and a team from the [Massachusetts Institute of Technology Lincoln Laboratory](#) -- Dr. Anthony Lapadula, Dr. Albert Swiston and Mr. Tajesh Patel -- to develop an app that will help unit leaders accurately predict water needs with the goal of minimizing the burden of water transport and sustaining hydration.

"Research into heat stress has been going on for over 50 years at USARIEM," Charkoudian said. "We have been providing guidance to the Department of Defense about sweat loss and hydration, and refining it for many years through TB MED 507. Paper doctrine provides generalized look-up tables generated from complicated equations. The app meets requests from the increasingly digital battlefield for paperless guidance that is simple, accurate, mission-specific and available in real time."

Called the Soldier Water Estimation Tool, or SWET, this Android-based smartphone app is a decision aid that translates a complicated biophysical and physiological sweat prediction model into simple user inputs regarding the anticipated intensity of activity (low, medium, high, including example activities), three category choices of military clothing ensemble and weather conditions (air temperature, relative humidity and cloud cover).

The SWET app has user-friendly inputs and provides the user with the amount of water required for the specified conditions in liters per hour. A separate "Mission Calculator" tab further simplifies planning by providing total amounts of water required for a given unit (number of people) for a given mission duration (total time, in hours). Total water amounts are provided in liters, one-quart canteens, two-quart canteens and gallons.

Charkoudian said this app was designed for unit leaders to determine group water needs. The average amount of water needed per person does not reflect individual differences, but

the model error for individuals is estimated to be small. Soldiers should expect to see this app within the year on the Army's Nett Warrior platform.

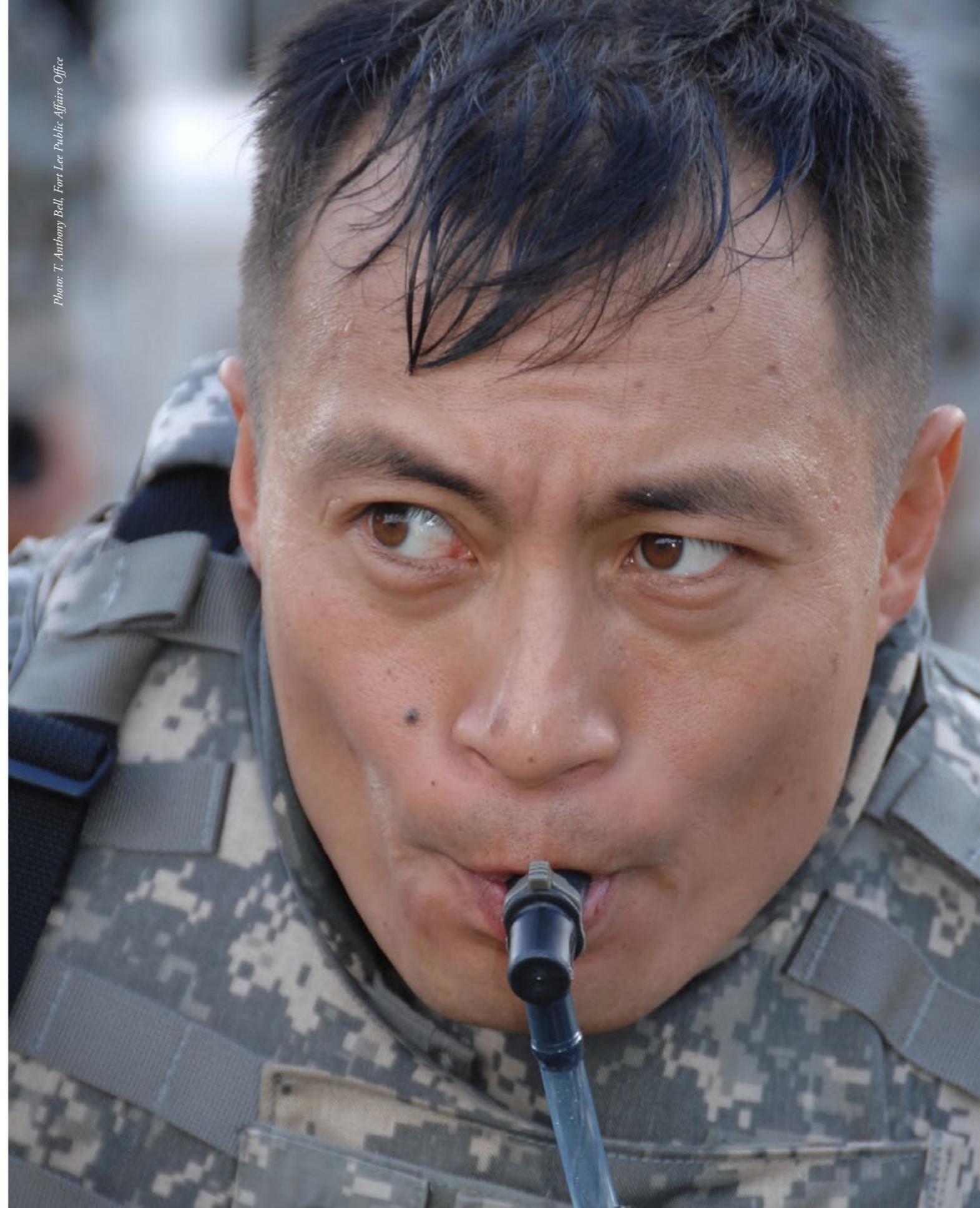
"This will be one of the first apps rolled out in the [Nett Warrior platform](#)," Charkoudian said. "I am so excited to be doing stuff that is directly helping Soldiers in the field. I think that's just so cool."

In the meantime, Charkoudian said that the app has already undergone limited user testing with the Army Mountain Warfare School in Jericho, Vermont, where Soldiers gave very positive feedback. She is looking forward to more feedback once the app goes live, to make updates and possibly explore its uses in the commercial world.

"There is the potential here for future versions of SWET for sports and sports drink companies, for team sports, as well as for humanitarian and disaster-relief organizations," Charkoudian said. "People want apps; that's what they are excited about. It's something everyone can relate to."

*Spc. Heyz Seeker gets a drink from a hydration device during the Urban Warfare Orienteering Course event of the Department of the Army Best Warrior Competition at Fort Lee, Va., Oct. 1-5.*

Photo: T. Anthony Bell, Fort Lee Public Affairs Office



# Which Way Is Up?

Steering Soldiers in the right direction

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (Oct. 2, 2014)

When the going gets tough, Dr. Tad Brunyé wants to help. A member of the [Cognitive Science Team](#) at the [Natick Soldier Research, Development and Engineering Center](#), Brunyé is investigating spatial and non-spatial influences on Soldier navigation choices.

Spatial influences pertain to things in an actual space, such as topography, local and distant landmarks, or the position of the sun. Non-spatial influences are a little harder to define and can include a Soldier's emotional state, level of stress, mission and task demands, skills, abilities, traits, and his or her past experience in a geographical area, all of which can affect navigational choices.

"We are still trying to identify and characterize the full range of spatial and non-spatial influences and how they interact with emerging representations of experienced environments," Brunyé said. "We all have our current mental states. So, you may see the same landmarks as I do, you may see the same topography that I do, but I might be in a very different state that leads me to interpret and use that same information in very different ways.

"How confident do I feel in my environment? Is there a history of enemy activity? Are there certain areas I want to avoid? Are there certain safe spots that I want to keep in mind? There is always interplay between what you sense in the environment, what you perceive, what you know, what you predict will occur, and ultimately how you act."

Soldiers face special challenges during navigation. Their jobs are physically demanding.

They are often under extreme stress, and they often need to make quick decisions in an ever-changing and sometimes dangerous environment. They may be cold, hot, hungry or tired. All of these factors can affect the ability to make wise navigation decisions.

Individual cognitive abilities and individual personalities can also affect navigation choices. Brunyé has found that good navigators tend to be more open to new experiences and are less anxious than poor navigators.

There are also misperceptions that influence navigation choices. One of the key discoveries made by Natick Soldier Research, Development and Engineering Center researchers is that many people will choose a route that goes south because they equate going south with going downhill. They perceive a southern route as easier than a northern route, which they equate with going uphill. This incorrect assumption can lead to less than optimal navigation choices.

"This finding has been coined the 'north-is-up' heuristic, and has been replicated in not only the USA, but also in Bulgaria, Italy, and the Netherlands," Brunyé said.

Moreover, Brunyé said that right-handed people tend to prefer making right turns. Left-handed people prefer going left, and most people will choose a route that is straight initially, even if it curves and becomes suboptimal later in the journey.

By studying and monitoring people's choices in navigation (through non-intrusive devices and methods) and by observing patterns of

physiology and neurophysiology, Brunyé is developing ways to predict behavior and optimize navigation performance. The goal is to incorporate his observations into Soldier training, providing Soldiers with concrete tips for becoming better navigators in a variety of situations. In addition to training, Brunyé is exploring redesigning tasks and support technologies to better match individual and contextually guided Soldier capabilities and limitations.

The team is also investigating stimulating areas of the brain with low-current, electrical charges. Brunyé said that the low-current charges have been shown to help some poor navigators become better navigators, but the charges do little to help those who are already competent navigators. Brunyé pointed out that brain stimulation could also ultimately be used to accelerate learning or help Soldiers overcome barriers to flexible performance, such as fear, anxiety or lack of confidence.

The research is expected to have a major impact in the future.

"The knowledge garnered from this research could ultimately affect military strategy, including predicting which way an enemy will go," Brunyé said. "The research also could help predict the movement of friendly personnel who are disoriented or lost. By understanding the way the mind works, we can make some predictions about what people are going to do when they are lost or isolated. This knowledge will help improve survivability and mission effectiveness."



Photos: Tazanyia Newton, USAIG-Natick Public Affairs



# VETERANS DAY

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