

THE POINT

A newsletter for and about the people of the
U.S. Army Medical Research and Materiel Command



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Vaccine re-creation effort continuing progress

When a respiratory illness called adenovirus sweeps through barracks of military basic trainees and lands them in the hospital, not only are eager recruits delayed from joining their units, it also costs the services training dollars because a recruit ends up using two training slots instead of one.

"If they stop training for weeks at a time, that's a loss of time and creates empty slots where recruits could be but aren't. It becomes quite costly" in lost training money and medical care costs, said Lt. Col. Janet Moser, a veterinarian and a pharmacologist with the U.S. Army Medical Materiel Development Activity. "Although the high cost of this disease is a very important consideration, our primary goal is to maintain healthy soldiers."

Since stockpiles of the Department of Defense's adenovirus vaccine ran out in 1999, the virus has caused this scenario to be played out time and again in the military's basic training centers. Nearly 90 percent of recruits are susceptible to two types of adenovirus, called types 4 and 7, and since the last dose of the vaccines was offered in 1999 several outbreaks have occurred.

Similarly high incidence rates prompted the military to create the original adenovirus vaccines in 1971. Vaccines for types 4 and 7 were provided via two tablets that contained live viruses, which were wrapped inside a core. To protect the tablet from breaking down in stomach acids, the tablet had an enteric coating that got it to its destination, the intestines. When it reached the intestines, the tablet broke down, and the live virus produced immunity but no disease.

The original manufacturer opted to discontinue making the vaccine in 1996 because its production facility needed to be upgraded

to meet Food and Drug Administration guidelines. The DoD couldn't pay for the modifications, and vaccine production ceased. When discussions about re-creating the vaccine began in 2000, however, the manufacturer offered to share all the information it had on creating the vaccine with a new manufacturer.

"The original manufacturer passed on to Barr how the vaccine was made in the 1970s, but a few things need to change in the processing due to different FDA requirements and more advanced techniques available today," Moser said.

The Army and Barr Laboratories are aiming to have the adenovirus vaccine available to troops by 2008. A new tableting facility was completed this year in Forest, Va., as an add-on to Barr's existing facility there.

Making sure the facility, its equipment and its processes meet with FDA standards is key to getting the vaccine out on schedule. For example, the FDA wants to ensure that because the two tablets will be produced separately, the equipment is thoroughly cleaned between the two tablet runs.

The vaccine will be as close to the original formula as possible because it worked well for the military, said Col. Wellington Sun of the Walter Reed Army Institute of Research.

"Making a 'new' vaccine isn't necessary because the old one is so effective," he said. "We have something that works really well, why would we want a change?"

Scientists at WRAIR are doing their part to vanquish adenovirus by doing the type of work they do every day with vaccines for the military. They're working on ensuring that

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Soldiers see future equipment up close

For 65 soldiers from Fort Meade, Md., a road trip in July was a chance to try out and evaluate medical equipment the Army may field in the future.

The soldiers from the 48th Combat Support Hospital journeyed to Fort Indiantown Gap, Pa., for annual training and to use the Forward Deployable Digital Medical Treatment Facility, a testbed for medical technology created in 2001 by the Telemedicine and Advanced Technology Research Center at Fort Detrick.

“Our commander’s primary focus for annual training were hospital defense, defending ourselves in a combat scenario and NBC (nuclear, biological, chemical) training,” said Capt. Russ Cote, patient administration officer for the 48th Combat Support Hospital. “And, in conjunction with that, to use the equipment to see a concept that may be coming down the pike and to provide feedback on it.”

Housed in 20-foot wide by 30-foot long tents, the testbed houses a lab, a two-bed emergency room, an inten-

sive care unit, a patient ward, a pharmacy, a sterilizing area and a patient administration area. The equipment inside is leading-edge: a ruggedized portable x-ray machine; water purification and distribution systems; a portable ultrasound; and the SMEED, a platform that attaches to a standard patient litter to hold portable medical equipment—just to name a few.

A much-needed innovation the tent offers for a combat support hospital is the powerful Brigade Remote Subscriber System that allows wireless communications within the tent, said Curtis Callender, a team member for the Forward Deployable Digital Medical Treatment Facility. Both the facility and the Brigade Remote Subscriber System are intended to meet modern Army needs for smaller deployable hospitals.

Because of antiquated, switchboard-based communications systems, “doctors (in a combat support hospital) have a noose around their necks. You always have to know where they are,

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Military recruits in basic training are susceptible to adenovirus, a respiratory illness that costs recruits training time.

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tests proposed for use in clinical studies, like measuring antibody response, are validated for current FDA standards so clinical trials can take place.

“We basically are going to be the epicenter for the design and execution of the first clinical trial involving the new vaccine,” Sun said. Maj. Art Lyons, who will serve as principal investigator for the trials, expects to begin recruiting for the first trial in January 2004. As a follow up to the first study, WRAIR researchers hope to introduce the vaccine in a basic training setting to see if it’s as effective as the original vaccine.



Soldiers from the 48th Combat Support Hospital journeyed to Fort Indiantown Gap, Pa., in July for annual training and to use the Forward Deployable Digital Medical Treatment Facility. The facility is a testbed for medical technology that was created in 2001 by the Telemedicine and Advanced Technology Research Center at Fort Detrick, Md.

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so they can’t go far from the patients,” he said.

With wireless technology, doctors can be kept posted on patient progress through cell phones and pagers, letting them move about the 17 acres of tents that comprise a traditional combat support hospital.

The equipment in the tent is typically three to four years ahead of the fielding process, but that’s what the “forward thinkers” of TATRC are chartered to find, Callender said.

“Even if the unit doesn’t have a particular piece of equipment, if you can work one patient monitor, you can work any of them. A monitor is a monitor is a monitor. It may be a long time before they (the soldiers) see it again, but at least they’ll be familiar with it,” he said.

Actually, Cote said, many of the 48th’s soldiers participating in Operation Dragon Medic, the name given to the two-week training, have seen much of the technology before.

“It’s in the civilian hospitals,” he said. “The majority of our nurses are already working with it.”

Not all the equipment was familiar, though. Capt. Ed. McDonough from TATRC brought some of the center’s emerging wireless technologies north for testing as well. The Patient Sta-

tus Monitoring System lets providers monitor patients from one location, like an intensive care unit desk, or lets doctors see the vital signs far from the bedside.

Troops’ reaction to the monitoring system, Cote said, was mixed. “In my job as a patient admin officer whose job is to look at patients and keep track of them in the hospital, it’s a wonderful tool because it allows information to flow instantaneously,” he said. “Being able to monitor them, I think is wonderful. And in an ideal situation, it’s what needs to happen.”

The downside to the Patient Status Monitoring System was its high learning curve. “They were installing parts of the system and providing training very close to, sometimes in conjunction with, the exercise occurring,” Cote said. “I don’t think it was fully used because we didn’t have enough personnel or enough time to become familiar with it.”

That’s just the kind of feedback Tony Story, the project manager for the testbed, was looking for when he moved it in April to temporary digs in Pennsylvania and invited the 48th to use it for training. Though the facility is intended to be a prototyping, integration and testing lab “all the tent was doing at Detrick was sitting. It had become a static display,” he said.

At the end of their time in the FDDMTF, the 48th CSH’s soldiers were asked to complete a questionnaire addressing every aspect of the shelter, from the lights to the floors, to the walls, to each piece of equipment.

“When you put the hospital in a new situation, you find out new things and see changes that need to be made,” Callender said. “We try to find a better way of doing things and pass that on to the combat developer at the AMEDD (Army Medical Department) Center and School.”

Medical Logistics Company redeploys

For 10 months, soldiers from the 418th Medical Logistics Company, Fort Sam Houston, Texas, augmented the workforce at the U.S. Army Medical Materiel Center, Europe. The soldiers, deployed in support of Operation Enduring Freedom and Operation Iraqi Freedom, returned to their homes and families in the fall. The soldiers of Alpha Company, 226th Medical Battalion (Logistics, Forward), from Miesau, Germany, took up Oct. 1 where the 418th left off.

During their deployment to USAMMCE, 418th soldiers served on teams across eight divisions and sup-

ported missions such as: acquisition, storage, and distribution of medical materiel; assembly, reconstitution and disassembly of medical sets, kits, and outfits; clinical engineering support; optical fabrication; customer support; and war reserve and pre-positioned stock management.

During the 418th deployment, Team USAMMCE provided support to peacetime customers and more than 500 Operation Enduring Freedom and Operation Iraqi Freedom customers.

Since January 2003, the medical logistics team managed, received, packed and shipped more than 193,000 lines of Class VIII supplies, weighing more than 5,600 short-tons and valued at more than \$135 million. The team produced more than 76,000 spectacles and completed more than 6,900 medical maintenance work orders.

USAMMCE held an awards ceremony Sept. 25 to recognize the soldiers who provided great support. A transfer of authority ceremony was held Oct. 1 between the 418th and A Company, 226th Med. Bn.



Capt. Corey V. Daughtrey, 418th Medical Logistics Company, stands in front of his formation during a transfer of authority ceremony Oct. 1.

Europe unit memorializes Sept. 11 with willow

In recognition of the second anniversary of Sept. 11, 2001, the U.S. Army Medical Materiel Center, Europe held a tree-planting ceremony on Sept. 11, 2003, behind the headquarters building, beside the newly installed running track and pavilion.

The tree that was chosen, a weeping willow, symbolizes the sorrow and grief for the victims of the attacks.

The ceremony included remarks by Col. Jettaka Signaigo and Chaplain Dwight Broedel, as well the attendees singing a hymn. The Pirmasens Lord Mayor, Dr. Bernhard Mattheis, participated by presenting laying flowers at the base of the newly planted tree.



Dr. Bernhard Mattheis, Pirmasens Lord Mayor, Col. Jettaka Signaigo, and USAMMCE's newly planted willow tree.

—Cheryl Navo, USAMMCE

Device goes to the dogs ... and horses and dolphins

His invention has gone to the dogs, and Tommy Morris couldn't be happier about it.

First designed as a handheld tool for medics that tracks the care soldiers receive at the point of care, offers advice on diagnosis and treatment, provides volumes of medical reference material and orders supplies, the Battlefield Medical Information System-Tactical, or BMIST, is now breeding new fans in the veterinary world.

"One of the things the Veterinary Corps is doing is looking at medical systems that are being developed and seeing how they can be used for veterinary patient medical care," said Lt. Col. Mack Fudge, a veterinary staff officer at the Army Medical Department Center and School.

After seeing a BMIST demonstration last year, "we started off thinking that what we need on the veterinary side is something that will help our soldiers—be it an enlisted guy, warrant officer or officer—to be better able to do what it is that they do when they inspect food," he said.

Embedded in the BMIST are tools that let a veterinary soldier complete food inspection reports on a handheld computer and cut the vets' 30-pound load of laptops and reference manuals to about one pound, Morris said.

"When you walk in (to an establishment) you can actually have references, the forms that you need to do the inspections, information on the establishments that you're inspecting and their history—all in your hand and all in a quick, usable format. That seemed like it would be a great business process for us," Fudge said. Completed forms then can be sent via e-mail to the next level of review, Morris said, potentially shortening ap-

proval times from a couple of weeks to hours.

Created in just under two years with one purpose in mind—to make medics' jobs easier—the BMIST, by extension, can also help vets in providing animal care. By tapping on a personal data assistant with a stylus, the BMIST can make treatment recommendations, standardize notes on care, fill out forms, provide links to medical references and alert the provider of any allergies or health problems.

"One of the things we stumbled across was that the veterinary algorithms were often the same as the human algorithms," said Morris, a former medic and systems expert at the Telemedicine and Advanced Technology Research Center. "The difference was drug dosages, things like that."

So far Morris has explored using the tool for the military's working dogs, horses, dolphins and primates, which all play a role in the military and require veterinary care. He and his team are currently analyzing veterinary business processes to make



The Battlefield Medical Information System-Tactical, or BMIST, is breeding new fans in the veterinary world.

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Programs aims to find test for prions

Rapidly finding a test for prion disease to protect both people and the livestock industry is a lofty but important goal in prion research.

“Right now the common test for prion diseases can only be done after the animal dies,” said Lt. Col. Calvin Carpenter, a veterinarian and program manager for the Congressionally Directed Medical Research Program’s National Prion Research Program. “It takes a little while to get the results because it’s difficult to find a marker that says the disease is there or not there.”

Carpenter said prions are difficult to detect because they’re not bacteria or viruses but infectious proteins.

“With most things, to see if something is infected, you look for antibodies. You pull a blood sample and test it for antibodies. That’s not seen

in this disease. There’s no antibody response to this disease, so we have to find something else to test for,” he said.

Congress gave the fledgling National Prion Research Program \$42.5 million in 2002 to find such a test. The program also supports research focusing on disease pathogenesis, prevalence, prevention and treatment.

“If you understand how the organism works and produces the disease then, hopefully, it allows you to find some marker to use for diagnosis. If you know the mechanism, then you can find some way to disrupt it,” he said.

Prions cause a group of diseases, called transmissible spongiform encephalopathies, which include chronic wasting disease in deer and elk, mad cow disease in cattle and a disease

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sure the final product is what the Veterinary Corps needs.

“We interview the providers, and they walk us through an encounter with an animal,” he said. “It’s really similar to a human medical encounter, except that when a dog gets a cold, he gets a warm nose.”

Morris added veterinary reference books for each type of animal, a preventive medicine manual that complements the information contained in the Special Forces handbook that was already part of the BMIST and codes specific to veterinary medicine.

Fudge said the patient care module that records care military animals receive will provide significant portions of health records, which can sometimes be lost when dogs deploy.

“The theory is that once the dog and handler get in place, they hook up with whoever will provide medical care and hand off the records,” he said. “It’s not too hard to imagine that a dog’s record could be anywhere. It could be at the

home station or with the handler or with the operational unit providing the medical care.”

Using the BMIST to document care will, for the first time, make electronic animal medical records possible.

“Right now all the records for active military working dogs are paper, so if they get lost on a flight or there’s fire, flood, feast or famine, we’re liable to lose that record,” Fudge said. Morris proposes storing the animal’s health record on a Personal Information Carrier—like the ones Stryker brigade personnel are receiving—that could be worn alongside the dog tag.

Dogs are a representative population of the military force, Fudge said, so vets may quickly spot health trends that are of global health importance if electronic data is in a form in which it can be analyzed.

“If you have better access to medical information, you have heightened vigilance for public health threats,” Morris said. “If animals were exposed to something, you’ll be able to track that readily if you have the information available electronically. You could save human lives as well as other animals.”

“Prions” from page 6

called scrapie in sheep. All three diseases are fatal to animals.

Some cattle in Europe, especially Great Britain, were discovered to be infected with bovine spongiform encephalopathy (BSE, or mad cow disease), halting imports of cows and sheep from Britain since 1989 and all Europe since 1997. The ban was put in place to prevent humans from getting variant Creutzfeldt-Jakob Disease, which is caused by the same prion that causes mad cow disease.

So far, the ban has worked. An aggressive surveillance program that tested 20,000 animals last year showed no evidence to date of BSE affecting U.S. cattle, according to the Food and Drug Administration Web site.

Although the cause of most cases of Creutzfeldt-Jakob Disease is unknown, some do get it either by eating prion-contaminated food or inheriting it. Though the inherited and the acquired forms have different onsets, their outcomes are the same.

“It’s a fatal disease,” Carpenter said. “There is no CJD survivor.”

Finding a good test also protects the nation’s economy, Carpenter said.

“When one cow in Canada was found to have BSE, it shut down Canada’s ability to sell cattle to the United States,” he said. “If we had a similar incident with BSE in the United States, it would pretty much shut down the beef industry in this country.”

Any hope of finding a cure for prion disease depends on a test, Carpenter said.

“You have to be able to diagnose the disease before you could ever hope to treat it. You would hope to be able to diagnose it in people in an early stage, before significant damage has been done,” he said.

Complicating the quest for a test is where research needs to be done,

namely in BioSafety Level 3 labs, because prions are infectious organisms and are difficult to kill.

“You have to have a dedicated facility at the proper biosafety level with dedicated equipment,” Carpenter said. “It’s not like you can do the research at just any lab.”

The program differs from CDMRP’s other programs because it focuses on four-legged creatures as well as people.

“We’re looking at both because the disease happens in both,” Carpenter said. “Diagnosis in animals is important to protect the food supply that’s going to people. But another focus is a lot of people are beginning to worry if they have possibly contracted the disease.

“From people who have been hunting and eating deer and elk all their lives, to those who were stationed in Europe during the BSE epidemic, they would like to know if they are at risk for getting the disease. Although we can tell them the probability is low, until an effective means of testing is developed, we can’t use medical science to say they don’t have the disease,” he said.

Funding research on diagnostic testing through the National Prion Research Program, Carpenter said, has infused the research community with funds and a focus to develop a test within the next few years.



Prions cause a group of diseases, called transmissible spongiform encephalopathies, which include chronic wasting disease in deer and elk, mad cow disease in cattle and a disease called scrapie in sheep. All three diseases are fatal to animals.

Experimental hantavirus vaccine elicits strong antibody response in primates

“This work is an example of the many medical products that USAMRIID offers the nation and the Department of Defense. This success is the product of years of dedicated basic and applied research by USAMRIID scientists.”

—Col. Erik A. Henchal
Commander, U.S.
Army Medical
Research Institute
of Infectious
Diseases

For the first time, scientists have demonstrated that an experimental vaccine to hantavirus pulmonary syndrome, a highly lethal disease, elicits a strong neutralizing antibody response in laboratory animals—a response that is key to preventing the virus from causing infection.

In addition, the antibodies, produced in nonhuman primates that received the vaccine, protected hamsters from disease even when administered five days after exposure.

These findings provide proof of concept in nonhuman primates for a vaccine against HPS, as well as for post exposure prophylactic treatment of HPS and a related disease known as hemorrhagic fever with renal syndrome.

In an article published in September’s *Journal of Virology*, investigators at the U.S. Army Medical Research Institute of Infectious Diseases describe using a naked DNA approach to develop a hantavirus vaccine. The technique involves vaccination with plasmid DNA that encodes a specific hantavirus gene. When the plasmid DNA is introduced into the cells of a vaccine recipient, using a harmless device called a “gene gun,” the cloned gene is expressed and presented to the immune system.

According to senior author Jay W. Hooper, Ph.D., the USAMRIID team constructed an expression plasmid containing the full-length M genome segment of Andes virus, a South American hantavirus. Vaccination with the plasmid elicited a potent neutralizing antibody response in rhesus macaques that were vaccinated a total of four times at three-week intervals.

To look at the duration of that response, the team collected serum samples for about six months. The monkeys who received the Andes vaccine displayed robust antibody levels as long as 25 weeks after the last vaccination.

Hantaviruses are carried by rodents and have caused epidemics in Europe, Asia and the Americas. Some cause HPS, while others are responsible for the more common HFRS. The viruses are pathogens of known military importance in endemic areas.

Currently there are no vaccines or antiviral drugs to protect against or treat HPS. The disease affects previously healthy individuals in all age groups, disease progression is rapid and the case fatality rate is one of the highest for any acute viral disease known. In addition, there have been reports of person-to-person transmission of Andes virus in southern Argentina and Chile.

Having successfully vaccinated rhesus macaques with a hantavirus vaccine candidate, the USAMRIID scientists next asked whether the neutralizing antibody response elicited by the vaccine could protect hamsters from lethal hantavirus infection. The team had already developed a lethal-disease model of Andes virus in Syrian hamsters. To further explore this question, they tested serum from a monkey that had received the Andes vaccine for protective efficacy when administered to hamsters following challenge with the virus.

In these post-challenge experiments, 15 of 16 animals that received the antibody on day 3, 4, or 5 after chal-

Team ensures aviation safety equipment works

Seats, seat belts, helmets, survival vests—these are just a few of the items the Aviation Life Support Equipment Retrieval Program team from the U.S. Army Aeromedical Research Lab examines after a helicopter crashes.

The team at Fort Rucker, Ala., is available to the Army Safety Center 24 hours a day and has traveled all over the United States, Korea, the Middle East and Europe to work the detailed investigations on site.

“We may go to the accident site, attend autopsies, coordinate by telephone, or they (investigators) may send us helmets or equipment and

medical reports,” said Joe Licina, an Army civilian and retired 20-year Army pilot who’s worked with ALSERP since 1981.

Currently led by Lt. Col. Mark Adams, a British exchange flight surgeon, the program is also staffed full time by Chief Warrant Officer Robert S. Johnson and is augmented by other experts at the laboratory. All of the staff, Licina said, carry on the mission for which ALSERP was conceived more than 30 years ago: to make a very dangerous job safer.

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“Hantavirus” from page 8

challenge survived. The level of protection dropped significantly when the antibody was administered on day 6 or later. While all but one of the post-challenge survivors were infected with Andes virus, no deaths were observed.

“Aside from the immunogenicity of the vaccine in nonhuman primates, the most exciting thing about this was the indication that post-exposure prophylaxis might work—even five days out from exposure,” Hooper commented. “When we administered antibody after challenge, we got nearly complete protection.”

While the immediate need is for a vaccine against HFRS, the USAMRIID team believes the DNA vaccine approach could one day be used to develop a multivalent vaccine for hantaviruses that would be broadly protective against HPS and other forms of the disease.

“This work is an example of the many medical products that USAMRIID offers the nation and the Department of Defense,” said Col. Erik A. Henchal, Ph.D., commander of the institute. “This success is the product of years of dedicated basic and applied research by USAMRIID scientists.”



Centers for Disease Control and Prevention photo

Hantavirus pulmonary syndrome is a deadly disease transmitted by infected rodents through urine, droppings or saliva. Humans can contract the disease when they breathe in aerosolized virus. HPS was first recognized in 1993 and has since been identified throughout the United States. Although rare, HPS is potentially deadly.

Hooper’s co-authors were David M. Custer, Elizabeth G. Thompson, and Connie S. Schmaljohn, Ph.D., of USAMRIID, and Thomas G. Ksiazek, D.V.M., Ph.D., of the Centers for Disease Control and Prevention.

—Caree Vander Linden, USAMRIID



Joe Licina verifies that a NOMEX flight jacket that burned during a helicopter crash protected the crewmember who wore it. Licina works for the U.S. Army Aeromedical Research Lab's Aviation Life Support Equipment Retrieval Program, which examines safety equipment involved in aircraft crashes.

"Safety" from page 9

Determining just what happened to safety equipment in a crash is similar to the process seen in forensics-related television shows, Licina said.

"We can't tell everything, but we've got enough experience with the different aircraft so when we look at it we can tell what we probably are looking at," he said.

All aircraft are configured differently and paint schemes reflect whether it is a night-vision-compatible cockpit or cabin or a basic trainer. For example, if a helmet has yellow and black paint on it, Licina knows the pilot hit the doorframe of a certain aircraft. But if he spots yellow paint only, either the pilot went up or the top of the cabin came down, because that's the yellow knob for the fuel cutoff.

"One of the things that we (Army safety investigators) try to determine is how the accident sequence came about and what G (gravity) forces were involved in the impact," said Lt. Col. William McInnis, chief of Aviation Systems and Accident Investigations for the Army Safety Center. "They (ALSERP team members) can come back and tell me that, based on what they see in the ALSE, it appears there was an apparent blow to one of the helmets, and (that

information) might confirm autopsy results."

And when they find a problem, the ALSERP team tries to initiate a fix before one more injury is incurred or life is lost. "We can always learn something from a crash," Licina said. "If we see the start of a trend, we chase it."

Helmets, for instance, have been a program focus. The team created crushable ear cups for helmets to prevent the skull fractures that resulted from rigid cups not giving when aircrew heads flailed during a crash.

Though protecting the skull through helmet improvements was undertaken to save lives, the changes now allow aircrews to avoid concussive injury. "When they crash, the helmet will not only save a life, it will offer them conscious survivability so they can leave a burning aircraft or escape from an enemy area after the crash," he said.

McInnis said he's seen ALSERP-influenced changes during his career in Army aviation. "We are in the third style of helmet in the 20 years I've been in Army aviation. The HGU 56, the one issued to everyone now, is much more survivable than the one I was issued in 1983. That's part of what the ALSE Recovery Program and the USAARL have brought to us," he said.

The ALSERP team continues to work on survival vest updates.

"Our experience in Vietnam was we would go into the jungle and be down for a week, so we needed to orient the survival components to that scenario," Licina said. "We've learned ... that aircrews are going down 'in the middle of the fight.' We need to provide immediate protection from the enemy, which is translated to personal fire power."

The decision, then, to increase the amount of ammunition in the vest is creating concerns for the ALSERP team because they need to determine where to place extra bullets so they don't injure the aircrew in a crash.

The team rigorously examines every proposed change to helicopter safety equipment, like putting airbags in cockpits, to predict possible consequences.

"If the air bag deploys before the human flails, night vision goggles won't go anywhere (they normally break away from the helmet during flail) and the airbags could possibly force the NVGs into the face," Licina said. "The point is, whatever protection we design in, we need to be certain we are not creating a new hazard.

DoD preventing future deployed health problems

The Defense Department's answer to help with future war-related medical conditions is to record and compare soldiers' health status before, during and after deployment.

To accurately track this data, the DoD developed two forms. DD Form 2795 (pre-deployment) and the DD Form 2796 (post-deployment) record soldiers' health status before and after deployments. In addition, the DoD maintains the Defense Medical Surveillance System database to maintain the information and respond to questions about soldiers' health.

To automate how soldiers can electronically fill the forms and send them to DMSS, the Army Medical Department selected the U.S. Army Medical Information Systems and Services Agency (now the U.S. Army Medical Information Technology Center) to lead the Pre/Post Deployment Health Assessment Project. USAMITC has managed the effort to develop an automated system that enables deploying soldiers to document and electronically transfer their pre- and post-deployment health status to the Defense Medical Surveillance System database.

The system has already received wide support. USAMITC conducted a successful operational testing and initial deployment in January at Fort Campbell, Ky. So far, five to six thousand soldiers have filled their post-deployment



To help track deployed servicemembers' health, the DoD automated its pre- and post-deployment health surveys.

forms before returning from Iraq and Kuwait in the Iraqi War. The system is also currently being deployed in Europe and eventually will be used at all continental U.S. sites.

With the Pre/Post Deployment Health Assessment Project, the DoD can ensure that health problems emerging during deployment will be properly documented and addressed.

Users can access the Internet version of this system at www.mods.army.mil. The project director is Jerry Hepler, who can be reached at (210) 654-2559 or at Gerard.Hepler@amedd.army.mil—*Cynthia Hernandez, USAMITC*

Team wins Excalibur Award

The U.S. Army Medical Materiel Agency is one of the winners of the 2003 Excalibur Award, announced Surgeon General of the Army Lt. Gen. James Peake at the Major Subordinate Command Commander's Conference at the annual meeting of the Association of Military Surgeons of the United States, held Nov. 16-20 in San Antonio.

USAMMA's Technology Assessment and Requirements Analysis Program was se-

lected in the active component, non-medical treatment facility category. The TARA team mission is to ensure state-of-the-art diagnostic imaging, clinical laboratory and physiological monitoring equipment is procured and distributed throughout the Army Medical Department. The team's achievements included saving approximately \$4 million annually, reducing clinical personnel time to develop requirements packages and improved clinical flow

in some laboratories.

Other winners of the award are: Brooke Army Medical Center's Medical Materiel Branch Standardization Compliance Process; 121st General Hospital's Electronic Integration of Off-the-Shelf Data Management Products; California Army National Guard's Health Intervention and Promotion Program; 914th Combat Support Hospital's Reserve 91W Transition Program.

—*U.S. Army Medical Command Quality Management Office*

Immersion lab at Natick measures responses to heat, cold

If the 14-foot depth of the Water Immersion Laboratory tank at the U.S. Army Research Institute of Environmental Medicine seems excessive, there's a good reason for it.

"Visitors are always surprised at how deep it is, but once (the water) gets to temperature, we can keep it at that temperature within a few tenths of a degree," said John Castellani, a research physiologist in USARIEM's Thermal and Mountain Medicine Division. "That's the benefit of a deep tank."

Researchers at USARIEM, located at the U.S. Army Soldier Systems Center in Natick, Mass., have been using the laboratory to evaluate human responses to cold or hot environments for studies since the USARIEM building was constructed in 1968. Renovated in 2000, the lab's premier feature is its 10-foot by 10-foot stainless steel tank filled with 10,000 gallons of chlorinated water.

Besides water depth, the facility is unusual for its ability to test humans exercising on a single underwater walking treadmill or with two cycle ergometers while sitting on accompanying bolted-down stainless steel chairs.

Each type of exercise machine is independently operated and raised or lowered on separate platforms into water with an operational temperature range of 41-122 degrees Fahrenheit, although the majority of human exposures in test protocols range from 59-104 degrees F. Each cycle ergometer has a moveable plate system to adjust to individual leg length, and resistance is adjusted by attaching or removing fins to the wheel.

Human research volunteers are connected to a data acquisition system, a computer nearby on the platform that surrounds the tank, to measure and record physiological status.

Work in the facility has been wide ranging. The lab helped validate a core body temperature pill against conventional methods of measuring body temperature. Sometimes the exercise equipment is untouched, as with one nutrition study where the human research subjects sat still in the water.

Nearly five years ago, a commercial hot tub was acquired as a re-warming pool to help test subjects raise their body temperature quickly after soaking in chilly water. Cold is what research has focused on in recent years.

"We're interested in how hypothermia affects humans," Castellani said. "This facility works out well because it gives you a great place to recreate a cold or cold-wet environment."

Water takes away heat 25 times faster than air, which makes it easier for researchers to reduce core body temperature without risking a cold injury that could occur in an air chamber, he said.

Motivation in studying hypothermia was spurred after four Army Rangers died while going through Ranger school at Eglin Air Force Base, Fla., in 1995. Scientists used the water immersion lab along with the climatic chambers to research how cooling affects performance.

A repeated immersion study in 1996-1997 simulated what happens when a soldier enters the water for two

Pvt. Lance Casey, a human research volunteer, indicates he is okay while sitting on one of two stainless steel chairs lowered into the Water Immersion Laboratory tank. Water temperatures for this study dipped into the 50s.



“Water” from page 12

hours at a time and then emerges, three times per day. By the second and third immersion, researchers learned that body temperatures decreased because the test subjects couldn’t shiver as well.

Researchers also used the facility in studies to learn if exercise fatigue causes thermoregulatory fatigue. Human research volunteers exercised or remained motionless in the water, which was then followed by cold air exposure. Those exercising and fatigued had a lower body temperature because they could not keep their body heat in as well.

“The idea is to feed data into our cold (temperature) models. We’re trying to add fatigue factors into the existing model, which is now good, but we’re building on it,” Castellani said.

The treadmill, a relatively new addition, is helpful because it can simulate wading in a swamp, which is more realistic than the cycle, said Castellani. Researchers can vary the treadmill speed, water temperature and, by raising or lowering the platform,

vary the water depth to test responses at different points along the body.

A study that has just begun is looking at how long people can stay in water at different depths and temperatures. A second part of the study will take hypothermic human research volunteers into a cold chamber to test their cognitive and physical performance through a series of Special Operations Command tests.

“We don’t have much information on this at the temperatures and depths we’re looking at,” Castellani said. “We’ve been able to understand that stressors soldiers undergo cause a degradation on thermal regulation. That information will help us design better physiological models.”

Ultimately, the idea is to be able to predict under what conditions a soldier declines in performance and may become a casualty, he said, giving troops the information to make the right decisions and avoid harm.

—Curt Biberdorf, Natick Soldier Systems Center

People in the News

Researcher treats, teaches tropic diseases where they happen

Through a tri-service military tropical medicine course, 40 military medical students, led by doctors like Col. Donald Skillman of the Walter Reed Army Institute of Research, provide acute care to tens of thousands of people each summer. The trips both improve the locals' health and lets military docs see conditions they'd never see in the States.

"Our physicians train in the United States, and when they deploy they see diseases they've never seen before and don't know what to do with them," said Lt. Cmdr. Margaret Calloway, the course director at the Uniformed Services University of the Health Sciences, which has offered the program since 1994. "The training is important for them to get exposure to tropical diseases in areas that they may one day be deployed to. I've had a lot of students from previous years call back this past year and tell me the training was the most important thing they've done in their careers."

During this year's mission to Peru from Aug. 2-14, Skillman and nine student physicians from three services saw "real good stuff, like leishmaniasis involving an entire foot, huge abscesses by exotic parasites filling the chest cavity, tuberculosis, abscesses in the brain—real sick people," he said.

Not that Skillman revels in sick people's pain—nothing could be farther from the truth. In fact, after making rounds with doctors in the local hospitals to see diseases up close, his and the three other teams venture into underserved areas in Latin America to treat locals who have little or no access to health care.

"You see so much minor illness there that you don't see in the U.S. because it's so easy to get it taken care of in the U.S.," Skillman said.

During the second week, he and his group of doctors crossed over the Andes and went into the upper regions of the Amazon River to a small town called Puerto Maldonado. Every day for three days the team would take a long bus ride to an even smaller community's elementary school, where a health clinic, complete with a pharmacy, a lab and translators, was set up.

In three days, the docs in Peru took care of more than 1,000 people.

"Some of the people we see come only because we're the first doctors in town in a year. It may be a very minor complaint but, what the heck, they'll stand in line and see what we can give them," Skillman said. "They're gracious and warm and hospitable."

In addition to common ailments, the doctors on the Peru mission saw "lots of malaria, lots of leishmaniasis, some tuberculosis," Skillman said.

"We make sure they get a referral if they need it," Calloway said. "We are not just there to see patients, but



Col. Donald Skillman meets a tarantula at a Peruvian facility that produces antivenin for snake and spider bites.

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to support the village” through education on sanitation and clean water.

The missions, an annual nation-building exercise sponsored by the U.S. Southern Command called New Horizons and medical readiness training exercises have greatly improved the health of some countries, like the Dominican Republic. The countries’ health has improved so much, in fact, that the tropical medicine docs no longer visit them.

“They’ve actually improved their health care, so we’re not seeing as much disease as we saw initially,” Calloway said.

Skillman’s time in Peru wasn’t all work and no play, though. He toured the Peruvian version of the National Institutes of Health where they have a facility that produces antivenin for snake and spider bites, so he saw pit vipers, coral snakes, brown recluse spiders and black widows. He and his team spent a day hiking in a foggy national park, though they couldn’t see

50 feet in any direction. And for comic relief, he got to see how a patient’s monkey reacted to eating candy fireballs.

“The little monkey would pop it in his mouth, suck on it then pull it out and look at it, put it back in, pull it out and pant a little bit,” he said.

Prior to the 2003 trip, Skillman made four trips to Manaus, Brazil, taking his 10 students on a boat up the Rio Negro for a week to deliver medical care in 15 towns. The trips to Brazil have been curtailed while the embassies negotiate future medical missions, but Skillman can’t wait to return. He hopes to pursue a job that lets him go to Brazil regularly after he complete his military career.

“When I fly into Manaus, I get a tremendous sensation that I’m coming home,” he said, adding that having his family with him would make it Nirvana. “I just don’t think I could give it up entirely. It would be a really sad day if I knew it was my last time.”

Soccer-loving sgt. joins All-Army team

Sgt. Bryon Pieper took a chance last spring, and by fall he was living a dream.

In October, the biological research assistant at the U.S. Army Medical



Sgt. Bryon Pieper, circled, with members of the 2003 All-Army Soccer Team.

Research Institute of Chemical Defense learned he was one of 30 players who landed a tryout for the All-Army soccer team.

“Ever since I left college, I wanted to

pursue the next level—whether that was semi pro or pro—I just wanted to give it a try,” the 28 year old said. “But I met my wife, Brittany, and we decided that it was better to focus on having a family than play a sport. There’s not much stability unless you’re a pro, and the money for playing soccer at the time wasn’t that great.”

Though he hadn’t played at the competitive level he was accustomed to at University of West Florida in Pensacola—where he was a four-year starter and had a partial scholarship—he stayed around the game. He refereed for youth teams and high schools and played on indoor teams and the

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intramural soccer league at Aberdeen Proving Ground.

“It’s something that’s in my blood—it’s fun, it’s exciting, the adrenaline rush, the competition,” said Pieper, a Jacksonville, Fla., native.

A sprinter, Pieper prefers to play up front but usually ends up playing the central midfielder position.

“It’s a good position to play because you have to have eyes for the field and know a couple plays in advance what’s going on,” he said.

After learning he’d earned a tryout, he also realized he had less than two weeks to get ready for the camp at Fort Eustis, Va. After getting encouragement from his wife and 28-month-old daughter Ashlyn and then gaining permission from his command to be away from his job for a month, nervousness set in.

“You’ve got to prove something,” he said. “There’s a lot of talent.”

With just two and a half weeks in Virginia to gel as a team, the players had to be on top of their game or expect to leave, said Pieper, who’s played on at least 30 teams since he started sporting shin guards and cleats at age 5.

“You have to know the game. You have to be in shape. You have to know what you’re doing,” he said. “If not, the coach sees it, and you’ll be cut.”

After surviving three rounds of cuts, Pieper and 17 teammates learned they’d made the team

just one day before the three-day Armed Forces soccer tournament held in Millington, Tenn., just north of Memphis, Nov. 4-10.

During their six games in the tourney, soldiers twice took on teams of Marines, sailors and airmen to vie for the championship. The Army started off with a win against Air Force, tied Navy and beat the Marines for their first three days’ work. With a 2-0-1 record going into the fourth day of competition, Army then lost 4-3 to Air Force, the 2002 soccer champs.

“Everybody seemed down, but only for a little while. Then we picked our heads up because we still knew we had a chance to win the gold. We just had to beat the Navy,” he said.

The win against Navy wasn’t to be, so the sailors took first in the tourney Nov. 10, and the Army team proudly headed home with a second-place finish.

“We knew we had the talent and the fitness level to beat anybody. During unfortunate lapses in the game, we gave up some goals that hurt us,” he said.

Though Army wasn’t the victor, Pieper said he’d play with the team again if he were given the chance.

“There’s something within soccer players—or any sport for that matter—when you’re around a lot of people who’ve played it all their lives as well, it doesn’t matter who they are, you’re going to click, you’re going to have fun and enjoy the sport,” he said.



New shelter unveiled

Vice Admiral Richard H. Carmona, U. S. Public Health Service, holds the power switch to the Future Medical Shelter System, which was displayed at the annual meeting of the Association of Military Surgeons of the United States Nov. 16 through 20. Lee Bzorgi, the lead design engineer for the FMSS project, and Maj. Gen. Lester Martinez-Lopez, commanding general, U.S. Army Medical Research and Materiel Command, right, observe. The FMSS, built by in Oak Ridge, Tenn., is intended for use as a rapidly deployable, far-forward surgical facility. The power button pushed by Admiral Carmona caused the FMSS to automatically expand to its operational size of approximately 20 feet by 20 feet.

People in the News

New inductees

Staff Sgt. Gary Brand and Sgt. 1st Class Willie Hairston from the Walter Reed Army Institute of Research became the newest members of the Fort Detrick chapter of the Sgt. Audie Murphy Club during an Induction Ceremony Nov. 13.

U.S. Army Medical Command's Command Sgt. Maj. Sandra Townsend served as guest speaker for the event hosted by U.S. Army Medical Research and Materiel Command Command Sgt. Maj. Domingo Costa.

Townsend said the inductees' "pattern of leadership is truly important, but your work hasn't stopped. The responsibility only begins now as participants in the community and leaders of soldiers."

To be a member of the club, soldiers must be recommended by a senior leader and pass boards at the local command and installation level.

Brand, who works in the Veterinary Medicine Division at WRAIR, said one of his long-time goals was to be inducted into the club. The 12-year veteran was stationed at Incirlik Air Force Base in Turkey

when he was nominated and had difficulty finding time to prepare for the boards.

"I was flown to Germany for the final board selection without any real advance idea of what to expect," he said.

Hairston, the operations and training NCO at WRAIR, said the hardest part of the nomination process was time spent away from family while studying for the boards and the cost of several sets of Class A uniforms. He said the two-and-a-half years of preparation paid off.

"To be inducted into the Army's most prestigious club for enlisted personnel is one of the highest honors I could have hoped to accomplish," said the 14-year veteran. "It gives you a feeling of being an elite NCO or a 'best of the best' feeling and attitude. What I love the most about it is the respect you receive from all soldiers, officers and enlisted, when they see the medallion or know you are in the SAMC."

— *By Ann Duble, Fort Detrick*



Sgt. 1st Class Willie Hairston, above, and Staff Sgt. Gary Brand, below, with Command Sgt. Maj. Sandra Townsend, U.S. Army Medical Command, Nov. 13 at their Sgt. Audie Murphy Induction Ceremony.



Spc. Alisa J. LaPrath

Honor graduate

Spc. Alisa J. LaPrath, biological science specialist at the U.S. Army Aeromedical Research Laboratory,

Fort Rucker, Ala., earned the title Distinguished Honor Graduate at the U.S. Army's Professional Leadership Development Course held at Fort Benning, Ga., Aug. 5 to Sept. 5. She graduated first in a class of 137.

— *Linda Burt, USAARL*

People in the News

New detachment commander

Capt. Matthew A. Moser assumed command of the headquarters detachment of the U.S. Army Medical Research Institute of Chemical Defense Oct. 31. Moser succeeds Capt. Mark A. Samman, who served as adjutant and detachment commander since November 2002.

“This is a tremendous opportunity to be both a scientist and a detachment commander. It is truly an honor to command such soldiers as we have at ICD,” Col. Gennady E. Platoff, USAMRICD’s commander, told Moser.

During his remarks, the incoming detachment commander explained why, as a scientist, he would be interested in assuming the responsibilities

of adjutant/detachment commander.

“I wanted to accept the position because I think it is easy to overlook or underestimate the importance of the enlisted soldiers to ICD’s mission,” Moser said. “They are the backbone of the institute. I am honored and privileged to do my part to serve alongside them as their detachment commander.” —Cindy Kronman, ICD



Col. Gennady Platoff, hands the unit flag to Capt. Matthew Moser, the incoming adjutant and detachment commander.

Promotion, retirement in a day

You’d think being surrounded by family and friends when retiring from the D.C. National Guard in an elegant joint retirement ceremony with her husband at Fort Myer, Va., would be the icing on Col. Jeannie Shinbur’s cake Sept. 26.

But it wasn’t.

As her 28 and a half-year career ended, her commanding general promoted her to brigadier general.

“It was a wonderful surprise,” said Shinbur, who has worked at the U.S. Army Medical Research Acquisition Activity for more than 20 years. “When I first enlisted in 1975 ... I never imagined that I’d still be in 28 and a half years later. If you told me when I was an E3 or E4 that I would be an O6 or promoted to a brigadier general I wouldn’t have believed it. If you told me I’d be an E6, I might not have believed it.”

Her military and civilian careers complemented each other, Shinbur said. “Having an appreciation for soldier issues and the military structure, and how it all works and why it’s all important, then being able to see it on the other end, seeing the new products that are a result of the research this command conducts and contracts for, I saw the links in both directions,” she said.

A military police officer, Shinbur’s last assignment was as deputy district area commander for the D.C. National Guard, where in



Air Force Maj. Gen. David Wherley, commanding general of the D.C. National Guard, pins a Legion of Merit on Brig. Gen. Jeannie Shinbur during her retirement ceremony Sept. 26 as her husband, Chief Warrant Officer Fred Shinbur, looks on.

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the event of a full-scale mobilization she'd become commander of what elements remained at the D.C. National Guard. She also served as a detachment commander for a Criminal Investigations Division, one of her favorite assignments, and was a medical service corps officer early in her career.

A provision in Army regulations let the colonel who'd been on the selection list for a year and a half to finally see stars.

"It's a very slow process in the re-

serve components because you have to wait for a vacancy to be available," she said, adding that pinning on the rank won't affect her retirement pay because she didn't hold the position for the required period of time.

She and her husband, Fred, an active-duty Army chief warrant officer-five, always planned to retire together, so when he decided it was time, Shinbur decided "it was the right thing to do." But until she turns 60—which is "a long way off," she said—she still could be recalled to active duty.

"Which is fine with me because that's why I served," she said.

Moving on

Lt. Col. Travis Bernritter accepted the charter of the the Joint Vaccine Acquisition Program Aug. 21. The



Lt. Col. Travis Bernritter

Joint Vaccine Acquisition Program's mission is development and production of Food and Drug Administration-licensed vaccines and antisera to protect the warfighter in a biological warfare environment.

Bernritter, from the U.S. Army Medical Research and Materiel Command, was selected in a competitive

process to be JVAP's leader, said Brig. Gen. Stephen Reeves, the joint program executive officer for Chemical and Biological Defense. "We get a chance to choose the best of the best," he said. "We couldn't be more delighted that he (Bernritter) was selected."

In rapid sequence, Bernritter accepted the charter, colors and a Meritorious Service Medal for his work as a transition manager for the Joint Medical Operations-Telemedicine Advanced Concept Technology Demonstration, one of the three best in the Defense Department.

"The opportunity that I have in front of me is tremendous, and I have a lot to learn," he said. "A lot of work has gone into JVAP and my mission is to build on that work ... and carry it forward."

People in the News



McMooain

New officers

Two soldiers who worked at U.S. Army Medical Research Institute of Infectious Diseases traded in their stripes for officer rank. 2nd Lt. Lee McMooain completed Officer Candidate School at Fort Benning, Ga., in November. He reports to Fort Sam Houston, Texas, this month for specialized training as a Medical Service Corps officer.

2nd Lt. Joana Underwood earned her commission by applying for the Army Medical Department Enlisted

Commissioning Program. She graduated from Officer Candidate School in September and is now assigned to the general surgical ward at Walter Reed Army Medical Center.

—Ann Duble, Fort Detrick



Underwood

Simply the best

Fort Detrick announced the winners of its Career Service Awards Dec. 3, and many were members of the U.S. Army Medical Research and Materiel Command team. Winners represent the post at the Baltimore Excellence in Federal Careers Award program held annually in the spring.

- ◆ Outstanding Supervisor Grades 12 and Below— Jay A. Arrison, U.S. Army Medical Research Institute of Infectious Diseases

- ◆ Outstanding Professional/Technical, Scientific and Program Support—Dr. Patricia L. Pettit, USAMRIID

- ◆ Outstanding Professional/Administrative, Management and Specialist—Beverly D. Fogtman,

USAMRIID

- ◆ Outstanding Para-Professional/Technical, Scientific and Program Support—Steven L. Johnson, U.S. Army Center for Environmental and Health Research

- ◆ Outstanding Trades and Crafts—Carlton H. Rice, USAMRIID

- ◆ Community Service—Tommy R. Shedd, USACEHR

- ◆ Distinguished Public Service Career—Michael D. Stitely, U.S. Army Medical Research Acquisition Activity

- ◆ Fort Detrick Woman of the Year*—Col. Denise McCollum, U.S. Army Medical Research and Materiel Command

* This is a local award and its winner does not compete at the Baltimore event.

People in the News

Happy holidays

Holiday spirit flowed freely in December as money, cards and presents poured in for four command personnel who were deployed during the season. Staffs at Headquarters U.S. Army Medical Research and Materiel Command teamed with the Headquarters Company of the U.S. Army Garrison at Fort Detrick to create four 60-pound care packages filled with food, toiletries, foot-care products and entertainment like video game systems and portable DVD players. After a two-week collection effort, the first two packages

were sent and expected to arrive just after Christmas. The final two packages were sent later to coincide with two additional deployments.

“We wanted the soldiers to know that we care about them,” said Maj. Stuart Cohen, commander of Headquarters Company.



Candy, dental floss and gum were just a few of the items sent to the command's deployed soldiers in care packages.