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$12 million awarded for Gulf War health research studies

OSD Press Release

As part of the Clinton Administration's commitment to better understand the illnesses reported by Gulf War veterans, the Department of Defense, in coordination with the Departments of Veterans Affairs and Health and Human Services, recently announced the award of $12 million for 12 new research projects on Gulf War illnesses. This expands DoD's current extramural research portfolio to more than 35 active projects.

The new projects include eight research efforts funded under a special fiscal year 1997 $10 million Congressional appropriation to the Department of Defense for scientific research to be carried out by entities independent of the federal government. The additional four research projects were solicited from both federal and nonfederal sources, and were funded from the Department's science and technology account. The funded projects were selected on the basis of scientific merit and relevance to better understand illnesses of Gulf War veterans. The final selection of funded projects was closely coordinated with the Departments of Veteran Affairs, and Health and Human Services through the Research Working Group of the Persian Gulf Veterans Coordinating Board.

The U.S. Army Medical Research and Materiel Command issued a Broad Agency Announcement to medical researchers last December and January to submit proposals for research projects on three specific topics:

- To determine the feasibility of epidemiological studies in human subjects, including those thought to be near Khamisiyah, Iraq during the first two weeks of March 1991;
- To conduct animal studies, designed to assess the possible long-term or delayed clinical effects of low level or subclinical exposures to chemical warfare agents; and
- To investigate causal relationships between illnesses and symptoms among Gulf War veterans and possible exposures to hazardous material, chemical warfare agents, stress, potentially hazardous combinations of inoculations (i.e., anthrax and botulinum toxin) and investigational new drugs (i.e., pyridostigmine bromide) during military service in the Gulf War.

The U.S. Army Medical Research and Materiel Command made the awards on behalf of the Departments of Defense, Veterans Affairs, and Health and Human Services.

There were no proposals submitted for epidemiologic feasibility studies among Gulf War veterans thought to be near Khamisiyah, Iraq during the first two weeks of March, 1991. However, the Department is working with the Institute of Medicine to better understand any possible health outcomes among these veterans.

A list of the fiscal year 1997 Gulf War illnesses research awards follows:

Army medical researcher in action.

- Long-term effects of subclinical exposures to sarin;
- Assessment of subchronic neurobehavioral and neuropathologic effects in rats following low-level sarin exposures;
- Neurophysiologic and neuropathologic effects in monkeys of low-level exposures to sarin, pyridostigmine, pesticides and botulinum toxoid;
- Low-level exposure to GB vapor in air: diagnosis/dosimetry, lowest observable effect levels, performance-incapacitation, and possible delayed effects;
- Low-level sarin neurotoxicity and its modulation by pyridostigmine;
- Physiologic effects of stress in Gulf War veterans;
- Illness among Gulf War veterans: case validation studies;
- Pyridostigmine-induced neurodegeneration: role of neuronal apoptosis;
- Butyrylcholinesterase genetic variants in persons with Gulf War illness;
- Sarin and pyridostigmine interaction under physical stress: neurotoxic effects in mice;
- Gulf War veterans: epidiological and clinical evidence for residual organophosphate neurotoxicity; and
- Individual differences in neurobehavioral effects of pyridostigmine.

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Tallil Air Base narrative, MOPP and M8A1 alarm information papers released

By Ellen DiPaolo
Public Affairs

In its recently released case narrative on Iraq's Tallil Air Base, the DoD concluded that it is "unlikely" that chemical weapons were stored at Tallil Air Base when it was occupied by U.S. troops in the spring of 1991. Also released were information papers outlining mission oriented protective posture (MOPP) equipment, and the M8A1 chemical detection alarm.

U.S. intelligence confirmed that Tallil had contained stocks of chemical munitions during the 1980-88 Iran-Iraq war because Iraqi jets that bombed Iranian troops with chemical agents had flown out of Tallil. One of Iraq's 22 S-shaped bunkers had been built at Tallil and was considered a potential chemical storage site during the Gulf War, the narrative states.

Chemical weapons specialists inspected the bunker in March 1991, using chemical detection kits and monitors, as well as two Fox reconnaissance vehicles. No chemical weapons or agents were found, according to the narrative. The demolition crews which destroyed munitions, equipment, and structures at the base, also found no chemical weapons, but did discover significant quantities of associated defensive gear such as masks, suits, antidotes, and decontaminates — but this was expected based on Tallil's history during the Iran -Iraq war.

The DoD's "unlikely" assessment was based on first-hand observations, the reconnaissance of the area by chemical personnel, intelligence reporting, and the lack of any U.S. reports of chemical warfare agent detections or chemical warfare agent injuries, the narrative stated.

The 27-page MOPP information paper explains the different types of chemical protective equipment used by U.S. forces during the Gulf War, describes the levels of protection, and illustrates the limitations of increased MOPP posture. Some weaknesses include the weight and bulk of the equipment, the performance degradation caused by routine use and wear limits of the overgarments, and the need for NBC discipline and regular MOPP gear training by the soldiers.

The *Lessons Learned* section of the paper explains some very valuable facts learned while operating in the Gulf in a high-threat chemical warfare environment. The DoD is addressing these findings to improve future combat operations in a chemical environment.

The M8A1 Automatic Chemical Agent Alarm information paper focuses on the components of the M8A1 alarm system, how it operates, and what could cause the alarm to sound.

The paper explains that the alarm's design allows it to detect some — but not all — chemical weapon agents, and also explains the alarm's drawbacks. For example, during the Gulf War, many false alarms sounded as a result of a low battery, oily smoke, blowing sand, and extreme temperatures. The M8A1 detectors sounded so frequently that some soldiers lost confidence in the alarms and turned them off, according to the narrative.

Based on the lessons learned, the DoD will replace the M8A1 alarm system with M22 automatic chemical agent detector alarms, an improved system. Fielding starts in March 1998. The new detector will be able to sense mustard agent vapor, in addition to nerve agent vapor, and is expected to have fewer false alarm responses —"interferents" — such as gasoline and exhausts.

All of these case narratives are issued as draft or interim reports, and can be requested by mail, or found on GulfLINK (*http://www.gulflink.osd.mil*).

OSAGWI team members emerge from the gas chamber at the Marine Corps base in Quantico, VA, during a recent MOPP and chemical detection equipment seminar.

Navy publishes birth defects study

By Mark Sloman
Public Affairs

The Naval Health Research Center and the Birth Defects and Genetic Diseases Branch, Centers for Disease Control and Prevention, recently published the results of a study into possible links between Gulf War service and the incidence of Goldenhar syndrome in the children of Gulf War veterans. The study, published in the journal, *Teratology*, provides a statistical analysis of infants born in military medical treatment facilities between August 2, 1990, and September 30, 1993. The researchers concluded that there was no established relationship between Gulf service and Goldenhar syndrome.

"Although the birth prevalence of Goldenhar syndrome was higher among [Gulf War veterans'] infants; ...the difference was not statistically significant," the report said.

Because of the small sample size and other statistical criteria, the incident rate among Gulf War veterans would have to have been 5.75 times higher than non-deployed veterans to be considered statistically significant.

(continued on p.4)

From the desk of Bernard D. Rostker Special Assistant for Gulf War Illnesses

From the beginning of our investigation into Gulf War illnesses, I have been committed to using every resource available to learn what may be making our veterans sick. In attempting to answer this question, we have reached out to Gulf War coalition partners in Europe and the Middle East. On November 4, my senior advisors and I traveled to Kuwait, Saudi Arabia, Egypt and Israel to complete the second phase of fact-finding meetings. Our purpose was to share our medical findings with these countries and to determine if their civilian and military population have experienced symptoms similar to our Gulf War veterans.

In Kuwait City, we met with government representatives from environmental, research and health care institutions. Kuwaiti officials told us that the destruction of the Kuwaiti infrastructure caused by the war, the loss of records and equipment, and changes in the expatriate population, presented obstacles to conducting epidemiological studies on long-term health effects. Nevertheless, the Kuwaitis observed no adverse health affects or apparent symptoms as a result of Gulf War risk factors such as oil well fire smoke, oil spills or depleted uranium. The director general of Kuwait's Environment Public Authority offered to provide us with raw, unanalyzed data on the effect of oil well fires on humans and data on air quality measurements collected since the war.

In Saudi Arabia, we presented briefings to numerous military and health care professionals including personnel with the Ministry of Defense Hospitals in Riyadh and Dharan, the Saudi Arabia National Guard Hospital and the Aramco Hospital. The Saudi Arabia National Guard Hospital CEO offered the U.S. team computerized medical records of 100,000 National Guard members and 1,000,000 extended members to evaluate changes in their medical condition since the Gulf War. Findings will be released once approved by the Saudi Arabian government.

In Cairo, we met with officials representing the Ministry of Defense Departments of Chemical Warfare, Medical Services, and Scientific Research as well as the Navy Advance Research Medical Unit. Following discussions, unit staff proposed to serve as a base of support for medical research to be conducted in Saudi Arabia.

In Tel Aviv, we learned that while the Israelis were the target of 39 Scud missile attacks during the war, they performed real-time studies on the psychological reaction of the Israeli population to the threat of chemical warfare. We received detailed briefings on Israel's significant research program on cholinesterase inhibitors such as nerve gas, organophosphates, and pyridostigmine bromide. When we examined the Scud missiles recovered by the Israeli Scud Recovery Unit, we confirmed analyses that Scud warheads had no chemical or biological component. The yellow mist released at impact was identified as red fuming nitric acid, rocket propellant, not nerve agent.

Our host countries were most receptive to our visits. The information exchange was unrestricted and honest and opportunities for additional research look very promising. We hope the relationships we developed will help us gain further insights into the nature of Gulf War illnesses.

Veteran Spotlight

By Ellen DiPaolo
Public Affairs

In February 1991, Kevin Moellenberndt was severely injured by a sniper's bullet while moving into Iraqi territory on a mission to destroy the enemy's communication system during the Gulf War. Now, nearly seven years later, his recovery continues — however, Moellenberndt refuses to live in the past.

A combat engineer with the 307th Engineer Battalion, 82nd Airborne Division, Moellenberndt spent nine months at Walter Reed Medical Center after the sniper bullet struck the ammunition pouch on his hip, causing many of the rounds in the pouch to discharge, resulting in severe injuries to his lower abdominal area and right leg.

"I don't think I could have gotten better care anywhere," Moellenberndt said of his extended stay at Walter Reed. Unfortunately, he had to be readmitted for secondary infections from January-April 1992.

Moellenberndt competing in shot put at the 1995 Paralyzed Veterans of America National Wheelchair Games in Atlanta, GA.

"I learned to live for the moment, taking it day by day," Moellenberndt said when asked how he endured his injuries and extended hospital stays. His advice to other ill veterans includes, "You have to realize that there is help out there. Learn as much as you can about your illness or disability, and work with your doctor to determine your treatment. Low points have to be viewed as just another day, not the big picture."

Family support has also been a major factor in Moellenberndt's recovery. He and his wife of five years, Debora, have a healthy and rambunctious two-year-old son named Alex.

Determined not to let his injuries change his life, Moellenberndt is pursuing a double major in Chemistry and Biomedicine at the University of North Carolina. Although he had a delay due to hip replacement surgery this past July, Moellenberndt is back in school, and after graduation plans to apply to a program at Northwestern University to become certified to fit prosthetic limbs.

Moellenberndt is slowly recovering from his hip replacement surgery, and is able to walk with a crutch, attempting to rebuild his muscles in order to start physical therapy. A competitor in sports for the physically challenged, he competes on the national level in basketball and archery — taking his own advice to all veterans to "take it day by day."

Resources for veterans

Your ticket to the information highway — visit our GulfLINK web site at: *http://www.gulflink.osd.mil*

Gulf War veterans seeking information on VA benefits of all types should call the Gulf War Information Hotline at: **1-800-749-8387**

Anyone with information on Gulf War incidents should call the DoD Incident Reporting Line at: **1-800-472-6719**

Are you a Gulf War veteran (or know one) with health problems? Call the DoD Gulf War Veterans Hotline at: **1-800-796-9699**

Attention Minnesota Gulf War veterans!

The State Veterans Affairs is allowing application for a Persian Gulf War bonus through December 1998.

To be eligible for the bonus, the applicant: 1) must have been separated with either an honorable discharge or a general discharge under honorable conditions; or if on active duty, must be rendering honorable service at the time of application. 2) must have been a resident of the state of Minnesota at the time they entered into active duty military service. 3) must not have received a bonus payment from another state. 4) must have served on active duty outside Minnesota if a member of the National Guard or Reserve component.

To file for the Persian Gulf War bonus, you will need a copy of your DD 214. If you received the Southwest Asia Service Medal, you are eligible for a $600 bonus. If you did not receive this medal, you areeligible for a $300 bonus.

To apply for the bonus, stop in the Veterans Service Office at your county courthouse.

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Send your comments and suggestions on this newsletter to Ellen DiPaolo at the above address, or to *edipaolo@gwillness.osd.mil*

HU-25 Falcon aircraft on the scene at a Kuwaiti oil fields fire during the Gulf War.

(Goldenhar- from page 2)

The study was undertaken in response to media reports suggesting a higher incidence of birth defects, specifically Goldenhar syndrome, among infants born to Gulf War veterans than existed in the general population. Goldenhar syndrome, a condition for which there are no set diagnostic criteria, is a "disorder characterized by abnormal prenatal development of facial structures." For this study, the combination of any two birth anomalies commonly noted in the condition was the established criteria. These anomalies usually include small or missing ears, cleft lip or palate, and malformation of the eyes and vertebrae.

Of the 129,022 live births that occurred during the target period, 398 infants showed characteristics indicative of Goldenhar syndrome. However, only seven met the study's criteria. Five of these seven infants were born to Gulf War veterans and two were born to non-deployed veterans.

"The etiologic role of Gulf War exposures in the manifestation of birth defects has not been established, and it is unclear whether the prevalence and type of birth defects differ among infants of Gulf War veterans, non-deployed veterans, and nonmilitary populations," the study concludes.

The complete report can be found on GulfLINK (*http://www.gulflink.osd.mil*). Over the next several months, the Department of Defense anticipates the release of several additional reproductive health studies.