

IOM Studies Health Effects of Pesticides and Solvents

On February 21-22, 2001, the National Academy of Sciences Institute of Medicine (IOM) Committee and Expert Panels on Gulf War and Health: A Review of the Literature on Pesticides and Solvents held its first meeting. The IOM is a highly prestigious scientific organization. It is not part of the Government.

This committee is conducting a review of the peer-reviewed literature on health effects associated with exposure to pesticides and solvents used in the Gulf War. Relevant studies will be considered. The committee may use review articles to present a broad overview of the toxicology of pesticides to make assessments of biologic plausibility regarding the compounds of study and associated health effects.

The IOM committee will evaluate the strength of the evidence for associations between pesticide and solvent exposures and human health effects. If published, peer-reviewed information is available on the dose of the pesticide and/or solvent exposure in Gulf War veterans, the committee may evaluate the potential health risks posed to these veterans.

The committee will consider other issues, for example, multiple chemical exposure, and genetic susceptibilities. The review will include recommendations for additional studies to resolve areas of continued scientific uncertainty.

Second Review in Series

This review is required by two laws, Public Law 105-368 and Public Law 105-277, enacted in late 1998. It is the second in a series IOM reviews of agents or exposures experienced by Gulf War veterans. The first review was conducted on exposures that IOM heard was of greatest concern to veterans. It focused on



depleted uranium, pyridostigmine bromide, sarin, and vaccines. It was released on September 7, 2000. That report is described at great length in the October 2000 issue of the VA's *Gulf War Review* newsletter (see pages 1-4). The IOM report is available on-line at www.nap.edu. For VA's reaction, see page 1 of the January 2001 issue of the *Review*.

The pesticide/solvents project is sponsored by the Department of Veterans Affairs, as was the earlier review. The current review began September 1, 2000, through a committee and three panels of experts. The committee plans to hold four meetings over the 24 months, and the panels anticipate six meetings. The committee will issue a final report in approximately 24 months.

The 11-member committee is chaired by Jack M. Colwill, M.D., Interim Dean, School of Medicine, Professor Emeritus, University of Missouri. Joseph V. Rodricks, Ph.D., chairs the 17-member pesticides panel. Dr. Rodricks is Managing Director, Life Sciences Consultancy LLC. The 17-member solvents panel is co-chaired by Anthony L. Komaroff, M.D., and Laura Stewart Welch, M.D. Dr. Komaroff is Professor of Medicine, Harvard Medical Publications, Countway Library of Medicine, Brigham and Women's Hospital. Dr. Welch is the Director, Occupational and Environmental Medicine, Adjunct Professor of Environmental and Occupational Health, Washington Hospital Center.

The IOM senior staff on this project include Carolyn Fulco and Cathy Liverman. For more information regarding the February 21-22, 2001, meeting and future activities, veterans and their families can write to Gulf War and Health, Institute of Medicine, 2101 Constitution Avenue, N.W., Washington, DC 20418. The email address is PGHEALTH@NAS.EDU. The telephone number is 202-334-2039. The fax number is 202-334-2939.

Researchers Search for Answers About Possible Adverse Effects of Vaccinations, Including Anthrax and Botulinum

The following is part of a series of articles about various environmental hazards or risks encountered by military personnel deployed to the Gulf War theater of operations. Previous articles have focused on chemical and biological warfare agents, pesticides, depleted uranium, pyridostigmine bromide, and infectious diseases. They can be found on-line at www.va.gov/health/envIRON/persgulf.htm.

Before deployment in the Gulf War, all U.S. troops were given a standard series of inoculations against infectious diseases that would be provided to any U.S. citizen traveling to that part of the world. After their arrival in the theater of operations, some Gulf War participants received an additional two nonlive vaccines for protection against two biological warfare agents, anthrax and botulinum toxoid. The Department of Defense (DoD) estimates that about 8,000 troops received the botulinum vaccine, but the Food and Drug Administration (FDA)-approved anthrax was administered to a much larger group of about 150,000.

Concerns have been expressed about the possible long-term health consequences of these vaccines alone or in combination with other agents, including other vaccines. A number of studies have been approved to examine this hypothesis.

The following material regarding vaccinations received by Gulf War troops were extracted from the National Academy of Sciences Institute of Medicine (IOM) report, entitled *Gulf War and Health: Volume 1. Depleted Uranium, Sarin, Pyridostigmine Bromide, Vaccines* (available on-line at www.nap.edu). The report, released in September 2000, focuses on the four areas of health concerns included in the subtitle. Other agents will be evaluated in future volumes.

The IOM report was required by two laws: the Veterans Programs Enhancement Act of 1998 (Public Law 105-368 and the Persian Gulf War Veterans Act of 1998 (Public Law 105-277). In reality, VA contracted with the IOM for the review several months prior to the enactment of this legislation.

The National Academy of Sciences (NAS) is a private, nongovernmental, nonprofit, independent society of distinguished scholars engaged in scientific and

engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of charter granted to it by Congress in 1963, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. In 1970, the NAS established the IOM to secure the services of prestigious scientists and physicians to examine important public health problems.

Concerns about Iraq's offensive biological warfare capabilities during the Gulf War led to the decision that available vaccines should be used to protect U.S. service members against biological warfare agents. DoD sent approximately 310,000 doses of FDA-licensed anthrax vaccine to the Gulf War theater of operations, and it is estimated that 150,000 U.S. troops received at least one anthrax vaccination. About 137,850 doses of botulinum toxoid were sent to the Gulf, and it is estimated that 8,000 individuals were vaccinated. However, medical records from the Gulf War contain little or no information about who received these vaccines, how frequently the vaccines were administered, or the timing of vaccinations relative to other exposures.

Anthrax Vaccine

The anthrax vaccine has long been used in humans for the protection of workers, such as persons working with animal hair or hide, including goat hair mill workers, tannery workers, and veterinarians. A license for the anthrax vaccine was granted on November 10, 1970. It is estimated that 68,000 doses of the U.S. anthrax vaccine for use in protecting U.S. civilian workers were distributed from 1974 to 1989; 268,000 doses in 1990; and 1.2 million doses from 1991 to July 1999. The exact number of people who received the vaccine is not known.

In December 1997, the Secretary of Defense announced that all U.S. military forces would receive anthrax vaccinations for protection against the threat of biological warfare. The Anthrax Vaccine Immunization Program (AVIP) began vaccinations in March 1998.

Health Effects of the Anthrax Vaccine

According to the IOM, there is little information in published peer-reviewed scientific and medical literature on the safety of the anthrax vaccine. There is some information about the immediate effects of this vaccine; however, studies of the anthrax vaccine have not actively evaluated long-term health effects. Unfortunately, this situation is typical for virtually all vaccines.

The IOM committee concluded that there is sufficient evidence of an association between anthrax vaccination and transient acute (immediate) common health effects such as redness, swelling, fever, as is typically associated with many vaccinations. The committee also found that there is inadequate/insufficient evidence to determine whether an association does or does not exist between anthrax vaccination and long-term health problems.

Botulinum Toxoid

Botulinum toxins, known primarily for causing cases of foodborne botulism poisoning, are produced by the bacterium *Clostridium botulinum*. Different strains of this bacteria produce seven distinct botulinum toxins. These toxins are among the most toxic compounds known per body weight in mice.

Work on modifying the botulinum toxin to the nontoxic form of a toxoid began in 1924. The current botulinum toxoid vaccine is in FDA's Investigational New Drug (IND) status. The toxoid has been given to volunteers for testing purposes and to occupationally at-risk workers. Recent advances in molecular cloning techniques and new knowledge about the molecular mechanisms of action of the toxins have opened up avenues for new botulinum vaccine development for the future.

Health Effects of Botulinum Toxoid

Early studies of the initial botulinum toxoids in the 1940s reported a significant number of reactions. Several studies of the botulinum toxoid vaccine also noted moderate local or systemic reactions. Studies of the botulinum toxoid vaccine have not actively looked on health problems (instead waiting for any report to come in) to evaluate long-term health problems. This situation is unfortunately typical for all but a few vaccines.

The IOM committee concluded that there is sufficient evidence of an association between botulinum toxoid vaccination and transient acute local and systemic effects (for example, redness, swelling, fever), as is typically associated with vaccination. The committee also found that there is inadequate/insufficient evidence to determine whether an association does or does not exist between botulinum toxoid vaccination and long-term adverse health effects.

Multiple Vaccinations

Military personnel often receive several vaccinations as they prepare for service in an environment with many endemic diseases. Some vaccinations are given routinely to all military recruits;

About the Review

The Gulf War Review is written by VA's Environmental Agents Service (EAS). The Review is published to provide information about the concerns of Gulf War veterans, their families, and others interested in possible long-term health consequences of military service in the Gulf War. The Review describes actions by VA and others to respond to these concerns. For past and current issues of the Review and additional information, see our web site at www.va.gov/health/envIRON/persgulf.htm.

The most recent, prior to this, issue of the newsletter is dated October 2000. Additional issues will be prepared when warranted by significant developments. EAS anticipates publication of the Review three or four times annually. Three were issued in Calendar Year 2000. This issue was completed in mid-January 2001 and does not include developments that occurred after that time.

Comments or questions concerning the content of the Review are encouraged. Suggestions and ideas for future issues of the newsletter should be sent to Donald J. Rosenblum, Deputy Director, Environmental Agents Service (131), VA Central Office, 810 Vermont Avenue, N.W., Washington, DC 20420.

Requests for additional copies of this and/or future issues should also be sent to Mr. Rosenblum. A limited supply of the prior issues is available. Please specify the quantity and issue date requested.

VA facilities should order additional copies from the VA Service and Distribution Center. Each station has a Publications Control Officer (PCO). VA facilities should place any orders through their PCO using the LOG system.

Questions about the Registry examination should be directed to the Registry Coordinator or Registry Physician at the nearest VA medical facility. The telephone number can be found in the local telephone directory under the U.S. Government listings. Assistance is also available from the toll-free VA Gulf War Helpline: **1-800-749-8387**.

others are administered for deployment to specific geographic or high-risk areas; and still others are specific to the occupational setting. Some are

concerned that multiple vaccinations prior to and during Gulf War service may have caused health problems.

Health Effects of Multiple Vaccinations

Certain multiple vaccinations can lead to negative effects, but there is little evidence, largely because of a lack of active monitoring, of adverse effects beyond the transient local and systemic effects seen often with any vaccination.

A group of 99 employees at Fort Detrick, Maryland, who received many vaccinations for their jobs, were followed for up to 25 years to investigate the potential effects of repeated vaccinations. The participants underwent physical health examinations and laboratory testing in 1956, 1962, and 1971. No health problems due to intense long-term immunization could be identified in this group. None of the subjects suffered unexplained clinical symptoms requiring them to take sick leave that could be caused by the vaccination program.

There was some evidence of a chronic inflammatory (local swelling) response, as characterized by certain laboratory test abnormalities. However, these changes cannot necessarily be attributed to the vaccinations, because the workers studied were exposed to many environmental hazards in their work. This series of on-going health studies had several problems. However, the studies were valuable because careful monitoring did not disclose any evidence of serious unexplained illness in a group that received a series of intense vaccinations over many years.

Several studies of British Gulf War veterans provide some limited evidence of an association between multiple vaccinations and long-term multi-symptom health problems, especially for vaccinations given during deployment. There are some limitations and confusing issues with these studies, and further research is needed.

The IOM committee concluded that there is inadequate/insufficient evidence to determine whether an association does or does not exist between multiple vaccinations and long-term adverse health effects.

VA Announces Two New Centers for the Study of War-Related Illnesses

In April 2001, the Department of Veterans Affairs (VA) will announce the establishment of two Centers for the Study of War-Related Illnesses to respond to the health problems of veterans from past and future conflicts and to develop new approaches for improving

the care of active duty and veteran patients with such war-related illnesses.

The two Centers will be located at the VA medical centers in East Orange, NJ, and Washington, DC. These facilities were selected in a competitive process by a team of outside reviewers because of their outstanding response to a solicitation for proposals issued last year, but will be required to re-compete on a regular basis.

Public Law 105-368 directed VA to contract with the National Academy of Sciences (NAS) to help develop a plan for establishing national Centers for the Study of War-Related Illnesses and Post-Deployment Health Issues. In a November 5, 1999 report, the NAS Institute of Medicine concluded that creating Centers for the Study of War-Related Illnesses (CSWRIs), similar in structure to VA's Geriatric Research, Education, and Clinical Centers (GRECCs), should contribute greatly to the advancement of knowledge in this area, and recommended that VA proceed with the establishment of such centers.

(Note: The Parkinson's disease centers, described elsewhere in this publication also are modeled on the GRECC program).

Like the GRECCs, the CSWRIs have close affiliation with medical schools, and will have a strong research focus. Following startup, the CSWRIs are expected to attract extramural funding. Like the GRECCs, the CSWRIs are expected to have strong traditional clinical (medical treatment) activities, such as the evaluation, through demonstration programs, of a range of health treatments. Development of clinical demonstration projects that can be used by other VA facilities will also be expected.

The Centers will have four major components focusing on veterans' health issues. These components are research, clinical care, risk communications, and education (for VA health care providers). The Centers are expected to actively collaborate with Department of Defense personnel who are engaged in similar work.

It is anticipated that the Centers will serve the clinical purposes similar to those for which the Gulf War Referral Centers were originally established.

Researchers Conference Update

On the tenth anniversary of the Gulf War, federal researchers attending a major conference on Gulf War

illnesses agreed there is still no clear indication of why veterans of the conflict are experiencing many different ailments that some of them believe began in the deserts of Saudi Arabia and Iraq.

In opening the three-day conference (January 24-26, 2001), sponsored by the Research Working Group of the Military and Veterans Health Coordinating Board, Dr. John Feussner, chief of VA Research and Development, confirmed that most experts believe more research is necessary. We're going to look as long as there's a chance we're going to find something, he said. Like archeologists patiently unearthing bone after bone to piece together a lost species, researchers have steadily assembled evidence in their quest to discover what caused the array of illnesses plaguing Gulf War veterans.

Information about the background and objectives of the conference, entitled *Illnesses Among Gulf War Veterans: A Decade of Scientific Research*, was included in the October 2000 issue of the *Gulf War Review* (see pages 7-8). The *Review* can be accessed at <http://www.va.gov/health/envIRON.persgulf.htm>.

So far, \$155 million has been allocated for 192 different scientific and health-related studies. Some focus on depleted uranium, anthrax vaccinations, insecticides, pyridostigmine bromide pills, oil smoke and low levels of nerve gas, contributing to the hazardous environment possibly responsible for symptoms afflicting some Gulf War veterans. Yet, as Dr. Feussner pointed out, there is no clear answer. One of the handicaps is there is no conventional diagnosis that they have. They don't have disease X. The symptoms are very broad, he said.

Complicating matters, studies show those who served in the Gulf War do not have higher death rates than normal, are not more susceptible to infectious disease or cancer, and do not have higher rates of birth defects in their children. VA researchers are currently studying the effects of exercise and cognitive-behavioral therapy in treating a group of 1,100 sick veterans. Results of the study are expected later this year.

DU Article Published

Depleted uranium (DU), a by-product of the uranium fuel enrichment process, was used in both projectiles and armor by the U.S. military because of its density and low relative cost. However, because of

its radioactivity — albeit low level — and health concerns about uranium (including its toxicity to the kidneys), some veterans and the Department of Veterans Affairs (VA) officials are worried about the long-term health consequences of exposure to DU on Gulf War veterans.

A substantive front-page article regarding DU is included in the September 1999 issue of the *Gulf War Review*. That newsletter is available from the Environmental Agents Service (131), VA Central Office, 810 Vermont Avenue, N.W., Washington, DC 20420, many VA medical centers, regional offices, and many vets centers. It is also on-line at www.va.gov/health/envIRON.persgulf.htm.

In response to the concerns about health effects in Gulf War veterans, in August 1998 through the end of 1999, an already existing surveillance program following DU friendly fire victims was enlarged to look at the wider veterans community's exposure to DU. A total of 169 Gulf War veterans submitted 24-hour urine samples for determination of urinary uranium concentration. Possible DU exposure was determined from 30 separate questionnaire items condensed into 19 distinct exposure scenarios. Twelve individuals (7.1 percent) had urine uranium levels in the high range, and 157 (92.9 percent) had low level. A second test for six of the twelve (the other six dropped out of the study) found three of these individuals in the low range.

The exposures scenarios of the high and low urinary uranium groups were similar, with the presence of retained shrapnel being the only predictor of high uranium levels.

The researchers concluded that the study results emphasized the unlikely occurrence of an elevated urine uranium result and consequently any uranium-related health effects in the absence of retained DU metal fragments in the veterans.

The project results were described early this year in the medical journal *Health Physics* (Health Phys. 80(3):270-273; 2001) in an article entitled *Urinary Uranium Concentrations in an Enlarged Gulf War Veteran Cohort*. Melissa A. McDiarmid, Susan M. Engelhardt, and Marc Oliver authored the paper. For correspondence or reprints of the article write to M.A. McDiarmid, University of Maryland, Occupational Health Project, 405 W. Redwood Street, Baltimore, MD 21201. Dr. McDiarmid heads the VA's DU Follow-Up Program at the VA Maryland Health Care System in Baltimore.

Gulf War Concerns in Other Countries

The following article is the first of a two-part series that describes the concerns and reaction of the United Nations Coalition partners that joined the U.S. in the Gulf War. The next issue of the Gulf War Review will include more information about research efforts undertaken by or in our Coalition partners. We are grateful for the input and substantial contribution of Col. John T. Graham. Dr. Graham served as British Liaison Officer (Gulf Health) at the British Embassy in Washington, DC from 1998-2001. During his service in Washington, Dr. Graham was co-located in VA Central Office in the offices of the Persian Gulf Veterans Coordinating Board and its successor the Military and Veterans Health Coordinating Board.

About one million military personnel deployed to the Middle East in 1990-91 as part of the Coalition Forces formed under the authority of the United Nations to counter the Iraqi invasion of Kuwait. The U.S. provided nearly three-quarters of the Force; the remaining quarter came from 40 other nations. The largest groups apart from the U.S. were from the United Kingdom (U.K.): 53,000 and Canada: 4,500.

Military personnel from the various nations involved in the War had different experience and exposures in the Gulf and have had different health concerns since their military service.

Middle Eastern countries have not reported unusual health problems in their military populations. Early concerns about respiratory disorders that might be related to oil well fires had not been substantiated. There have been recent reports of increased birth defects in Kuwait and Bahrain. These effects have not been found in studies of U.S. military personnel and their families. Additional research on birth defects is ongoing in the U.S. and U.K.

The French, until recently, did not report a post-conflict syndrome. French troops in the Gulf took pyridostigmine bromide for shorter periods than U.S. and U.K. troops. Medical provision for serving military personnel and veterans is generous and sensitive to the emotional, psychological, and physiological needs of troops returning from overseas deployments. The French military recognizes that these individuals may develop ill-defined, chronic, fatiguing illnesses and provide supportive care and treatment.

The Czechoslovak Army sent a chemical unit of about 200 personnel. They had extensive pre-deployment health screening and post-deployment assessments at two-year intervals. About one quarter of these troops were Slovak and lost to follow-up by the Czech Army after the dissolution of Czechoslovakia. Of the remainder, six developed medical conditions that were not attributable to Gulf War service.

In 1991, the Danes deployed a 29-member field surgical team that was located with a British field hospital in Al Jubayl. They also sent personnel to Operation Desert Peace, a humanitarian relief operation to provide aid to the Kurdish population in northern Iraq following the end of hostilities. Some returning veterans raised health concerns, and in 1997, the Danish defence medical authorities began an investigation.

Some Canadian veterans have expressed health concerns following their service in the Gulf. In 1995, an assessment program was established at the Canadian Forces.

Medical Support Unit in Ottawa where veterans were admitted and extensively investigated. No unusual conditions were found, and there was no indication of a unique syndrome. In 1998, a series of post-deployment health centers was created across Canada to provide services for any veteran post-deployment.

The Australians sent about 1,400 personnel to the Gulf; most were naval. There have been occasional concerns expressed about possible adverse health effects as a result of service in the Middle East. In 1999, the Australians decided to initiate a research program to monitor the long-term health of Gulf War veterans.

British veterans express concern about possible adverse health effects from oil well fires soon after the war. Parliamentary questions were asked about depleted uranium and treatment resources available to veterans with post-traumatic stress disorder. In 1993, following a news magazine program, the Gulf War Syndrome was first discussed as a novel condition. The Medical Assessment Program was formed in late 1993. Referrals were initially slow, but the pace increased. Referrals peaked in 1995 and again in 1997, but have fallen off almost completely. The diagnostic findings on the first 1,000 U.K. veterans seen in this program were reported in 1999. The patterns of ill health experienced by British veterans were broadly similar to those described in earlier American reports.

The following three articles focus on Parkinson s disease. The causes of this neurological disorder are unknown. Some individuals have speculated that there may be an association between chemical exposures and Parkinson s disease in Gulf War veterans. We have printed similar articles on amyotrophic lateral sclerosis (Lou Gehrig s disease) in the March 2000 and January 2001 issues of the Gulf War Review.

VA Establishes Six Parkinson s Disease Centers

On February 7, 2001, the Department of Veterans Affairs (VA) announced the establishment of six new centers specializing in research, education, and clinical care for Parkinson s disease. Committing more than \$30 million to support these centers over four years, VA has taken a major step toward improving care and pursuing a cure for this disease that afflicts as many as 1.5 million Americans, including about 20,000 veterans. The centers are scheduled to open October 1, 2001.

Secretary of Veterans Affairs Anthony J. Principi made the announcement during a standing-room-only Capitol Hill news conference called specifically for that purpose. This was Secretary Principi s first visit to Capitol Hill since he was confirmed as Secretary on January 23, 2001.

Our centers will bring hope to veterans, and to all Americans with Parkinson s. And they will bring progress in treating the disease, said Secretary Principi. He was accompanied by Dr. Thomas L. Garthwaite, VA s Under Secretary for Health; Dr. Garthwaite s deputy, Dr. Frances M. Murphy; and several other key VA officials.

Dr. Garthwaite reported, VA recognizes the importance of supporting research and clinical activities to enhance the care for patients with this disabling neurological disorder. Dr. Murphy, a neurologist, formerly served as Director, Environmental Agents Service, the office that produces this newsletter.

Dr. Garthwaite added, By establishing these six specialized centers, we will enable top VA researchers, clinicians and educators to better understand Parkinson s disease, develop more effective treatments and clinical care strategies for patients, and improve education for caregivers.

Congressman Lane Evans, the ranking Democrat on the House Committee on Veterans Affairs and a Parkinson s patient, also participated in the announcement news conference. The Illinois Congressman, a Marine

Corps veteran, commented, As a veteran with Parkinson s disease, I know personally of the struggles we confront daily to live normal lives we endure these battles as we have endured other great conflicts. He remarked further, I know that veterans and other Americans will profit from the work that takes place in the centers VA is announcing today.

VA officials plan to open the six Parkinson s Disease Research, Education and Clinical Centers later this year at VA medical centers in Houston, TX; Philadelphia, PA; Portland (OR), Richmond, VA; San Francisco, CA; and West Los Angeles, CA. The new centers will function similarly to VA s Geriatric Research, Education and Clinical Centers and the Mental Illness Research, Education and Clinical Centers.

Each Parkinson s disease center will conduct research covering basic biomedicine, rehabilitation, health services delivery and clinical trials. In addition, each center will participate in a landmark clinical trial to assess the effectiveness of surgical implantation of deep brain stimulators in reducing the symptoms of Parkinson s disease.

The Centers will develop education and training programs for patients, families, students and other health care professionals. Each site will conduct a clinical care demonstration program for evaluating new models of care delivery for veterans with Parkinson s disease and movement disorders.

Parkinson s Disease Described

Parkinson s disease is slowly progressive. It is caused by degeneration of cells in a region of the midbrain that produces the chemical and neurotransmitter dopamine. Symptoms are characterized by tremors, slowness of movement, stiffness of limbs and gait or balance problems. While treatment exists, there is no known cure for this condition.

The creation of the new centers represents the second substantial VA initiative regarding Parkinson s disease in two years. In 1999, VA and the National Parkinson Foundation signed an agreement to establish an alliance to cure Parkinson s.

A Snapshot of Parkinson's Disease: The Facts About This Chronic Neurological Condition

What is it?

Parkinson's disease is a chronic neurological disorder named for Dr. James Parkinson, a London physician who first described it in 1817. It is a slowly progressive disease that affects a small area of cells in the mid-brain known as the substantia nigra. Gradual degeneration of these cells causes a reduction in vital chemical messenger in the brain known as dopamine.

What are the most common signs of Parkinson's Disease?

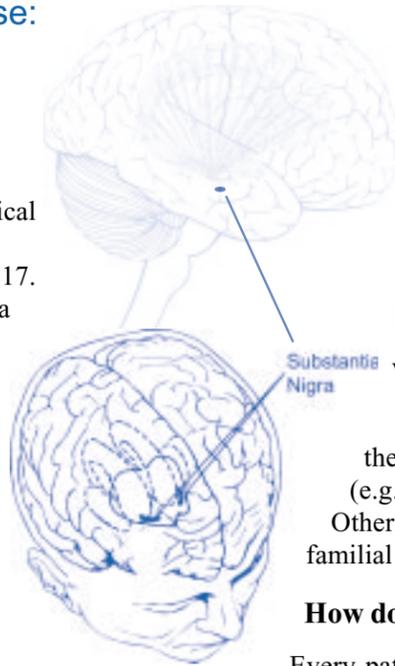
- Resting tremor on one side of the body;
- Generalized slowness of movement;
- Stiffness of limbs; and
- Gait or balance problems.

What other symptoms are common in Parkinson's Disease?

- Small cramped handwriting;
- Lack of arm swing;
- Decreased facial expression;
- Lowered voice volume;
- Depression or anxiety;
- Freezing — Feeling stuck in place
- Slight foot drag on the affected side;
- Increase in dandruff or oily skin;
- Decreased blinking;
- Constipation; and Swallowing difficulties.

How common is this condition?

No one knows, but it is estimated that 1 to 1.5 million Americans may have this condition. That is more people than those suffering from Muscular Dystrophy and Multiple Sclerosis combined. Although about 15 percent of Parkinson's disease patients are



diagnosed before age 50 (for example, the editor of this newsletter was diagnosed at age 37; and actor Michael J. Fox at 30), it is generally considered an older person's illness. Because of this perception, young patients are frequently misdiagnosed. About one in one hundred persons over the age of 60 has Parkinson's disease.

What causes Parkinson's disease?

The cause is unknown. There are theories that something in the environment (e.g., pesticides, well water) may cause it. Other scientists speculate that it may be familial (runs in families).

How does Parkinson's disease progress?

Every patient is different. Parkinson's disease frequently begins with a tremor in one hand. Resting tremors may over time be accompanied with slowness and/or stiffness on the affected side. As the symptoms progress, patients may observe similar difficulties on the other side of the body, usually less severe than the primary side. Finger/hand movements requiring skilled coordination may become slow and difficult.

Some patients notice a slight foot drag or a feeling of walking with great effort. Steps become shorter or freezing may occur when initiating movement. The voice can become softer in volume and take on a raspy quality.

Many Parkinson's patients have gait and balance problems. Difficulty navigating doorways and narrow passages, stutter-steps, and precarious balance on turning are common. Falls and subsequent injuries are common in these patients.

Most patients experience some of these problems. It is very rare for a single patient to have all of these problems.

Is there a cure?

To date, there is no known prevention or cure. As a result of research, physicians now have a much better understanding of this condition. Many effective medications are now available to treat the symptoms. There are several surgical procedures available for those patients who receive minimal or no help from the medication. Good medical treatment helps restore lost function in many patients. Some patients benefit from physical, occupational, or speech therapy.

Parkinson's Disease: VA Benefits and Programs

Compensation and Health Care

To qualify for VA disability compensation for Parkinson's disease, a veteran must

- have a current diagnosis of the disease and
- evidence that it was acquired in military service.

This means that the symptoms began or worsened during active duty or within one year of discharge.

Veterans with Parkinson's disease are eligible for VA health care and are exempt from co-payment requirements for hospital and outpatient medical services if they are receiving compensation for any service-connected disability or if their income is at or below the income limits.

Veterans with Parkinson's disease may be subject to medication co-payment requirements. Exempted from medication co-payment requirements are veterans:

- whose service-connected conditions are 50 percent or greater,
- whose medication is for the service-connection or
- whose income is at or below the pension threshold.

As of December 2000, there were 649 veterans who were service-connected for Parkinson's disease.

All veterans are eligible for VA health care. Veterans can obtain information on enrollment by calling 1-877-222-8387.

Six Parkinson's Centers

See article on page 7.

Research Initiatives

VA is in the vanguard of neurodegenerative disease research with innovative and aggressive research strategies in Parkinson's disease and other neurodegenerative illnesses. This year \$5.8 million was allocated for 45 medical and rehabilitation research projects in Parkinson's disease.

New research in Parkinson's disease is focused on two important areas, development of surgical treatments for late-stage patients for whom medical therapy is no longer effective, and development of new medications,

which are more effective and have fewer side effects. VA researchers are conducting groundbreaking studies in both areas.

Recent research advances by VA investigators include:

- Scientists at VA medical centers in Tampa, FL, and San Diego, CA, are investigating the use of animal stem cells that can be induced to develop into dopamine-producing nerve cells;
- Clinical trials at Augusta, GA, Richmond, VA, and New York, NY, medical centers are designed to test the effectiveness of new drugs that would stimulate dopamine receptors;
- Researchers at Miami, FL, Portland, OR, and Ann Arbor, MI, are investigating aspects of glutamate

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metabolism to lead to new medical treatments for Parkinson s disease; and

- VA approved three new Research Enhancement Award Programs at Baltimore, MD, Bedford, MA, and Denver, CO, which are designed to stimulate innovative approaches to the study of Parkinson s disease and to promote training of new researchers.

Expanded Outreach: Exhibits Research Fact Sheet, Q s & A s Brochure to Be Updated

Outreach to veterans continues to be a top priority of officials responsible for VA s Gulf War program nationwide. Dr. Mark A. Brown, Director, Environmental Agents Service, VA Headquarters, said, Gulf War veterans who are unfamiliar with the program we offer won t be able to take full advantage of these important benefits and services. Significant resources are available to Gulf War veterans and we need to get this information out to those veterans who have sacrificed so much on our behalf.

Dr. Brown noted three new VA initiatives had recently been undertaken that are designed to expand and enhance outreach to Gulf War veterans. We have updated and expanded the number of our Gulf War Program table-top exhibits. In addition, we have decentralized control over these displays to regional public affairs offices for greater accessibility.

The second major improvement is the complete revision of the VA s two-page report on Gulf War research efforts. This brief report highlights and describes in non-technical language what research VA and other departments and agencies are doing relative to the health concerns of Gulf War veterans and their families. The report also discusses the results of major research efforts and clinical findings. The publication replaces a fact sheet, dated September 1999.

The third initiative is the revision of the brochure *Gulf War Veterans Illnesses: Questions & Answers*. The version of this brochure was also dated September 1999 and it required updating. Both the research report and questions and answer brochure are available on-line at www.va.gov/health/environ/persgulf.htm

The exhibits have already been updated, and the two revised publications should be available at VA health care facilities and offices within a month.

Readers Survey Results

The October 2000 and January 2001 issues of the *Gulf War Review* included a survey questionnaire

asking for readers comments, suggestions, and recommendations. Hundreds of responses have been received.

We are pleased to report that the response to date has been very favorable. Many readers wrote very positive remarks in their appraisal of the newsletter. The most common word used by readers in describing or commenting on the publication was informative.



From left to right: John Kraemer of the Environmental Agents Service (EAS); Deputy Under Secretary for Health Frances M. Murphy, M.D., M.P.H.; and Donald Rosenblum of the EAS.

Where to Get Help

Active duty military personnel with questions or concerns about their service in the Persian Gulf region — contact your commanding officer or call the Department of Defense (DoD) Gulf War Veterans Hotline (1-800-796-9699) for an examination.

Gulf War veterans with concerns about their health — contact the nearest VA medical center. The telephone number can be found in the local telephone directory under Department of Veterans Affairs in the U.S. Government listings. A Gulf War Registry examination will be offered. Treatment will be provided to eligible veterans. The VA Gulf War Information Helpline can also provide the latest information and assistance. The toll-free telephone number is 1-800-PGW-VETS (1-800-749-8387).

Gulf War veterans in need of **marital/family counseling** — contact the nearest VA medical center or VA vet center. For additional information, call the Gulf War Information Helpline at 1-800-PGW-VETS (1-800-749-8387).

Gulf War veterans seeking **disability compensation** for illnesses incurred in or aggravated by military service — contact a Veterans Benefits Counselor at the nearest VA regional office or health care facility at 1-800-827-1000, or call the VA Gulf War Information Helpline at 1-800-PGW-VETS (1-800-749-8387).

Gulf War veterans seeking participation for their **spouses or children** in the VA-funded health examination program for spouses and children — call the VA Gulf War Information Helpline at 1-800-PGW-VETS (1-800-749-8387). Veterans interested in the alternative self-funded examination for spouses or children - contact the Gulf War Registry Coordinator at the nearest VA medical center for forms and information.

Gulf War veterans interested in learning about the wide range of **benefit programs** administered by VA — contact a Veterans Benefits Counselor at the nearest VA regional office or health care facility at 1-800-827-1000, or call the VA Gulf War Information Helpline at 1-800-PGW-VETS (1-800-749-8387).

Anyone with first-hand information about **incidents** that occurred in the Southwest Asia theater of operations during the Gulf War that may be related to health problems experienced by military personnel who served in the War — call the DoD Incidents Hotline at 1-800-472-6719.

Veterans who have been diagnosed with a motor neuron disease (including **amyotrophic lateral sclerosis or Lou Gehrig s disease**) and who were on active duty between August 2, 1990, and July 31, 1991, regardless of whether they actually served in the Gulf War theater of operations (or family/friends of veterans who are deceased or otherwise unable to contact VA) — call 1-877-DIAL-ALS(1-877-342-5257) to participate in a national survey.

For additional information about VA s program initiatives, see VA s Gulf War **veterans illnesses** home page at www.va.gov/health/environ/persgulf.htm.

Gulf War veterans who **encounter difficulties** at a VA medical facility can contact the **patient advocate** at that facility for assistance in resolving the problem. The medical center telephone operator should have the telephone number.

Representatives of **veterans service organizations**, including the American Legion (1-800-433-3318), Disabled American Veterans (1-877-426-2838), Veterans of Foreign Wars of the United States (1-800-VFW-1899), etc., may also be very helpful to Gulf War veterans, especially veterans who are seeking disability compensation.

Remarks about the Review included: Very interesting; it tells me a lot about what is being done to help the service person to better understand the reason why they aren't feeling good; Very thorough; The Review is a good service to the men and women who risked their lives in Desert Storm; Great source of information! excellent information; I want to thank you. This Review is very helpful; Great! Thanks for keeping me informed of the changes and information on Gulf War Syndrome; and very informative, professional.

Others wrote: Very informative and helps counter the arguments that the VA/Govt. are hiding the facts; I greatly appreciate the information that is provided in the Review. Very informative; It keeps me well informed; Well constructed. Very informative. Much needed; It has a lot of good information; Keeps me up to date on research & findings; Interesting and Informative; and Very informative and important to Gulf War veterans and their families.

Of course, not all reviewers were positive. One wrote it's terrible. Another reader called the Review misleading. A third reader wrote that it was a waste of time and money. Several individuals asked to be removed from the mailing list. Some respondents used the survey to express their displeasure about how they were treated in their local VA facility and/or other aspects of the VA's (or Government's) Gulf War program.

A number of readers offered worthwhile suggestions. We have read all of them and intend to put them into practice to the extent possible. Furthermore, we will continue to invite readers to send their suggestions and comments to:

Mr. Donald J. Rosenblum, Deputy Director
Environmental Agents Service (131)
ATTN: GW Review, VA Central Office
810 Vermont Avenue, N.W.
Washington, DC 20420.

Thank you for your comments and suggestions.