

*Department of Veterans Affairs
Gulf War Research*

While most ill Gulf War veterans who have been seen at Department of Veterans Affairs (VA) health care facilities have symptoms that can be diagnosed and effectively treated, a small number of the 700,000 Americans who served in Operations Desert Shield/Storm suffer health problems that doctors cannot easily yet diagnose. To help these veterans, President Clinton designated VA as lead agency for all Federally-funded research on the possible health consequences of military service in the Gulf War. The President also directed Federal researchers to “leave no stone unturned” in the search for answers to the varied questions and health concerns raised by Gulf War veterans and their families.

In 1994, the President established the Persian Gulf Veterans Coordinating Board (PGVCB), co-chaired by the Secretaries of Defense, Health and Human Services, and Veterans Affairs to take necessary actions to respond to the health concerns of Gulf War veterans and their families. Through the PGVCB’s Research Working Group and in coordination with other federal departments and agencies, VA has developed a comprehensive collection of research studies to focus on the highest priority medical and scientific issues. In 2000, the PGVCB was incorporated into the Military and Veterans Health Coordinating Board (MVHCB). VA now carries out its responsibilities through the MVHCB’s Research Working Group.

A total of 192 Federally-funded Gulf War-related research efforts costing about \$155 million have been authorized to date. As of November 2000, there are 83 Federally-funded projects have been completed, with 109 projects still ongoing. The scope of this research is very broad, from small pilot studies to large-scale studies involving many study subjects and major research and academic medical center programs. Projects are described in detail in the annual reports to Congress. Many of these reports are available online. The report released in June 1999 can be found at <http://www.va.gov/resdev/pgulf98/gwrpt98.htm>.

In December 2000, the Coordinating Board released a report, *Health Consequences of the Gulf War – An Ongoing Analysis*, upon which this fact sheet was based. The full report can be viewed online at www.mvhcb.gov.

Major Epidemiological Research on the Health of Gulf War Veterans

Scientific studies show that Gulf War veterans report a variety of symptoms at about double the rate of non-deployed veterans. British, Canadian, and U.S. studies have each demonstrated increased rates for several self-reported illnesses in Gulf War veterans, including chronic fatigue, memory problems, post-traumatic stress disorder, musculoskeletal problems, and asthma. Some of the studies include comprehensive evaluations that provide medical verification of the illnesses in Gulf War and non-deployed veterans.

However, several major studies have shown that Gulf War veterans do not appear to be suffering from a unique, previously unrecognized “syndrome.” In particular, the health of thousands of Gulf War veterans has been evaluated in four separate studies of U.S. and British service members from the Air Force, Navy, Army, Marines, and reservists. In each study, Gulf War veterans and veterans reported a similar pattern of symptoms when compared to non-deployed veterans.

The results of these studies — as well as the findings of 1994 *The Persian Gulf Experience and Health: National Institutes of Health Technology Assessment Workshop Statement*, the 1994 Defense Science Board Task Force Report, the 1996 Presidential Advisory Committee on Gulf War Veterans' Illnesses Report, and the 1998 Senate Veterans' Affairs Committee Report — are all consistent with the conclusion of the National Academy of Sciences' Institute of Medicine (IOM): “Thus far, there is insufficient evidence to classify veterans' symptoms as a new syndrome.” The IOM also concluded, “All Gulf War veterans do not experience the same array of symptoms. Thus, the nature of the symptoms suffered by many Gulf War veterans does not point to an obvious diagnosis, etiology [cause], or standard treatment.”

Researchers have also compared the rates and causes of death between 547,076 Gulf War veterans and 618,335 non-deployed veterans for the years 1991 to 1993. They found no increase in overall death rates among Gulf War veterans. A significantly increased rate of death due to accidents, for example, motor vehicle accidents, occurred in Gulf War veterans. This finding is not limited to Gulf War veterans, as it has been observed among other troops who participated in other deployments, including World War II, Korea, and Vietnam. A more recent VA study presented at a national conference, which examined data through 1997, found that deaths from accidents in Gulf War veterans have returned to normal after this period. This mortality study is continuing indefinitely.

The rates and causes of hospitalization were compared between all 697,000 Gulf War veterans and an equal number of non-deployed veterans for the years 1991 to 1994. Hospitalizations for fractures and soft-tissue injuries were higher in Gulf War veterans in military hospitals nationwide and in civilian hospitals in the state of California. Hospitalizations for respiratory- system and digestive-system diagnoses were higher in Gulf War veterans in VA hospitals nationwide.

Researchers compared the rates and types of birth defects in a study of children born in military hospitals to Gulf War veterans and to non-deployed veterans for the years 1991 to 1993. There were no increases in the rates of birth defects among the children of active duty male or female Gulf War veterans. Additional studies of reproductive health among Gulf War veterans are ongoing.

Major Ongoing Research Initiatives

PGVCB's Research Working Group has determined that follow-up studies to monitor whether the health of Gulf War veterans is getting better or worse over time are a high priority. There are five studies — supported by VA, Centers for Disease Control and Prevention, the Department of Defense, or a combination of these organizations – underway. Altogether, these five studies are following approximately 18,000 veterans from various States and regions of the United States and from the United Kingdom, obtaining information on physical symptoms, psychological symptoms, and exposures during the Gulf War. Some of these studies also include comprehensive medical histories and physical examinations.

In 1996, to characterize the health status of the entire U.S. Gulf War veteran population more completely, VA began the “National Health Survey of Gulf War Era Veterans and Their Families.” For this study, health questionnaires were mailed to a random sample of 15,000 Gulf War veterans and 15,000 non-Gulf War service members of the same time period. The study compares incidence rates between the two groups for a variety of symptoms and reproductive health problems, and attempts to relate them to self-reported environmental exposures. To adequately address the health concerns in sub-populations, VA deliberately over-sampled minority groups, including women veterans.

Results from the initial phases of this study showed that Gulf War veterans report significantly greater rates of virtually all symptoms, especially those involving joint and muscle, respiratory, gastrointestinal, and skin problems. This population also shows greater rates of chronic fatigue and post traumatic stress disorder. Both Gulf War and non-Gulf War veterans report these health problems, suggesting they are not unique to either group. Deployed veterans, however, show significantly greater rates for essentially all symptoms examined. Currently, VA is in the final phase of this study, which includes a physical examination of the veterans, their spouses, and their children begun as part of VA's Gulf War Registry health examination program. Ultimately, this phase will examine 2,000 veterans and approximately 3,000 spouses and children. The evaluations will focus on the same symptoms and diseases of concern among the Gulf War veterans as during the earlier phases of the study, including birth defects among children.

In 1999, VA began two national treatment trials: the exercise/behavioral therapy trial (EBT) and the antibiotic treatment trial (ABT). These trials are treating Gulf War veterans who have at least two of three major symptoms (fatigue, musculoskeletal pain, and memory problems) that have lasted for more than six months. The EBT trial focuses on aerobic exercise and cognitive (thinking/memory) behavioral therapy in an effort to provide effective treatments to veterans. This trial is taking place at 18 VA sites and 2 DoD sites. To assess the benefits of these treatments, about 1,100 patients have been enrolled since May 1999. They will be followed for an additional year to assess long-term benefits of these treatments.

The ABT trial focuses on a hypothesized infectious cause for the variety of symptoms experienced by some Gulf War veterans - a microorganism called *Mycoplasma fermentans*. The primary aim of the ABT trial is to determine whether a 12-month course of antibiotic treatment (Doxycycline) will improve the functioning of Gulf War veterans who test positive for *Mycoplasma* infection. The ABT enrollment started in April 1999 and is now complete with more than 450 patients at 26 VA sites and 2 DoD sites. Patients are treated for 12 months and then followed for an additional 6 months to assess the long-term benefits.

Recently, some concern has arisen regarding a possible increased rate of amyotrophic lateral sclerosis (ALS or Lou Gehrig's Disease), among veterans who served in the Gulf War. In response, VA began a new investigation to determine if they show a higher than expected rate of ALS, a neurological disease which results in degeneration of the nervous system. VA and DoD jointly funded this project. Efforts to identify ALS cases began in March 2000. A comprehensive evaluation of ALS cases will occur over a one-year period. Participants will receive an examination by a physician with expertise in diagnosing and treating ALS.

In early 1999, Centers for Disease Control and Prevention and other Department of Health and Human Services agencies held a public forum to discuss recommendations regarding the direction of future research on Gulf War veterans' undiagnosed illnesses and their possible links with multiple environmental exposures. Research recommendations were made on the causes and manner in which various exposure agents effect the body, and the assessment, diagnosis, treatment, and prevention of exposures in future deployments. A report highlighting the recommendations for each of the four topic areas was distributed to all conference participants and placed on the Internet (www.cdc.gov/nceh/meetings/1999/gulfwar).

Clinical and Research Summary

In 1999, the National Academy of Sciences' Institute of Medicine Committee on Measuring Health summarized the findings from the large and growing literature on the health of Gulf War veterans:

- Military personnel who served in the Gulf War have had a significantly higher incidence of suffering one or more symptoms that include fatigue, memory loss, difficulty concentrating, pains in muscles and joints, and rashes;
- The symptoms range in severity from barely detectable to completely debilitating;
- Other symptoms are noted with reduced frequency, but still may be experienced more often by deployed than non-deployed veterans;
- No single accepted diagnosis or group of diagnoses has been identified that describes and explains these symptoms;
- No single exposure, or set of exposures has been shown conclusively to cause individual or combinations of symptoms;
- No diseases included in the international classification systems have been shown to be more frequent in deployed or in non-deployed veterans with the exception of PTSD symptoms;
- Deaths among deployed veterans are not higher in general than deaths among non-deployed veterans (through 1997); and
- Death due to accidents are higher among veterans that deployed to the Gulf.



Questions?

Call the Toll-Free

VA Gulf War Information Helpline:

1-800-PGW-VETS (1-800-749-8387)