Final 2010 Report
of
Department of Veterans Affairs
Gulf War Veterans' Illnesses Task Force
to the
Secretary of Veterans Affairs
September 29, 2010

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EXECUTIVE SUMMARY:

In August 2009, the Secretary of Veterans Affairs (VA) directed a comprehensive review of the Department's approach and practices in meeting the needs of Veterans of the 1990-1991 Gulf War. The intended outcome of this review was a set of action plans to ensure the needs of Gulf War Veterans are met and improve their level of satisfaction with VA services. More broadly, these efforts reflect the cultural and institutional change within VA as it transforms into a 21st century organization.

This report reflects the efforts of an interdisciplinary team of subject matter experts from across multiple work centers within VA—a task force led by the senior Gulf War Veteran within VA leadership. The Gulf War Veterans' Illnesses Task Force (GWVI-TF) was established to identify gaps in services as well as opportunities to better serve this Veteran community and in so doing help guide efforts at making the VA people-centric, results-driven, and forward-looking. The GWVI-TF target population is Veterans who were deployed on the Operation Desert Shield and/or Operation Desert Storm components of the 1990 - 1991 Gulf War period. The Persian Gulf War (hereinafter referred to as the Gulf War) is legally defined in 38 U.S.C. § 101(33) as beginning on August 2, 1990, and ending on the date thereafter prescribed by Presidential proclamation or by law. While the term "Gulf War Veterans" could refer to all Veterans of conflicts during this period, including Veterans of Operation Iraqi Freedom, and subsequent conflicts, this report will use the term "1990 – 1991 Gulf War Veterans" to mean those Veterans who served in Operation Desert Shield and/or Operation Desert Storm.

The GWVI-TF worked over several months to develop a comprehensive plan of action consistent with the challenge inherent in Secretary Shinseki's pledge to all Veterans in his comments before the National Society of the Sons of the American Revolution on January 9, 2010: *"At VA, we advocate for Veterans – it is our overarching philosophy and, in time, it will become our culture."*

The GWVI-TF identified seven areas where VA can—and will—improve services for this group. Among these improvements, VA will reconnect with Veterans from the "1990–1991 Gulf War Veterans," strengthen the training of clinicians and claims processors, and reenergize its research effort. VA will also strengthen partnerships and medical surveillance to proactively address the potential health impacts on Veterans from the environmental exposures on today's battlefields.

The report's action plans are an initial roadmap to transform the care and services we deliver to Veterans from the "1990 – 1991 Gulf War Veterans." Execution of these plans will deliver the critical tools for frontline staff to address real and perceived misunderstandings between VA and Gulf War Veterans, Veterans Service Organizations, Congressional Committees, and other external stakeholders. Specifically, this report establishes action plans to deliver new and improved tools for VA personnel to improve:

Partnerships:

1. Coordinate with DoD through the Deployment Health Working Group (DHWG) and establish the appropriate mechanisms (functional, technical and legal) to transfer data to the VA related to environmental exposures, including environmental monitoring results, exposure-related documentation, and biomonitoring results.
2. Institutionalize processes per a DoD/VA memorandum of understanding or other appropriate document.
3. Facilitate timely VA notification by DoD of potential environmental exposures.
4. Require by-name data transfer of possibly exposed personnel, if available.
5. Follow-up potential environmental exposures to identify health-related sequelae.
6. Provide regular progress reports to the VA/DoD Health Executive Council
   - Work closely with the Armed Forces Health Surveillance Center and the DoD Deployment Health Research Center to ensure VA and DoD are effectively coordinating their respective exposure-related epidemiological studies to enable identification of medical conditions manifesting themselves after separation from service.
   - Establish partnerships with the DoD-VA Interagency Program Office and VA and DoD CIO organizations to expedite development of data capture into the Virtual Lifetime Electronic Record effort, to include occupational and environmental monitoring data (including data on chemical, biological, radiological, and nuclear exposures) and related exposure data.
   - Develop proposals for a joint effort between VA and DoD to create a technological framework and to develop the systems necessary to meet the requirements of Presidential Review Directive-5 to create individual longitudinal exposure records.
   - Develop an agreement with the Department of Health and Human Services and provide resources to establish a framework for sharing monitoring and exposure-related data into the National Health Information Network.

Benefits:

1. Clarify VA implementing criteria for adjudicating disability claims based on Gulf War undiagnosed illnesses and medically unexplained chronic multisymptom illnesses, as defined by law.
2. Investigate the feasibility of including Gulf War undiagnosed illnesses and medically unexplained chronic multisymptom illnesses in VA's National Quality Assurance Program.
3. Enhance training on Gulf War disability benefits, focused on disability claims resulting from exposure to a variety of environmental hazards during military service.

Clinician Education and Training:

1. Develop accessible, flexible and user friendly training regarding health aspects of the Gulf War including Gulf War Veterans' Illnesses to educate primary care

physicians, compensation and pension examiners, environmental health clinicians, mental health professionals and social workers about the health effects, including gender specific health effects of service in the 1990 – 1991 Gulf War.

2. Direct the Environmental Agents Service and War-Related Injury and Illness Study Centers (WRIISCs) to coordinate with Patient Care Services, the Office of Academic Affairs, Veterans Integrated Service Networks, and VA Medical Centers to ensure full participation in training on the unique exposure concerns of 1990 – 1991 Gulf War Veterans as well as returning OEF/OIF Veterans, and provide educational and clinical tools for evaluation of exposure risk and the health outcomes relevant to these risks.

Ongoing Scientific Reviews and Population Based Surveillance:

1. Continue funding three long term reviews:
   - Gulf War and Health: Effects of Serving in the Gulf War.
   - Long Term Consequences of Exposure to Burn Pits in Iraq and Afghanistan.
   - Gulf War Update 2010.
2. Collaborate with the Centers for Disease Control and Prevention (CDC) to add de-identified Veteran-specific data collection and analyses in two ongoing CDC projects, the National Health and Nutrition Examination Survey and the National Health Interview Survey.
3. Include Veteran-specific data collection and analyses on the Millennium Cohort Study to evaluate the impact of military service, including deployments and other occupational exposures, on long-term health.
4. Conduct a *National Study for a New Generation of U.S. Veterans* on the health status of 60,000 Veterans who have separated from active duty, Guard, or Reserves, half of whom served in either Iraq or Afghanistan and half who did not; and oversample women Veterans to permit appropriate comparisons.
5. Explore with DoD the feasibility of using health records of Military Working Dogs deployed and non-deployed to the Gulf to determine if there are clinical conditions or post mortem diagnoses related to environmental exposures. The use of Military Working Dog health records may add information to the potential long-term adverse health effects among Veterans exposed to the same environmental hazards.
6. Continue to fund the study of Post War Mortality from Neurological Disease in Gulf War Veterans through 2013.
7. Conduct a follow-up study of an established permanent panel of 30,000 deployed and non-deployed Veterans from the 1990 – 1991 Gulf War period. Baseline and follow-up data have been previously collected. This study will provide health trends over time and the current status of the health of 1990 – 1991 Gulf War Veterans close to the twentieth anniversary of the end of 1990 – 1991 Gulf War.

Enhanced Medical Surveillance of Potential Hazardous Exposures:

1. Provide periodic medical surveillance to Veterans who performed duty at Qarmat Ali, Iraq, and were potentially exposed to hexavalent chromium. Hexavalent chromium

has numerous acute and sub-acute health effects. It is also a known human carcinogen (primarily causing lung cancer).

2. Use this program as a model for VA medical surveillance programs for Veterans exposed to other potentially hazardous substances.
3. Continue to monitor the health of Veterans exposed to Depleted Uranium (DU) fragments and other Toxic Embedded Fragments at the DU follow-up program and Toxic Embedded Fragment Study Center, Baltimore VA Medical Center (VAMC), with the laboratory support of the DoD Joint Pathology Center (once the Armed Forces Institute of Pathology, which currently supports these programs, is closed). Expand upon the current flow of computable data from DoD to VA to assist in the Toxic Embedded Fragments Study Center efforts beyond TMDS-VTA (Theater Medical Data Store-Veterans Tracking Application), to include active-duty, Guard/Reserve, and retiree medical care data. Develop two-way flow of data between DoD and VA to enhance visibility and epidemiology of these cohorts, because these individuals may be "dual users" of DoD and VA medical care.

Research and Development:

1. Pursue a multi-pronged approach that balances the urgency of understanding and finding new treatments for ill Veterans of the 1990 -1991 Gulf War (short-term) with the need to do new studies on a national cohort/community of Gulf War Veterans (long-term).
   - Short-Term Plans: Re-issue new initiative Requests for Applications (RFA) twice a year to regularly request submission of new proposals and revisions of previously reviewed, but not funded, applications and maintain the current level of effort on four previous research initiatives from 2002, 2004, 2005 and 2009.
   - Long-Term Plans: Design and implement a new study of a National cohort of Gulf War Veterans to include a Genome Wide Association Study (GWAS) and other elements. This project is being developed and reviewed within the VA Cooperative Studies Program, which has extensive experience in developing multi-site VA clinical trials and clinical studies. The target for completion of the study design and implementation of this new study is September 2010.
2. Maintain funding levels for Gulf War research as close as possible to the $15M per year recommended in the report language of the appropriation bill for VA Medical and Prosthetics Research. Unobligated funds from the third UTSW contract period (FY 2009) will be retained for use in FY 2010 and FY 2011 for modifications and close-out costs of previously approved task orders under the contract and for data transfer costs at the conclusion of the contract (see Appendix A).

Outreach:

1. Engage stakeholders with an outreach tool to solicit their ideas and concerns for developing a successful communication strategy to improve the level of knowledge within the Veteran community regarding VA modifications to the rating schedule and presumptions related to the Gulf War Veterans' Illnesses.

2. Leverage the ideas and concerns of the stakeholders to develop a Department-wide outreach plan which targets the Gulf War Veteran population about programs and services provided to this Veteran population.
3. Recognize 1990 – 1991 Gulf War Veterans though special and targeted outreach events on or around August 2, 2010, to commemorate the 20th Anniversary of the 1990 – 1991 Gulf War.
4. Streamline the process to distribute the Gulf War Review and update the *Gulf War Illnesses' Webpage.*
5. VA will execute an outreach program to promote scientists and clinicians interest in conducting Gulf War Veterans' Illnesses research.

Implementing the recommendations in this report will provide VA with the means to advocate and care for all Gulf War Veterans. VA looks forward to partnering with all stakeholders in areas where we can jointly advocate for Veterans. This report is a foundation upon which VA will improve the care and services it delivers and also change the way it conducts our practices. In April 2010, a final draft of this report was released for public comment. VA reviewed and evaluated all the public comments related to the draft findings for subsequent inclusion into this final written report to the Secretary.

Most of the public comments were not directly related to the Task Force report and often were illustrative of the need for better communication between VA and Veterans. As such, a Gulf War Question and Answer sheet was developed as a VA response to many of the public comments. This Question and Answer sheet will be posted on VA's Website in August at the same time as the TF report is released. Other public comments were deferred for further evaluation by the GWVI-TF and potential inclusion in the next written report. VA will publish the 2010 final report and recommendations on VA's Website on August 2, 2010.

With the publication of the 2010 report, the GWVI-TF mission is not complete. It will continue to operate as VA's central clearing house for all GWVI related issues, including continuous oversight and monitoring of the actions required to implement the written report's recommendations. The GWVI-TF will prepare and present periodic updates to the Secretary and Deputy Secretary, and an annual written report (made available to the public) each summer, on the anniversary date of the 1990-1991 Gulf War, beginning in 2011. The GWVI-TF efforts will continue as part of VA advocacy for Veterans of all eras.

INTRODUCTION

Twenty years have passed since the start of the deployment and combat operations known as Operations Desert Shield and Desert Storm. Since then, many Veterans of that conflict have endured adverse health consequences from the war. Of the 696,842 Service members who served in the conflict, of which approximately 7% were women, 297,555 Veterans have filed Department of Veterans Affairs (VA) claims. As of March 2010, the VA has processed over 289,610 disability claims related to their service in these operations; 250,627 have been granted at least one service-connected condition, 38,983 claims were denied; and 7,945 claims from first time claimants are currently pending. Additionally, VA has treated over 146,445 combat Veterans, and has participated in federal research efforts on Gulf War illness totaling more than $152.1 million from VA and $400.5 Million in total Federal commitment to date. Yet through these years, many Veterans have felt disenfranchised in these efforts, and underserved by the VA. Stakeholders have been critical of VA's culture and processes as well. The excess of unexplained medical symptoms reported by deployed 1990 -1991 Gulf War Veterans cannot be reliably ascribed to any known psychological disorder. Veterans and stakeholders have noted that VA has historically failed to recognize that undiagnosed multisymptom illness suffered by Gulf War Veterans are distinct illnesses with potentially debilitating consequences and the large numbers of Veterans affected (an estimated 175,000 to 250,000 Veterans). They have also criticized VA emphasis in its research (before 2005) and in its clinician training materials and public statements (to date), that these illnesses were related to stress or other psychiatric disorders, when scientific research indicates otherwise. The Gulf War Veterans' Illness Task Force (GWVI-TF) was set up to respond to these criticisms.

The mission of the GWVI-TF is three-fold:

- To identify gaps in services as well as opportunities to better serve 1990 – 1991 Gulf War Veterans, inclusive of women Veterans who served;
- To develop results-oriented recommendations that decisively advance VA's efforts to address their needs; and
- To apply lessons learned from past practices and policies that can improve today's programs and services supporting Operation Enduring Freedom/Operation Iraqi Freedom Veterans.

Due to significant limitations in the VA's Gulf War Veterans Information System (GWVIS) and the reports generated from the various data sources used by GWVIS, it is extremely difficult to accurately portray the experiences of this 1990 – 1991 Gulf War cohort/group and their respective disability claims or health care issues (Appendix B). That said, the Task Force (Appendix C) solicited feedback from Veterans and employees to supplement the GWVIS and glean the areas of weakness as it relates to service delivery. The feedback provided by Veterans and stakeholders revealed perceptions about the

responsiveness and performance of VA in the areas of partnerships, benefits, clinician education and training, ongoing scientific reviews and population based surveillance, enhanced medical surveillance of potential hazardous exposure, research and development, and Veteran outreach.

At a January 29, 2010 briefing by the Task Force, the Secretary provided additional guidance, beyond the charter (Appendix D), to clarify certain issues, such as our efforts to apply lessons learned on environmental exposures, to ensure the report was as comprehensive as possible before the draft report was released for public comment in April 2010. This Final 2010 Report by the Department of Veterans Affairs GWVI-TF represents the next iterative step in VA's long pursuit of a comprehensive plan to meet the needs of all "1990 – 1991 Gulf War Veterans."

MAJOR THEMES: PERCEPTION, FINDING, RECOMMENDATION, AND STATUS

Perceptions are generally based on individual experiences. Consequently there were as many perceptions as there were individuals in the process. The perceptions presented in this report represent the Task Force's efforts to synthesize the information and opinions collected throughout the process. The Task Force reviewed a wide range of sources to develop the following action plan. It is comprised of perceived concerns, recommendations, and milestones that can be grouped into seven overarching themes. These themes were drawn from concerns raised by the existing literature and consultations made with Veterans, Veterans' advocates, program managers, Gulf War subject matter experts, and other stakeholders. These concerns informed the Task Force's recommendations.
Veterans

1. PARTNERSHIPS: IMPROVED DATA SHARING WITH DoD

The organizational alignment of DoD and VA is a critical precondition for providing an optimal continuum of care services for Gulf War Veterans. Sharing information across both departments is an important component of how this alignment is achieved. Alignment is particularly important for exposure-related health issues because Veterans are under the direct care of DoD when the initial exposures occur.

Perception 1: Veteran care is profoundly influenced by how well DoD and VA share information and resources in the areas of deployment health surveillance, assessment, follow-up care, health risk communication, and research and development.

Findings 1: VA is dependent on DoD to identify, in a timely manner, environmental hazards and service members who were potentially exposed to those hazards. VA works closely with DoD to facilitate timely notification by DoD of potential environmental exposures. VA coordinates with DoD through the Deployment Health Working Group (DHWG) to obtain data on environmental exposures, including environmental monitoring

results, exposure-related documentation, and biomonitoring results. VA will also work closely with the Armed Forces Health Surveillance Center and the DoD Deployment Health Research Center to ensure VA and DoD are effectively coordinating their respective exposure-related epidemiological studies to enable identification of medical conditions manifesting themselves after separation from service. An overarching memorandum of understanding (MOU) exists between DoD and VA. It will be used to guide the development of a Data Transfer Agreement, to which DoD and VA will agree, for the transfer of names, contact information, and other data elements of those potentially exposed to environmental hazards. VA would use this information to notify the Veteran of potential exposures, to monitor their long term health, and to inform Veterans about their options regarding additional follow-up as appropriate. DoD and VA need to develop a policy and procedure to adequately preserve Veterans' privacy and ensure the security for this data while the data are gathered, used, and stored.

Recommendations 1: VA will coordinate with DoD to ensure both departments provide guidance and membership to the Deployment Health Working Group committed to the goals of this report. Such coordination will establish the appropriate mechanisms (functional, technical and legal) to transfer data to the VA related to environmental exposures, including environmental monitoring results, exposure-related documentation, and biomonitoring results. Strategies to improve future DoD/VA data sharing include:

- Use of a DoD/VA MOU, and a Data Transfer Agreement, to institutionalize processes.
- Timely VA notification of potential environmental exposures.
- By-name data transfer of potentially exposed personnel, if available.
- Follow-up potential environmental exposures to identify health-related sequelae.
- The Deployment Health Working Group should provide regular progress reports on data sharing efforts to the VA/DoD Health Executive Council.
- Work closely with the Armed Forces Health Surveillance Center and the DoD Deployment Health Research Center to ensure VA and DoD are effectively coordinating their respective exposure-related epidemiological studies to enable identification of medical conditions manifesting themselves after separation from service.
- Establish partnerships with the DoD-VA Interagency Program Office and VA and DoD CIO organizations to expedite development of data capture into the Virtual Lifetime Electronic Record effort, to include occupational and environmental monitoring data (including data on chemical, biological, radiological, and nuclear exposures) and related exposure data.
- Develop proposals for a joint effort between VA and DoD to create a technological framework and to develop the systems necessary to meet the requirements of Presidential Review Directive-5 to create individual longitudinal exposure records.
- Develop an agreement with the Department of Health and Human Services and provide resources to establish a framework for sharing monitoring and exposure-related data into the National Health Information Network.

Timeline/Status 1: The institutionalization of the exchange of data between DoD and VA, to include timely notification of potential environmental exposures and the transfer of names of those potentially exposed, were topics for discussion at the DoD/VA DHWG meeting on December 17, 2009. The subject of collaborative research was discussed at

a January 21, 2010 meeting. The GWVI-TF draft written report was discussed at the March 11, 2010 DHWG meeting. As of July 1, 2010, a draft Data Transfer Agreement is being reviewed by DoD and VA. Discussions will continue within the DHWG on how to quickly develop a comprehensive data sharing strategy on environmental exposures.

2. BENEFITS: COMPENSATION AND PENSION SERVICE

Compensation and pension requirements for Gulf War Veterans are defined in both statute and VA regulations. These documents seek to ensure eligible Veterans are afforded appropriate compensation for service-connected conditions. Such statues and regulation can be challenging to understand, interpret and apply. This is particularly true in the case of multiple exposures.

Perception 2A: Additional training is needed for Regional Office personnel on proper application of law governing disability benefits for Gulf War Veterans.

Findings 2A: Laws directing benefits for disabilities resulting from Gulf War service are found at 38 U.S.C. § 1117 and 38 C.F.R. § 3.317. The regulation can benefit from changes that add clarity by eliminating a source of potential confusion. A review of anecdotal evidence of past interactions with VA stakeholders, to include Veterans, Veterans Groups and Committee staffers, revealed a common belief that VA has not delivered a full set of benefits earned by some of these Veterans. VA has therefore redoubled its efforts to educate all field personnel to the unique circumstances regarding the adjudication of Gulf War claims. As VBA undertook the development of a training letter to improve the application of law governing disability benefits, it became apparent that VA's regulation at 38 CFR § 3.317 was potentially less clear than the governing statute. As a result, VBA is revising the regulation to be consistent with the statutory language.

Recommendations 2A: Draft a regulation change to clarify the law's intent with respect to compensating Veterans with Gulf War-related disabilities. Also, develop a comprehensive training letter for release to all regional offices along with a national training broadcast provided by Compensation and Pension (C&P) Service. The training will focus on issues related to adjudicating disability claims based on Gulf War undiagnosed illnesses and medically unexplained chronic multisymptom illnesses, as defined by law. The training started in February 2010. C&P Service will explore the feasibility of including this subject area in its routine inter-rater reliability studies, or in a focused quality review through the Systematic Technical Accuracy Review program to track the future performance of field personnel.

Timeline/Status 2A: A regulation has been drafted, and is in the concurrence process, which will clarify the intent of the statute governing disability benefits to Gulf War Veterans regarding medically unexplained chronic multisymptom illnesses. A new training letter #10-01, *Adjudicating Claim Based on Service in the Gulf War and Southwest Asia*, for adjudicating claims based on Southwest Asia service was published

on February 4, 2010. The corresponding national training broadcast was contemporaneous with the release of the letter. It started in February and was completed in March 2010.

Perception 2B: Current claims processing procedures for VBA Regional Office personnel and C&P examiners do not specify the unique circumstances surrounding the handling of claims related to multiple known environmental exposure incidents, which have been reported by DoD.

Findings 2B: Regional Office personnel and Medical Center C&P examiners are generally unaware of details surrounding environmental exposure issues which have been reported by DoD. Additional training is required to adequately inform VBA personnel of primary hazards from multiple known exposures to DoD personnel. Such exposures include toxins from widespread use of burn pit fires to incinerate a variety of waste materials in Iraq and Afghanistan, as well as hexavalent chromium contamination at the Qarmat Ali water treatment plant in Basra, Iraq, from April through September 2003, among other known exposures.

Recommendations 2B: Develop a comprehensive training letter on claims processing for environmental exposures, and simultaneously release to all regional offices with the training letter on Gulf War disability benefits. This training will focus on disability claims resulting from exposure to a variety of environmental hazards during military service. The training will consist of (1) educational material concerning details of each exposure, (2) claims processing instructions, and (3) fact sheets for VA examiners conducting C&P examinations. VA will coordinate with DoD when appropriate to ensure that the most accurate and up to date information is being utilized in the development of these documents.

Timeline/Status 2B: The training letter was coordinated with Federal partners and released to the field on April 26, 2010.

3. CLINICIAN EDUCATION/TRAINING

Delivering high quality health care to Gulf War Veterans begins with the timely identification of their needs, diagnosis, and accurate management of their medical conditions. The understanding of Gulf War illnesses has grown over time, but there is much yet to be learned. The wide range of illnesses and multisystem manifestations pose significant challenges to VA's capacity to maintain clinician's proficiency and familiarity. This requires aggressive medical education efforts to improve and sustain the skills of clinical providers. These efforts are undertaken within the Veteran Health Initiatives (VHI) which serves as the longitudinal continuing medical education mechanism at VA. The lessons from the restructured training have informed larger system-wide changes in how continuing medical education is done within the VA.

Perception 3A: VA health care is not always responsive to the needs of Gulf War Veterans because health care providers are not fully educated on managing the Gulf War Veterans' health-related needs or their potential hazardous exposures.

Findings 3A: VHA has historically used a series of clinician training programs, titled Veterans Health Initiative (VHI), to prepare clinical staff to treat Veterans. The current VHA model for educating clinicians includes a review of management of medical conditions, as well as photos of military scenes, illustrations, bibliographies and, in some cases, first-hand accounts by Veterans. At the end, readers can take an online test on their knowledge of the subject. The current programs are unwieldy, information is out-of-date, the format is not user-friendly, and process for updating these training programs lacks agility. VHA needs a new approach to revise clinician training programs so they are relevant, timely, easy to use, and capture the clinicians' respect and attention.

Recommendations 3A: Form an interdisciplinary team of clinicians to develop a more accessible, flexible, and user friendly format for the clinician training program. Charge the team to reinvent the model for training development, and subsequently execute a complete revision of the Gulf War Veterans' illnesses training program for VA staff. Build the updated program to empower frontline VA staff along the horizontal path Veterans follow to receive benefits and care. This program's target audience includes compensation and pension examiners, environmental health clinicians, primary care physicians (including women's healthcare providers), mental health professionals, and social workers. This training will enable VA personnel to leverage the tools available to better manage the health effects; including the gender specific health effects from service in the 1990 - 1991 Gulf War. To further assist VA healthcare providers in recognizing the needs of 1990 – 1991 Gulf War Veterans, VA will explore the inclusion of a military history indicator within Veterans health records.

Timeline/Status 3A: Spring 2010 is the target date for development of the program with implementation to follow by early summer 2010. An interdisciplinary team of VA subject matter experts met on December 8 and 9, 2009, to rewrite and reorganize the Gulf War Veterans' Illnesses training program. A major portion of the revision was accomplished in this session. The title was changed to *Caring for Gulf War I Veterans* to emphasize its clinical focus. Several chapters were removed and others were added. A conference call on December 28, 2009, was held to continue editing the content. A two-day offsite conducted on February 1 and 2, 2010 finalized content. The training program is now ready for review by the peer review board. The target date for on-line availability is October 31, 2010. The estimated cost of the revision for *Caring for Gulf War I Veterans* is $75,000.00, and this project is currently funded.

Perception 3B: There are few subject matter experts in exposure-related disease within the VA system. Many providers may not be trained to recognize or diagnose exposure-related disease, nor are they aware of the types of exposures typically encountered in the combat theater, especially in Southwest Asia.

Findings 3B: The "1990 – 1991 Gulf War Veterans" largely attribute their illnesses to environmental exposures that were undetected and/or not monitored during that conflict (i.e. oil fires, pesticides, sandstorms etc.). Based upon data gathered from DoD's Medical Surveillance Monthly Report, it is estimated that between 16 and 20 percent of active duty, and 28 and 35 percent of Reserve soldiers serving in the Operation Enduring Freedom/Operating Iraqi Freedom (OEF/OIF) conflicts have concerns about their own exposures to environmental hazards during their military service as several environmental exposure events are known to have occurred in the current conflicts. Although each VA Medical Center (VAMC) provides access to environmental health clinicians and coordinators, there is variability in knowledge and practice among VAMCs as to when and how to conduct exposure assessments. Primary care providers currently do an excellent job of providing patients with work-ups based on symptoms but do not always have the necessary tools to provide thorough exposure assessments. An initial seminar was developed in August 2009 in conjunction with Mount Sinai Medical Center and the New Jersey War Related Illness and Injury Study Center (WRIISC) to overcome this deficiency. The seminar was very successful because it provided clinicians with the information needed to expertly treat and discuss problems with their Gulf War patients, and for the first time presented it together at one time in a concise manner. The seminar not only addressed issues concerning 1990 – 1991 Gulf War Veterans' concerns (Sarin gas, Pyridostigmine, pesticides, oil fires) but also addressed several concerns from the current conflicts in Iraq and Afghanistan. Thus, lessons learned from prior conflicts are being coupled with the lessons learned at the August 2009 seminar to build a more comprehensive training program for VA staff. The Veterans Health Administration will conduct exportable workshops in exposure evaluation and assessment to update VA clinicians on the unique exposures of returning OEF/OIF Veterans and provide educational and clinical tools for evaluation of exposure risk and the health outcomes relevant to these risks. These workshops will be offered in two different geographic areas and there will be a satellite broadcast seminar accessible to most geographic areas and time zones.

Recommendation 3B: Environmental Agents Service and WRIISC will coordinate with Patient Care Services, the Office of Academic Affairs and the area Veterans Integrated Service Networks (VISNs) and VAMCs to maximize attendance by the target audience of Primary Care Providers (including Women's Health Primary Care Providers), Environmental Health Clinicians, residents and fellows at one of the four annual workshops on exposure evaluation and assessment. VA will coordinate with DoD, when appropriate, on the development of these educational materials and make them available to DoD to expand DoD provider awareness.

Timeline/Status 3B: Spring 2010 is the target date for development of the program with implementation to follow. A full-day workshop will be held at two or more VA medical centers each year for three years. This fiscal year's workshops will be held on July 13th and July 26th in Indianapolis Indiana and Portland Oregon respectively. FY 2011 workshops will be held initially in South Carolina and West Virginia during October.. Two additional workshops will be offered in other geographic areas in FY 2011. The workshops will consist of lecture and discussion plus small workgroups during lunch.

VHA will develop web-based reference material and distribute a printed reference guide. In addition, in FY 2010, this seminar will be offered as a satellite broadcast available to all VA providers. The FY 2010 approved funding is $91,000. Recent training provided to VBA field stations included guidance for VA medical professionals who conduct compensation and pension examinations for conditions associated with Gulf War-related exposures. The VA's War Related Illness and Injury Study Center (WRIISC) program is fully operational with facilities located in Washington, DC, East Orange, NJ and Palo Alto, CA. The WRIISCs, staffed by teams of multidisciplinary clinicians uniquely qualified to evaluate Veterans with deployment–related health concerns, provide a clinical "second opinion" resource to Veterans via a referral process based on geographic location. If a Veteran is eligible to be treated at one of the WRIISC center facilities, the primary care physician may contact that WRIISC program directly about a referral.

4. ONGOING SCIENTIFIC REVIEWS AND POPULATION-BASED SURVEILLANCE

Documenting the long-term health effects of environmental hazards such as toxic exposures is critical for both diagnosing and treating Veterans. This requires population-based surveillance studies that focus on the longitudinal course of Veterans' lives. To date, such studies have been inadequate in scope and number for the Gulf War Veterans. Shifting the focus to a longitudinal perspective that emphasizes surveillance over time will allow VA to develop a robust set of metrics and data regarding the health of Veterans. This will enable VA to better meet the needs of these Veterans. To achieve this longitudinal focus, VA and DoD must partner to accelerate the development of the individual longitudinal exposure record, and to include environmental exposure-related data, environmental monitoring results, laboratory tests, and exposure assessments into the Virtual Lifetime Electronic Record

Perception 4A: More Veteran–focused studies on long term health outcomes are needed to enhance the care VA provides to Veterans.

Findings 4A: The Institute of Medicine (IOM) has provided Congressionally-mandated biennial reviews of the literature related to adverse health effects as a result of exposure to a number of environmental hazards during military deployments. The IOM provides reviews of the most current epidemiological (including studies of the health of exposed and non-exposed populations, i.e., population-based surveillance) and scientific literature essential to VA in helping to determine whether new presumptions of service connection are warranted. Veteran benefits and care are enhanced by the knowledge gained from the IOM Biennial Reviews, "Gulf War and Health".

Recommendations 4A: Continue funding the long-term IOM scientific reviews of health outcomes related to Veterans' service in combat theaters including the 1990 – 1991 Gulf War theater.

Timeline/Status 4A:

- Gulf War and Health: Effects of Serving in the Gulf War

Report released: April 9, 2010
Fully funded.

- Long Term Consequences of Exposure to Burn Pits in Iraq and Afghanistan
  Report due: 5/01/2011
  Fully funded.
- Gulf War Update 2010
  As of July 1, 2010, consideration being given to the topic for next report.

Perception 4B: VA has not fully leveraged its interagency relationships with the Centers for Disease Control and Prevention (CDC) to ensure Veterans are represented in two major national health-related surveys.

Findings 4B: CDC conducts several national health-related surveys of the U.S. population. These surveys provide data on the health of the Nation and information concerning the health of the Nation over time. Currently Veterans are not included in numbers necessary to allow for comparisons, nor are there questions specific to Veterans in order to make comparisons to the U.S. population.

Recommendations 4B: VA will collaborate with CDC's National Center for Health Statistics to add de-identified Veteran-specific data collection and analyses in two major longitudinal health-related national surveys: the National Health and Nutrition Examination Survey (NHANES); and the National Health Interview Survey (NHIS). As of July 1, 2010, VA has submitted to NHANES and NHIS staff specific questions that if answered positively, will identify Veteran study subjects beginning in 2011 in both these National surveys. This effort will enable contrasts to be made between current disability and health status of Veterans and non-Veterans. Additionally, these questions will enable VA to assess the health of Veterans during multiple periods and eras of service.

Timeline/Status 4B: VA staff has had several discussions with investigators on the NHANES and NHIS. Staffs from both surveys are willing to include Veteran-specific questions and to plan for oversampling of the Veteran population to ensure an adequate number of Veterans to allow for comparisons to the adult U.S. population. VA staff has asked for points of contact for the oversampling effort needed for both studies.

- NHANES and NHIS Timeline: Begin data collection FY 2011-12; data available FY 2012-13 and beyond.
- NHANES Costs: Estimate $1M for first year of data collection.

Funding for this data collection is available within existing or requested funding levels through FY 2012.

Perception 4C: VA has not fully leveraged its interagency relationships with DoD on the Millennium Cohort Study (MCS) to ensure analysis is conducted on Veteran data gathered in this study.

Findings 4C: The objective of the MCS is to evaluate the impact of military service, including deployments and other environmental exposures, on long-term health. The

study was launched in 2001 and has enrolled over 150,000 participants over three enrollment periods. Approximately 40 percent of these participants are Veterans.

Recommendations 4C: Improve collaboration between DoD and the VA Office of Research to ensure Veteran-specific data collection and analyses are included in the MCS.

Timeline/Status 4C:
VA met with the Principal Investigator (PI) and staff of the MCS at the Naval Health Research Center in San Diego in June, 2010. VA and the PI have agreed to a study of health outcomes among a group of Veterans in the MCS cohort. The timeline for the study is under development. Costs to VA are expected to be minimal, if any. Under the auspices of the Deployment Health Working Group, VA and DoD will work together to ensure Veteran-specific data are collected to support prospective long-term surveillance and to meet the Secretary's goal of being able to determine presumptions of service connection as soon as possible. In order to ensure data is collected to support long-term surveillance, two-way data sharing between DoD and VA should be implemented in the MCS. VA and DoD will explore ways to share VA medical data.

Perception 4D: Veteran specific population-based longitudinal surveillance is not conducted as a part of a comprehensive surveillance plan.

Findings 4D: All Veteran care can be further enhanced by the knowledge gained from a population-based long-term surveillance study. A study designed to evaluate the impact of military service, including deployments and other environmental exposures on long-term health, is needed to help achieve a comprehensive surveillance plan.

Recommendations 4D: Conduct a *National Study for a New Generation of U.S. Veterans* to study the health status of 60,000 Veterans who have separated from active duty, Guard, or Reserves, half of whom served in either Iraq or Afghanistan and half who did not; women Veterans are being oversampled to permit appropriate comparisons.

Timeline/Status 4D: Data collection complete late 2010; results summer 2011. Questionnaire has been fielded; clinical and physical exam components are still under development and refinement. This recommendation is fully funded at approximately $5 million.

Perception 4E: VA has not fully leveraged its interagency relationships with the Armed Forces Institute of Pathology (AFIP), Department of Veterinary Pathology, and the DoD Military Working Dog (MWD) School to identify lessons learned from deployed personnel as a part of a comprehensive surveillance plan.

Findings 4E: MWDs may serve as sentinels for adverse health effects in military personnel. Clinical records and tumor reports from MWDs may serve as an early-warning opportunity for surveillance for human disease, and this may be most valuable for infectious and respiratory pathologic conditions among MWDs.

Recommendations 4E: Explore with DoD the feasibility of using health records of Military Working Dogs deployed and non-deployed to the Gulf to determine if there are clinical conditions or post mortem diagnoses related to environmental exposures. Initial focus will be on data assessing infectious and respiratory pathology endpoints because these are likely to be clinical outcomes VA health care staff will see when evaluating the health of Gulf War and Iraq and Afghanistan Veterans.

Timeline/Status 4E: Timeline and costs to be determined in the first quarter of 2010 after further discussion with all the potential collaborators. We have discussed the concept with the Department of Veterinary Pathology at the AFIP and they are willing to collaborate. We have contacted the MWD School at Lackland AFB in San Antonio to set up discussions, with the aim in 2010 to obtain an analyzable data set.

Perception 4F: The original study of Post War Mortality from Neurological Disease in Gulf War Veterans is complete. Valuable information for use in helping Veterans suffering from neurological diseases could be revealed if this study was extended.

Findings 4F: This study investigated the mortality among Gulf War Veterans due to neurological diseases, specifically amyotrophic lateral sclerosis (ALS), multiple sclerosis (MS), Parkinson's disease, and brain cancer. The group includes 621,906 Veterans who were deployed during the Gulf War and 746,249 Veterans who served in the military during the Gulf War, but were not deployed. The risk of death due to ALS, MS, Parkinson's disease and brain cancer was not associated with service in the 1990 - 1991 Gulf War in general[i]. However, Gulf War Veterans who were potentially exposed to oil well fire smoke, and sarin at Khamisiyah, Iraq, may be at increased risk of brain cancer mortality. Findings are through 2004.

Recommendations 4F: Continue to follow this group at least through 2013.

Timeline/Status 4F: The original study is complete. In order to maintain continued surveillance for neurological disorders in this group, we are funding ($350,000) an additional study with results expected in 2013. Funding for this study is available within the President's Budget request through FY 2012.

Perception 4G: A valuable opportunity to reveal additional health-related information will be lost without action by VA to ensure the continued study of a population-based group.

Findings 4G: A study of 15,000 Gulf War deployed and an equal number of non-deployed Veterans were first surveyed from 1995 to 1997; a subsequent survey effort to contact the same permanent panel was fielded in 2003 through 2005. The study was entitled: *Gulf War I Veterans: the Longitudinal Health Study of Gulf War Veterans.* The objective of the study was to assess the health status of 1990 – 1991 Gulf War Veterans and non-1990 – 1991 Gulf War Veterans by comparing medical and psychological conditions, health perceptions and functional status, health care utilization and VA disability compensation

between these two populations. Previous surveillance efforts included surveys, physical examinations, medical records reviews, and mortality follow-up studies.

Recommendation 4G: Conduct a follow-up study of an established permanent panel of 30,000 deployed and non-deployed 1990 – 1991 Gulf War Veterans. Baseline and follow-up data have been previously collected. This study will provide health trends over time and the current status of the health of 1990 – 1991 Gulf War Veterans close to the twentieth anniversary of the end of Gulf War.

Timeline/Status 4G: Initiation of preliminary planning during FY 2010; completion of data collection in 2013; results published in late 2013 or 2014. Previous study cycle is nearing completion. Planning has begun for the next iteration of the study. The cost of this surveillance initiative is estimated to be approximately $2.5 million. OPHEH has the funding to conduct this 20-year follow-up.

5. MEDICAL SURVEILLANCE

Medical surveillance during military service is an essential component of a long-term health care strategy for service members and Veterans alike. Medical surveillance allows clinicians to understand the impact of environmental exposure as it occurs, versus reconstructing the possible consequences years later. Unfortunately, medical surveillance has not been extensive in 1990 – 1991 Gulf War Veterans. This makes our understanding and management of environmental exposures much more challenging. The lesson learned from this experience is a need to improve environmental monitoring through examination and data collection. This lesson has formed the development of new data elements within the Gulf War registry which will be deployed in spring 2010.

Perception 5A: No process exists for periodic monitoring of the health status of Veterans who belonged to units with known exposure to environmental hazards during their military service.

Findings 5A: Veterans experiencing health conditions thought to be related to hazardous exposure during military service should have available to them an exposure evaluation by means of a history and physical examination by someone familiar with the health effects of various environmental exposures, even if their military service does not qualify them for a VA Gulf War Registry health examination. Such individuals may be eligible to receive a comparable health examination from VA, and they are encouraged to contact the Environmental Health Coordinator or Patient Care Advocate at the nearest VA medical facility for information about eligibility and enrollment. The VA's War Related Illness and Injury Study Center (WRIISC) are also a valuable resource for exposure evaluations.

At this time, DoD has discussed with VA multiple known scenarios, events or situations when Service members may have been exposed to hazardous substances during the current conflicts in Iraq and Afghanistan. These possible exposure events include exposure to hexavalent chromium, burn pit smoke, and other hazardous contaminants.

For individuals who may have been exposed, medical surveillance can be used to reduce morbidity and mortality because in each of these cases the toxicant(s) can be identified or surmised and clinical intervention and medical monitoring can be undertaken.

One of the lessons learned from the first Gulf War, is that VA must get information regarding potentially exposed troops as soon as available from DOD, in order to provide ongoing medical surveillance of Veterans who may be at risk of adverse health outcomes DOD and VA have agreed to move forward with a program developed for those Veterans who may have been exposed to sodium dichromate while performing duties at Qarmat Ali, Iraq. This model will be used to develop medical surveillance programs for the other exposure events. The event at Qarmat Ali is the most "well defined" event in that there are a relatively small number of potentially exposed Veterans, there is only one offending chemical, and the exposure has ceased. The details of this event are described below.

Recommendations 5A: Provide ongoing medical surveillance to Veterans who performed duty at Qarmat Ali, Iraq, where they were potentially exposed to hexavalent chromium. Hexavalent chromium has numerous acute and sub-acute health affects. It is also a known human carcinogen (primarily causing lung cancer). It is anticipated that this program will be used as a model for VA medical surveillance programs for Veterans exposed to other potentially hazardous substances. VA will inform and coordinate as appropriate with DoD on the development of these medical surveillance programs.

Timeline/Status 5A:

- An Undersecretary of Health Information Letter to Clinicians regarding the Qarmat Ali Medical Surveillance Program was published on 22 June 2010
- VA National Directors were briefed on July 8th and 9th by Teleconference
- A joint DOD/VA letter signed by both Secretaries with an enclosed fact sheet is in concurrence at both Departments.
- Initial notification phone calls are being made by the Health Resource Center since July 27th 2010.
- We will have biweekly reporting regarding all Veterans who are appointed and present for the examination

The cost of this program is partially built into the existing cost for providing Gulf War Registry examinations. Other additional costs will be programmed for the additional required testing (pulmonary function testing and chest radiograph) on initial and 1 year recall exam, and staff travel to the involved VAMCs, and will come from existing VAMC Operating Funds.

Perception 5B: Long-term health effects for Veterans who experienced known exposure to Depleted Uranium (DU) during their military service are unknown.

Findings 5B: There are known instances where service members were hit by coalition fire and still have depleted uranium fragments present in their bodies. The need to monitor the effects of long-term DU exposure still exists. Recently, the DU Registry and Follow-up Program has been broadened into the Toxic Embedded Fragment Study Center. This

Center was established in 2008 and performs active surveillance on Veterans and active duty members with different kinds of fragments from DU to tungsten component fragments to polyvinyl chloride (PVC) fragments. A new directive for this program is being promulgated and a clinical reminder and screening template are already available in Computerized Patient Record System.

The Armed Forces Institute of Pathology (AFIP) will close in 2011 per 2005 BRAC decision. The National Defense Authorization Act for Fiscal Year 2008, Public Law 110-181, required the establishments of a Joint Pathology Center (JPC), that shall function as the reference center in pathology for the Federal government providing: (1) diagnostic pathology consultation services in medicine, dentistry, and veterinary sciences; (2) pathology education, to include graduate medical education, including residency and fellowship programs, and continuing medical education; (3) diagnostic pathology research; and (4) maintenance and continued modernization of the Tissue Repository and, as appropriate, utilization of the Repository in conducting the activities described in paragraphs (1) through (3). Although established with a smaller footprint, the JPC will be capable of delivering the same breadth and depth of surgical pathology consultation as the AFIP currently provides. Currently, the AFIP Division of Biophysical Toxicology (DBT) provides VA with DU testing, embedded metal fragment analysis and metal analysis of tissue surrounding an embedded fragment in support of the Depleted Uranium Follow up Program and The Toxic Embedded Fragment Study Center. The JPC will continue to provide this critical service to the VA without a decrement in service. Additionally, the DoD laboratories at the United States Air Force School of Aerospace Medicine and the United States Army Public Health Command also provide embedded fragment analysis for DoD and support VA programs on an as-needed basis. Historically, VA provides approximately $2M annually to AFIP for consultation services.

Recommendations 5B: Continue to provide VA funding in support of the JPC and seek out opportunities with the DoD to enhance toxic embedded fragment analysis. Expand upon the current flow of computable data from DoD to VA to assist in the Toxic Embedded Fragments Study Center efforts beyond TMDS-VTA (Theater Medical Data Store-Veterans Tracking Application), to include active-duty, guard/reserve, and retiree medical care data. Develop 2-way flow of data between DoD and VA to enhance visibility and epidemiology of these cohorts, because these individuals may be “dual users” of DoD and VA medical care. Provide JPC Pathologists with read-only access to the VA EMR to enhance their ability to provide appropriate consults through improved access to the clinical data, radiographic images, etc.

Timeline/Status 5B: The establishment of the JPC is on track for initial operating capabilities in the summer of 2010 with full operating capabilities by September 2011. The establishment is being carefully coordinated with the AFIP and Army Executive Agency to ensure continuity of services during the transition. The historical VA funding support for AFIP is budgeted and is available to support the establishment of the JPC. Additional funding from OPHEH may be required to ensure that all the capabilities of the DBT remain collocated with the clinical pathology capabilities of the JPC. Coordination efforts between VA and JPC reps have begun and face-to-face meeting are underway. A

concerted effort to find appropriate space in proximity to the JPC for the AFIP laboratory which supports this program is in progress.

6. RESEARCH AND DEVELOPMENT

A robust research and development program is important for finding and/or understanding the causes and effects of disease processes, exposures and injuries. Research also expands our knowledge of treatments and in prevention of illness. Research must be a central focus in improving health care for "1990 – 1991Gulf War Veterans" as definitive treatments and diagnostic tests continue to evade us for some illnesses. This requires sustained support and diversification in the research portfolio. New treatment studies and longitudinal studies of Veteran groups are underway to address this concern.

Perception 6A: There has been significant Federal support by VA, DoD, and HHS (see Appendix A) for research on Gulf War Veterans' Illnesses that has answered many epidemiological questions and studied a number of potential biological indicators of illness in Gulf War Veterans. Effective treatments and/or objective diagnostic tests, however, have not yet been identified.

Findings 6A: During and after their return from Gulf War (GW) deployment, a proportion of GW Veterans reported a range of chronic symptoms and health problems that could not be explained by standard medical diagnoses, so called "unexplained illnesses". In 1995 and 1996 the Persian Gulf Veterans Coordinating (PGVC) Board {now known as the Deployment Health Working Group (DHWG)} published "A Working Plan for Research on Persian Gulf Veterans' Illnesses." As with today's DHWG, the PGVC was a joint effort of VA, DoD and HHS. This working plan was framed as a series of 21 epidemiological questions directed at the issue of whether Gulf War Veterans experience a greater prevalence of symptoms and illnesses in comparison to a control population. In 2004 the 21 Research Questions used as the framework for previous Annual Reports to Congress were expanded into 21 Research Topics to reflect funding of projects more broadly focused on pathophysiological mechanisms and treatment of illnesses affecting Gulf War Veterans in addition to epidemiology studies.

In response, VA and DoD funded a wide variety of projects to address these 21 questions (see Appendices E and F). In these studies, a VA 10-year follow-up survey of GW era Veterans found that deployed GW Veterans had a 25% higher rate (36.5% vs 11.7%) of multisymptom illness and more were classified as having chronic fatigue-like illness (9.4% vs 3.4%) than non-deployed Veterans. The survey also found elevated numbers of GW Veterans screened positive for PTSD, major depression and anxiety disorders compared to non-deployed GW era Veterans. This study used the PTSD Checklist, a brief screening instrument for PTSD, to estimate the prevalence of PTSD. Individuals with a score of 50 or higher on the PTSD Checklist were considered to have met the criteria for PTSD. This cutoff of 50 points on the PTSD Checklist was previously shown to be a good predictor of

PTSD diagnosis based on the Structured Clinical Interview for DSM-III-R among Vietnam Veterans. VA, and other federally funded epidemiology studies, provided the basis for case-definitions of chronic, multisymptom Gulf War Veterans' Illnesses (GWVI). The most recent IOM Report (Gulf War and Health Volume 8) concluded that while PTSD was causally linked to GW deployment, the excess of unexplained medical symptoms reported by GW Veterans cannot be reliably ascribed to any known psychiatric disorder. Although the precise cause for these symptoms remains unknown, the fact that GW Veterans are ill and suffer adverse effects on their daily lives remains unquestioned.

VA remains committed to funding research to identify new treatments for ill GW Veterans. Recent VA-funded clinical trials have examined new therapies for sleep disturbances and gastrointestinal problems and tested the feasibility of performing cognitive behavioral therapy via telephone. Additionally, VA researchers are conducting clinical trials funded through the Congressionally Directed Medical Research Program managed by DoD, in hopes of finding new treatments for GW Veterans. Two previous VA-funded clinical trials examined the use of the antibiotic doxycycline to treat mycoplasma infection as an underlying cause of chronic multisymptom illnesses and to test cognitive behavior therapy, aerobic exercise, and a combination of the two therapies; cognitive behavior therapy, with or without exercise, provided modest but significant improvement in physical functioning, mental health functioning, cognitive symptoms, fatigue, and distress. VA is committed to funding additional research to find treatments for all ill GW Veterans. VA agrees with the recommendation of the VA Research Advisory Committee on Gulf War Veterans' Illnesses in their 2008 report that a renewed federal research commitment is needed to identify effective treatments for Gulf War illness and address other priority Gulf War health issues. The results of VA's short term plans to move forward (see below) are encouraging that this goal will be met.

VA GW research has also expanded to increase our understanding of Gulf War Veterans' illnesses and identifying new diagnostic markers of disease and potential therapeutic targets to develop new therapies. A major focus of VA's current Gulf War Veterans' Illnesses (GWVI) research portfolio is to identify biomarkers, or biological indicators, that can distinguish ill GW Veterans from their healthier counterparts. Projects in this area range from studies about genetic markers to investigations about advanced neuro-imaging procedures and altered protein profiles in blood or cerebrospinal fluid. Studies using cutting-edge imaging techniques will also be important parts of the research portfolio. While much of VA's current GWVI research is aimed at understanding chronic multisymptom illnesses, VA also recognizes the importance of studying other conditions that may affect Gulf War Veterans, such as brain cancer, reproductive concerns, ALS, and MS. VA maintains additional (separate) research portfolios in each of these areas because they impact Veterans of all eras.

As required by Section 707(c)(1) of Public Law 102-585, as amended by section 104 of Public Law 105-368 and section 502 of Public Law 111-163, an annual report is submitted to the Committees of Veterans Affairs of the Senate and House of Representatives on the status and results of all research activities undertaken by the executive branch during the previous year, relating to the health consequences of military service in the Southwest

Asia theater of operations during the Persian Gulf War, and research priorities identified during that year. From FY 1994 through FY 2009, $392M Federal dollars have been spent to conduct 361 research projects to address the 21 questions (status of the research to these questions may be found in Appendix E) from the DHWG working plan described previously. Of this, VA was responsible for $144.1 million and 161 projects. Appendix G describes each of the 161 VA projects and Appendix A details Federal funding commitments, by agency, for research on Gulf War Veterans' Illnesses for Fiscal Years 1994 through 2010 including data from the Annual Reports to Congress on Federally Sponsored Research on Gulf War Veterans' Illnesses; the Annual Reports to Congress are available electronically at:
http://www.research.va.gov/resources/pubs/pubs_individual.cfm?Category=Gulf%20War%20Reports.

Recommendations 6A: VA conduct a multi-pronged approach that balances the urgency *of understanding and finding new diagnostic tests and treatments for ill Veterans of the* 1990 - 1991 Gulf War (short-term) with the need to do new studies on a national group of Gulf War Veterans (long-term).

Short-Term Plans 6A: New Initiatives:
The VA Office of Research and Development (ORD) issued three new RFAs on November 10, 2009. RFA CX-09-013 is a revised and re-issued version of an earlier RFA (see CX-09-007 below). This RFA is specifically aimed at identifying potential new treatments (clinical trials, including complementary medicine approaches such as natural supplements and nonpharmacologic therapies) for ill Gulf War Veterans. RFA CX-09-014 and BX-09-014 are aimed at increasing our understanding of Gulf War Veterans' illnesses and identifying new diagnostic markers of disease and potential therapeutic targets to develop new therapies. The lists of topics of interest in CX-09-014 and BX-09-014 incorporate over 80 percent of the research recommendations contained in the 2008 report from the VA Research Advisory Committee on Gulf War Veterans' Illnesses (RAC) and direct RAC input to ORD. The final RFA documents are available upon request.

A total of 13 applications were submitted by the December 15, 2009 deadline for the three RFAs listed above; these applications were scientifically reviewed on June 22, 2010 and 3 have been selected for funding. Two of these projects are clinical trials to test new treatments, and the third is an animal study aimed at developing new treatments. This funding rate (23%) is similar the rate for other research submissions and reflects the rigorous standards to which VA holds its research program.

Previous Initiatives 6A: October 2002: Deployment Health Research RFA issued (ongoing for all Merit Review cycles). The RFA focused on soliciting research about potential long-term health effects of exposures and risk factors among Veterans of hazardous deployments, such as the Gulf War, Project SHAD, Bosnia/Kosovo, or Afghanistan. Proposals were solicited to improve evaluation, diagnosis, and treatment of deployment-related illnesses and to improve health risk communication for Veterans and health care providers.

April 2004: First Gulf War Research RFA (14 of 54 proposals funded totaling $19.4M through FY 2010). This was for studies directly relevant to Veterans who were deployed during the 1990's to the Persian Gulf, soliciting research studies that focused on potential long term health effects of exposures and risk factors among Veterans of the Gulf War in several areas of interest. Proposals to examine (a) changes to the immune or autonomic nervous systems that may be associated with reported symptoms, (b) the prevalence of neurological disorders in Gulf War Veterans, or (c) causes, mechanisms, and treatments for Gulf War Veterans' illnesses were solicited.

March 2005: Second Gulf War Research RFA (nine of 44 proposals funded totaling $5.2M through FY 2010). ORD indicated that it would fund relevant and scientifically meritorious research studies that focused on epidemiologic, clinical and laboratory studies that have the potential to make significant progress in understanding and treating ill Gulf War Veterans. It was noted that proposals related exclusively to post traumatic stress disorder (PTSD) or stress-related conditions would not be funded under this particular program announcement (other opportunities exist for PTSD research in general).

May 19, 2009: RFA CX-09-007: Research on new treatments for Gulf War Veterans' illnesses (clinical trials: 0 of 5 proposals submitted received fundable scores, several recommended for revision and resubmission). This RFA solicited submissions of applications for studies that:

- Proposed a controlled clinical trial or epidemiological investigation of the effectiveness of treatments for chronic multisymptom illnesses in Veterans of the 1990-1991 Gulf War compared with subjects meeting case definition for fibromyalgia (FM) and/or chronic fatigue syndrome (CFS).
- Identified biomarkers (i.e., genetic, neuro-endocrine, immunological, biochemical, physiological, etc.) that either predict or explain differences in response to new treatments. Biomarker studies proposed without an accompanying treatment trial were not considered for funding.
- Proposed to conduct trials to identify new symptom-specific treatments (i.e. memory, attention, sleep, pain, etc) in ill Gulf War Veterans.

NOTE: RFAs CX-09-007 and CX-09-013 (new clinical trials) contained the following four restrictions or requirements: 1) All pharmacologic agents being tested must have a plausible biological basis for anticipated efficacy. 2) Treatments that have been tested in other chronic multisymptom illnesses, such as FM or CFS, could be proposed, even if they had been shown to be moderately effective or ineffective in treating those conditions. 3) Applications that did not use appropriate populations of Gulf War Veterans would not be considered for funding. 4) Applications which primarily focus on psychiatric disorders such as depression or anxiety are not directly relevant to Gulf War Veterans' illnesses and would not be accepted for review.

<u>Timeline/Status 6A, Short-term:</u> The three Requests for Applications (RFAs) described above as New Initiatives will be re-issued twice a year to regularly request submission of new proposals and revisions of previously reviewed, but not funded, applications. A total of 13 applications were submitted by the December 15, 2009 deadline for the three RFAs

listed above; these applications were scientifically reviewed on June 22, 2010 and 3 have been selected for funding. Two of these projects are clinical trials to test new treatments, and the third is an animal study aimed at developing new treatments. This funding rate (23%) is similar the rate for other research submissions and reflects the rigorous standards to which VA holds its research program.

Long-Term Plans 6A: ORD's long-term plans include the design and implementation of a new study of a National group of Gulf War Veterans under the auspices of the VA Cooperative Studies Program (CSP). The design of this new study will include a Genome Wide Association Study (GWAS) and other elements, based on evaluation of the existing body of scientific/clinical knowledge about the illnesses affecting Gulf War Veterans and recommendations received from the RAC.

Timeline/Status 6A, Long-term: The target for completion of the study design and implementation of this new study is September 2010. Planning costs for this new CSP study have been included in the estimate of FY 2010 expenditures in Appendix F. This study was discussed with the RACGWVI at their November 2-3, 2009, meeting to gather input on what additional elements could be included in the study. A letter of intent (LOI) with the initial project description has been approved and a planning committee has been established to define the elements to be included in the final study design. This project is being developed and reviewed with the VA Cooperative Studies Program, which has extensive experience in developing multi-site VA clinical trials and clinical studies.

Perception 6B: The recent decision to not exercise option years in VA's contract with the University of Texas Southwestern Medical Center suggests a lack of support for future Gulf War research in this area.

Findings 6B: Public Law 109-114 (pertaining to VA appropriations for Fiscal Year 2006) directed VA to devote at least $15,000,000 to Gulf War Illnesses research in fiscal year 2006 under Medical and Prosthetics Research. H.R. REP. No. 109-305, at 45 (2005) (conf. Rep.) accompanying Public Law 109-114, directed VA begin this initiative "with a pilot study involving collaborative research between a VA Medical Center and the University of Texas, Southwestern Medical Center, which is presently conducting extensive research of Gulf War Illnesses. In response, VHA provided funding to the University of Texas Southwestern Medical Center (UTSWMC) through a contract from the Dallas VA Medical Center for up to $15 million per year for research that focused on a new national survey of Gulf War Veterans; a proposed genome-wide association study of participants in the national survey to identify genetic markers of illness and potential susceptibility to illness; and identification of alterations in brain imaging that correspond to specific neuropsychological measurements (i.e. memory, attention, executive function, etc). Fifteen million dollars was obligated in FY 2007 and FY 2008 for task orders approved under this contract. However, because of contracting issues with UTSW, new task orders under this contract were not accepted for all of FY 2009 and the last two option years of the contract have not been exercised. Funds obligated for this contract are included in Appendix E, which details total Federal funding commitments by agency, for research on Gulf War Veterans' illnesses for Fiscal Years 1994 through 2010.

Recommendations 6B: Maintain funding levels for Gulf War as close as possible to the $15M per year recommended in the report language of the appropriation bill for VA Medical and Prosthetics Research. Unobligated funds from the third UTSW contract period (FY 2009) will be retained for use in FY 2010 and FY 2011 for modifications and close-out costs of previously approved task orders under the contract and for data transfer costs at the conclusion of the contract (see Appendix A). Reissue all three RFAs described previously in the short-term plan discussion twice a year to regularly request submission of new proposals and revisions of previously reviewed, but not funded, applications.

Timeline/Status 6B: Negotiations are ongoing with UTSW for payment of contract costs as previously approved task orders are completed. Even with the unanticipated decision to stop accepting new task orders during the latter portion of FY 2009 and to not exercise the third or final option years (FY 2010 or FY2011) of the contract, VA exceeded the $15 million target for FY 2009 and is currently projecting $9.7 million for FY2010. It is anticipated that additional VA research projects focusing on the illnesses affecting Gulf War Veterans will be submitted, reviewed, and funded in FY 2010 and beyond as a result of the Short- and Long-Term plans described above.

Comment [v1]: Contract language is option years

7. OUTREACH

Outreach efforts are designed to inform and communicate with stakeholders on topics ranging from changes in benefits to new health care programs. The absence of open lines of communication can quickly lead to misinformation, mistrust, and confusion. In the past, some Gulf War Veterans felt overlooked by VA. In response, VA is determined to ensure that all complaints and issues raised by Gulf War Veterans are addressed. Additionally, VA is committed to providing both benefits and health care services that meet the high standards that Gulf War Veterans deserve. As part of the renewed effort to acknowledge and engage Gulf War Veterans, the GWVI-TF has formulated a proactive outreach strategy that combines consolidated strategic communication initiatives with educational resources to ensure that Gulf War Veterans are informed of the benefits and services available to them.

Perception 7A: There is a general lack of knowledge within the Veteran community about the recent modifications to the rating schedule and presumptions related to the Gulf War Veterans' illnesses. This lack of knowledge includes those that serve the Veteran population, VA employees.

Findings 7A: New and continuous information about Gulf War illnesses leads to more informed iterative changes in VA rating schedule and presumptions. The current VA system for informing Veterans of such changes does not reach the entire affected community. A more robust outreach plan is needed to continuously inform eligible Gulf War Veterans about the full complement of benefits and services they are entitled to,

and to provide more complete information to help obtain and use these benefits and services.

Recommendations 7A: VA needs a more robust outreach plan which will ensure that there is a more inclusive approach when communicating to the Gulf War Veteran community (Appendix G). In addition, VA should communicate Department-wide to its employees about the changes to the rating schedule and presumptions related to Gulf War Veterans.

Timeline/Status 7A: VA's Office of Public Health is posting a newsletter and a poster on its Gulf War website that will speak to the Gulf War's 20th Anniversary and the Secretary's re-commitment for VA to improve its responsiveness to Gulf War Veterans. Both the poster and the newsletter will be mailed to all Gulf War Veterans on the GW registry/mailing list (about 225,000). An additional 200,000 copies will be sent to VA medical centers, Vet Centers, VSO's and VA's National Cemeteries and Centers for Minority and Women Veterans. This will enable facilities to provide the newsletters in areas where Veterans and employees will be able to access them. In addition, the Centers for women and minority Veterans' engage in a tremendous amount of outreach and can assist in the dissemination of this material. The newsletter will also be provided to Congressional members, specifically for the House Veterans Affairs Committee Hearing which will be holding a hearing on Gulf War Veterans.

VA's newsletter, Vanguard, will publish an article on the Gulf War Anniversary and the change in benefits/services. This newsletter is read by both VA employees and is provided free throughout VA facilities nationwide. (August/September 2010)

VA's Facebook will be used to continual update Gulf War Veterans on changes in presumptive/services and what VA is doing for their community. In addition, VA's website will recognize the 20th Anniversary of the Gulf War and will note the changes in presumptive/services for Gulf War Veterans. Both the Facebook and website are read by Veterans and VA employees.

To ensure that their medical facilities are actively acknowledging this important anniversary and change in presumptive/services, the Veterans Health Administration will speak to this issue during its weekly Veterans Integrated Service Network and Medical Center Leadership's conference call.

Perception 7B: VA does not consistently use historical events to improve communication with 1990 – 1991 Gulf War Veterans.

Findings 7B: VA has not regularly or consistently conducted outreach events around key dates related to the 1990 – 1991 Gulf War. Better utilization of key historic dates related to the 1990 – 1991 Gulf War to capitalize on Veteran communication opportunities would enhance VA outreach potential to 1990 – 1991 Gulf War Veterans regarding qualifying conditions, benefits, and services. It would also demonstrate VA's awareness and respect for this Veteran population.

Recommendations 7B: VA should recognize 1990 – 1991 Gulf War Veterans though special and targeted outreach events on or around the Gulf War 20th Anniversary, August 2, 2010. In addition, it should seek other communications and outreach opportunities related to other key dates from the 1990 – 1991 Gulf War (Appendix H).

Timeline/Status 7B: VA will make a Department-wide effort in recognizing the 20th Anniversary of the Gulf War to ensure that all employees are aware of the Anniversary and acknowledge the sacrifices of this Veteran population. To coincide with the Gulf War Anniversary, VA will release the Task Force's first written report in early August 2010. As noted in the Executive Summary, the GWVA-TF mission is not complete with the 2010 report. Along with continued oversight and monitoring of the actions required by the 2010 report, it will continue to prepare and present annual reports to be made available each summer, on the anniversary date of the 1990-1991 Gulf War. In addition to the Gulf War anniversary, GWVA-TF will acknowledge other key events pertaining to this war using the tools and resources noted in 7A.

Perception 7C: VA needs to improve its performance in distributing the Gulf War Review and the quality of other informational products.

Findings 7C: VA has been inconsistent in publishing the Gulf War Review. The current online presence related to 1990 – 1991 Gulf War Veterans is difficult to navigate, and has limited interaction capabilities. Specifically, the current Webpage does not consistently engage and inform potentially eligible beneficiaries, stakeholders, and advocacy groups. The current Web presence is not overly interactive, and does not fully utilize "push" features, such as RSS Feeds, monitored and interactive message boards, and an email inquiry function. A more interactive Web presence for 1990 – 1991 Gulf War Veterans is needed to both educate and inform potentially eligible beneficiaries, eligible beneficiaries, and stakeholders about Gulf War Veterans' illnesses, benefits, and services.

Recommendations 7C: VA has re-established the Gulf War Review newsletter and streamlined its distribution process. In addition, VA has updated the Gulf War Veterans' Illnesses Web site, and will be utilizing interactive New Media. Gulf War Veterans, as well as other Veteran cohorts can use VA's email inquiry function – known as IRIS – that can be found at: https://iris.va.gov. There are links to this Web site throughout VA's Web pages.

Timeline/Status 7C:
VA has established a streamlined review process for the Gulf War Review and the GWVI-TF will monitor and report on its distribution performance. Work has begun to modify the Gulf War Veterans' Illnesses Web site to improve content and accessibility. Web site improvements will continue throughout calendar year 2010.

Perception 7D: The Gulf War Task Force has an opportunity to engage and obtain feedback on its findings and recommendations from the general public and stakeholders.

Findings 7D: VA conducted numerous sensing sessions with key stakeholders in developing the initial report. In keeping with VA's commitment to open governance and transparency, the initial report of the Task Force has also engaged many constituents to identify discrete issues relating to Gulf War illnesses, such as DU exposure. This kind of institutional knowledge exists both within and outside of VA, and VA has sufficient time and resources to expand the scope of input into the Task Forces' initial findings and recommendations. The Task Force completed the draft written report on March 29, 2010. On April 1, 2010 the VA released the written report for public comment. This was the first initiative in which VA provided two ways for Veterans to submit feedback on policy proposals. The public was notified per a *Federal Register* notice and a simultaneous outreach campaign support by Veteran Service Organizations. The public could make comment two ways: via the *Your Gulf War Voice* Website, or a formal written submission directly to VA. The public comment period closed on May 3, 2010. The public response was one of the largest in VA's history to a proposed rule, regulation, or policy with over 150 suggestions (including 28 formal written responses) submitted, additionally 300 comments were made, and more than 2100 votes were cast by 189 unique public respondents. Despite this outreach effort and the robust public response to the draft written report, the VA did not reach as many Veterans as it wanted to reach. Based on the public comments to the draft written report many Veterans believed the opportunity to comment on this report should have been be posted in all VA facilities at the point of service (i.e. waiting areas and vet centers).

Recommendations 7D: VA will publish subsequent findings and recommendations of the GWVI-TF Report in a public forum for comment and review and will consider ways to post future Gulf War information in VA facilities, (e.g., regional office public contact areas, the Department of Veterans Affairs' Central office, Clinical Based Outpatient Clinic waiting rooms, Vet Centers, etc).

Timeline/Status 7D: VA has established a target date for the publication of the GWVI-TF 2010 Final Written Report for comment and review in August 2010.

Perception 7E: VA needs to improve performance in promoting interest in Gulf War illness research.

Findings 7E: VA has been inconsistent in promoting Gulf War illness research in the nation's professional work force and its own scientists and clinicians. Additionally, VA has not fully leveraged its resources to promote general interest in this important subject. VA needs to take a more active approach within its own environment and with other Gulf War research partners to promote interest in Gulf War research.

Recommendations 7E: VA will execute an outreach program to interest scientists and clinicians in conducting Gulf War illness research.

Timeline/Status 7E: The Office of Research and Development (ORD) supports a research portfolio consisting of studies dedicated to understanding chronic multisymptom

illnesses, long-term health effects of potentially hazardous substances to which Gulf War Veterans may have been exposed during deployment, and conditions such as ALS, multiple sclerosis or brain cancer. VA's research focuses on three issues:

(1) Identifying conditions that Gulf War Veterans report at a disproportionate rate to the civilian population or to non-deployed Veterans;
(2) Finding new approaches for treating these conditions; and
(3) Understanding the underlying causes of these conditions to identify new therapeutic targets to design new treatments.

To encourage more research in this area and expand the Gulf War illnesses portfolio:

- ORD issued three new requests for applications from VA researchers in November 2009. The lists of topics of interest in these requests incorporated over 80 percent of the research recommendations contained in the 2008 report from the RAC and direct input to VA's research program.
- 3 submitted applications focused on testing or developing new treatments for ill Gulf War Veterans have been selected for funding.
- The 3 RFAs will be revised and re-issued every six months to solicit additional research on Gulf War Veterans' Illnesses.

CONCLUSION:

VA is committed to the service and care of Veterans, and VA intends to improve the level of care and service it provides 1990 – 1991 Gulf War Veterans. The VA has a long history of quality improvement, and effective partnerships with other advocates (Appendix I) to pursue excellence in the service and care of all our Nation's Veterans. The message of this GWVI-TF report builds on this history. This report provides a roadmap for our efforts in seven areas that is the beginning of our work in addressing the needs of Gulf War Veterans. The GWVI-TF will remain in place indefinitely to oversee the progress and implementation of the action plan. These efforts reflect VA's commitment to transform VA into a 21st century institution to better serve all Veterans.

APPENDIX A: Federal Funding for Research on Gulf War Veterans' Illnesses
(Including funds obligated under the contract with UTSW)

Fiscal Year	VA*	UTSW Contract**	DoD*	HHS*	FY Total
1994	$ 1,157,879		$ 6,492,882	$ -	**$ 7,650,761**
1995	$ 2,334,083		$ 10,973,000	$ 2,514,762	**$ 15,821,845**
1996	$ 3,853,095		$ 11,905,214	$ 1,616,755	**$ 17,375,064**
1997	$ 2,834,790		$ 28,880,536	$ -	**$ 31,715,326**
1998	$ 4,722,820		$ 13,213,232	$ 1,634,347	**$ 19,570,399**
1999	$ 9,006,155		$ 22,674,338	$ 1,640,378	**$ 33,320,871**
2000	$ 12,020,519		$ 23,847,679	$ 1,567,439	**$ 37,435,637**
2001	$ 8,576,675		$ 31,587,006	$ 998,870	**$ 41,162,551**
2002	$ 4,512,676		$ 18,827,819	$ 799,814	**$ 24,140,309**
2003	$ 5,746,467		$ 16,419,497	$ 964,105	**$ 23,130,069**
2004	$ 7,644,560		$ 11,096,063	$ 466,126	**$ 19,206,749**
2005	$ 9,484,679		$ 10,091,848	$ 466,481	**$ 20,043,008**
2006	$ 12,942,066		$ 10,128,261	$ 455,587	**$ 23,525,914**
2007	$ 6,977,767	$ 15,000,000	$ 3,417,570	$ 441,974	**$ 25,837,311**
2008	$ 6,636,369	$ 15,000,000	$ 11,672,967	$ 433,467	**$ 33,742,803**
2009	$ 8,685,533	$ 6,972,481	$ 3,145,000	**-**	**$ 18,803,014**
2010§	$ 7,401,736	$ 2,288,755	**‡**	**‡**	**$ 9,690,491**
Total 1994 - 2010	**$114,537,869**	**$ 39,261,236**	**$ 234,372,912**	**$ 14,000,105**	**$ 402,172,122**

* Funds distributed to support funded research projects

****** Obligated funds for reimbursement to UTSW at completion of contracted work on individual task orders

‡ The Department of Health and Human Services and the Department of Defense expenditure data is not yet available for FY2010

§ Current estimate of VA funds obligated for GW research in FY 2010

The estimate for FY10 includes 40% of MRI imaging equipment upgrade at San Francisco for Gulf War research and use of unobligated FY2009 UTSW Contract funds for modification and close-out costs of approved task orders and data transfer costs.

This estimate does not include expenditures from the VA Medical Care appropriation of $3.7 million for the Veterans Equitable Resource Allocation (VERA) System to support funded Gulf War research projects. Historically, these costs have not been included in the FY expenditures reported above.

APPENDIX B: Comparison of Service-Connected Disabilities by Periods of War

The following table (as of February 2010) outlines the various periods of war, from World War II through the Gulf War, as defined for VA purposes at 38 C.F.R. § 3.2. The subsequent table lists the total number of service-connected disabilities, by body system, for each period of service. As such, a Veteran could have multiple disabilities; therefore, it is important to understand that such numbers do not represent the total number of Veterans with service-connected disabilities for each respective period of service.

Periods of War	Beginning Date	Ending Date
Gulf War Era	Aug. 2, 1990	Date yet to be prescribed
WWII	Dec. 7, 1941	Dec. 31, 1946
Vietnam Era	Feb. 28, 1961	May 7, 1975
Korean Conflict	June 27, 1950	Jan. 31, 1955
Peacetime	Any dates outside of specified periods of war in 38 CFR § 3.2	

Notes[1] :
a. All total numbers represent the number of service-connected disabilities by body system rather than the total numbers of Veterans with such disabilities.
b. Regarding Gulf War Veterans' claims for chronic undiagnosed illness or medically unexplained chronic multisymptom illness such as chronic fatigue syndrome, fibromyalgia and irritable bowel syndrome, VBA processed 38,359 claims as of September 30, 2009. Of these, 15,181 were granted service connection for at least one undiagnosed condition, and 23,178 were denied service connection for any undiagnosed condition.

	Gulf War Era	**WWII**	**Vietnam Era**	**Korean Conflict**	**Peacetime**
Total number of individual service connected disabilities by body system[1]	4,271,501	532,975	3,303,940	338,938	1,708,397
Musculoskeletal	1,822,119 (42.66%)	160,651 (30.14%)	784,839 (23.75%)	90,493 (26.70%)	683,787 (40.03%)
Organs of Special Sense	195,661 (4.58%)	7,723 (1.45%)	67,023 (2.03%)	6,023 (1.78%)	29,915 (1.75%)
Auditory Acuity Impairment	138,986 (3.25%)	58,584 (10.99%)	240,698 (7.29%)	47,422 (13.99%)	100,056 (5.86%)

	Gulf War Era	WWII	Vietnam Era	Korean Conflict	Peacetime
Diseases of Ear	277,549 (6.50%)	48,763 (9.15%)	241,793 (7.32%)	42,624 (12.58%)	105,135 (6.15%)
Other Sense Organs	2,737 (0.06%)	5,078 (0.95%)	32,282 (0.98%)	3,541 (1.04%)	15,871 (0.93%)
Infectious Diseases	8,458 (0.20%)	11,942 (2.24%)	21,746 (0.66%)	3,116 (0.92%)	4,117 (0.24%)
Respiratory System	277,186 (6.49%)	25,309 (4.75%)	98,823 (2.99%)	17,599 (5.19%)	87,780 (5.14%)
Cardiovascular System	192,164 (4.50%)	38,686 (7.26%)	191,920 (5.81%)	17,926 (5.29%)	95,294 (5.58%)
Digestive System	277,065 (0.49%)	26,779 (5.02%)	172,238 (5.21%)	20,810 (6.14%)	120,895 (7.08%)
Genitourinary System	98,946 (2.32%)	7,609 (1.43%)	219,211 (6.63%)	7,277 (2.15%)	47,957 (2.81%)
Gynecological & Breast Disorders	44,010 (1.03%)	287 (0.05%)	4,363 (0.13%)	157 (0.05%)	15,729 (0.92%)
Hemic and Lymphatic System	10,774 (0.25%)	711 (0.13%)	16,070 (0.49%)	809 (0.24%)	5,561 (0.33%)
Skin	478,926 (11.21%)	57,161 (10.72%)	317,755 (9.62%)	36,104 (10.65%)	175,626 (10.28%)
Endocrine System	47,896 (1.12%)	810 (0.15%)	270,882 (8.20%)	1,664 (0.49%)	23,659 (1.38%)
Neurological	290,660 (6.80%)	24,035 (4.51%)	272,628 (8.25%)	15,313 (4.52%)	107,254 (6.28%)

	Gulf War Era	WWII	Vietnam Era	Korean Conflict	Peacetime
Mental Disorders	219,474 (5.14%)	57,336 (10.76%)	340,586 (10.31%)	26,652 (7.86%)	80,116 (4.69%)
Dental and Oral	27,225 (0.64%)	1,508 (0.28%)	11,083 (0.34%)	1,408 (0.42%)	9,645 (0.56%)

APPENDIX C: Task Force Members

Mr. John Gingrich, Chair, Chief of Staff, VA
Mr. Kerry Baker, VBA, Chief of Legislative Staff, Compensation and Pension
Dr. Victoria Cassano, VHA, Director, Radiation and Physical Exposures
Dr. William Goldberg, ORD, Scientific Program Manager
Ms. Elaine Holt, VBA, Deputy Under Secretary for Benefits
Ms. Susan Kelly, ORD, Congressional Liaison Representative
Dr. Joel Kupersmith, ORD, Chief Research and Development Officer
Mr. Koby Langley, OSVA, Special Assistant
Ms. Ann Lichter, OPP, Policy Advisor to DAS
Ms. Linda Lutes, VHA, Executive Assistant
Mr. Bradley Mayes, VBA, Director, Compensation & Pension Service
Dr. Timothy O'Leary, ORD, Director, Biomedical Laboratory R&D Services
Dr. Stephen Ondra, OSVA, Senior Advisor
Ms. Laura O'Shea, OPP, Director Policy Service
COL Jeffrey Peters, OSVA, DoD Liaison Officer
Dr. Michael Peterson, VHA, Chief Consultant, Environmental Strategic HG
Mr. Kevin Secor, OSVA, VSO Liaison
Mr. Len Sistek, OCLA, Director, Congressional and Legislative Service
Mr. Cordell Smith, OCLA, Congressional Relations Officer
Mr. John Spinelli, OSVA, Senior Advisor
Ms. Kathleen Sullivan, OSVA, Special Assistant

APPENDIX D: Charter for VA Gulf War Veterans' Illnesses Task Force

Mission

Because a significant number of Gulf War Veterans suffer from unexplained chronic multisystem, or undiagnosed illnesses, the Secretary of Veterans Affairs is creating a Department of Veterans Affairs (VA) Gulf War Veterans Illnesses Task Force (GWVI-TF, or "Task Force") to conduct a comprehensive review of all VA programs and services that serve this cohort of Veterans. The Task Force is charged to identify gaps in services as well as opportunities to better serve this Veteran cohort, and then develop results-oriented recommendations to decisively advance VA's efforts to address their needs. Additionally, the Task Force will identify lessons learned from past practices and policy that can be applied to today's programs and services supporting the Operation Enduring Freedom/Operation Iraqi Freedom cohort. A successful mission outcome is a coherent, comprehensive and facts-based action plan which considers and integrates appropriate viewpoints from stakeholders and subject matter experts. A Task Force final report will be submitted to the Secretary of VA by January 31, 2010.

Key Task Force Efforts

1. Define all key areas of review (e.g., Research; Veteran Access; Clinical Treatment; Training of Clinicians, Claims Service; Policy; Outreach; VA Organizational and Process Relationships).
2. Consult key experts and relevant stakeholders and their reports (e.g., Institute of Medicine; VA Advisory Committees; Research Experts).
3. Capture the issues, data, as well as program and performance information to inform decisions (e.g., complaints; claims statistics; treatment modalities; funding; service gaps).
4. Look holistically at issues and opportunities to advocate for the Veteran (e.g., ways to deliver better and faster service; ways to expand programs).
5. Identify, as a priority effort, initiatives that enhance identification and treatment of this cohort's unexplained and undiagnosed illnesses.

Task Force Organization and Approach

Leadership
The Task Force effort will be led by a distinguished civilian leader selected by the Secretary of Veterans Affairs. This leader will direct the Task Force to include receiving regular reports of its work and delivering the final report to the Secretary of Veterans Affairs. Within VA, the Chief of Staff will oversee Task Force activities. The VA's full-time DoD Liaison Officer will be the Administrative Secretary of the Task Force. The Administrative Secretary will assist the Task Force leadership by scheduling briefings and interviews, developing reports, and coordinating support requirements with the Administrations and Staff Offices as necessary to complete the review.

GWVI-TF
The Task Force is a matrix organization within VA that meets regularly to conduct analysis, coordinate and review findings and proposals, and collaboratively develop recommendations. The Task Force includes OSVA, Veterans Health Administration (research, clinical care, and public health components), Veterans Benefits Administration (claims), Office of Public and Intergovernmental Affairs (outreach and advisory committee components), and the Office of Policy and Planning. Other representatives will participate as required.

Approach
Task Force members must be candid and thorough during the review to include identifying areas for improvement. In forming proposals for future action, the Task Force must be both aggressive and innovative. The objective is to identify results-oriented proposals that address the needs of this cohort of Veterans, improve VA's support to them, establish action plans to implement solutions, and achieve improved services in a timely manner. As we identify results-oriented programs, we will also review current programs to identify which are producing results and which have not, making appropriate recommendations on further investment. Finally, the Task Force will work closely with OPIA to identify and develop appropriate opportunities for strategic communications and media engagement.

APPENDIX E: Deployment Health Working Group – 21 Epidemiological Questions.
Listing of Questions:

1. What is the prevalence of symptoms/illnesses in the Persian Gulf Veteran population? How does this prevalence compare to that in an appropriate control group?

2. What was the overall exposure of troops to Leishmania tropica?

3. What were the exposure concentrations to various petroleum products, and their combustion products, in typical usage during the Persian Gulf conflict?

4. What was the extent of exposure to specific occupational/environmental hazards known to be common in the Persian Gulf Veterans' experience? Was this exposure different from that of an appropriate control group?

5. What were the potential exposures of troops to organophosphorus nerve agent and/or sulfur mustard as a result of allied bombing at Muhammadiyat and Al Muthanna, or the demolition of a weapons bunker at Khamisiyah?

6. What was the extent of exposure to chemical agent, other than at Khamisiyah, in the Persian Gulf as a function of space and time?

7. What was the prevalence of pyridostigmine (PB) use among Persian Gulf troops?

8. What was the prevalence of various psychophysiological stressors among Gulf War Veterans? Is the prevalence different from that of an appropriate control group?

9. Are Persian Gulf Veterans more likely than an appropriate comparison group to experience non-specific symptoms and symptom complexes?

10. Do Persian Gulf Veterans have a greater prevalence of altered immune function or host defense when compared with an appropriate control group?

11. Is there a greater prevalence of birth defects in the offspring of Persian Gulf Veterans than in an appropriate control population?

12. Have Persian Gulf Veterans experienced lower reproductive success than an appropriate control population?

13. Is the prevalence of sexual dysfunction greater among Persian Gulf?

14. Do Gulf War Veterans report more pulmonary symptoms, or diagnoses, than persons in appropriate control groups?

15. Do Gulf War Veterans have a smaller baseline lung function in comparison to an appropriate control group? Do Gulf War Veterans have a greater degree of non-specific airway reactivity in comparison to an appropriate control group?

16. Is there a greater prevalence of organic neuropsychological and neurological deficits in Persian Gulf Veterans compared to appropriate comparison populations?

17. Can short-term, low-level exposures to pyridostigmine bromide, the insect repellant DEET, and the insecticide permethrin, alone or in combination, cause short-term and/or long-term neurological deficits?

18. Do Persian Gulf Veterans have a significantly higher prevalence of psychological symptoms and/or diagnoses than do members of an appropriate control group?

19. What is the prevalence of Leishmaniasis and other infectious diseases in the Gulf War Veteran population?

20. Do Gulf War V-Veterans have a greater risk of developing cancers of any type when compared with an appropriate control population?

21. Are Gulf War Veterans experiencing a higher mortality rate than that of an appropriate control population? Are specific causes of death related to service in the Persian Gulf region?

Listing of Responses: All of 21 questions above have been at least partially addressed, and many have been resolved. The 21 questions have been re-grouped below, but are identified with their original numbering. Following each group of questions are comments about the status of research related to the questions.

1. What is the prevalence of symptoms/illnesses in the Persian Gulf Veteran population? How does this prevalence compare to that in an appropriate control group?

9. Are Persian Gulf Veterans more likely than an appropriate comparison group to experience non-specific symptoms and symptom complexes?

VA- and DoD-funded research was instrumental in identifying the prevalence and scope/variety of symptoms reported by Gulf War Veterans including chronic fatigue syndrome, fibromyalgia-like conditions and a variety of others. VA researchers continue to monitor these Veterans to determine the extent to which their symptoms have persisted. The most prevalent health condition found in Gulf War Veterans is chronic multisymptom illness, experienced by 36.5 percent compared to 11.7% in Veterans of the same period who did not deploy.

20. Do Gulf War V-Veterans have a greater risk of developing cancers of any type when compared with an appropriate control population?

To date, no general increase in cancer risk has been identified. One published report indicated that the risk of death due to brain cancer was not associated with 1991 GW service in general., It has been reported, however, that GW Veterans potentially exposed to nerve agents at Khamisiyah, Iraq, and to oil well fire smoke had an increased risk of mortality due to brain cancer. A recent (2010) study of cancer rates found that, with the exception of lung cancer, there is little evidence of excess risk of cancer associated with Gulf War deployment. Veterans

21. Are Gulf War Veterans experiencing a higher mortality rate than that of an appropriate control population? Are specific causes of death related to service in the Persian Gulf region?

Higher mortality rates or causes of mortality have not been identified in Gulf War Veterans, with the possible exception of ALS. VA continues to monitor mortality in Gulf War Veterans as part of an ongoing surveillance program.

2. What was the overall exposure of troops to Leishmania tropica?

19. What is the prevalence of Leishmaniasis and other infectious diseases in the Gulf War Veteran population?

Only 20 cases of cutaneous leishmaniasis and 12 cases of visceral leishmaniasis have been identified in Veterans of the 1990-1991 Gulf War.

3. What were the exposure concentrations to various petroleum products, and their combustion products, in typical usage during the Persian Gulf conflict?

4. What was the extent of exposure to specific occupational/environmental hazards known to be common in the Persian Gulf Veterans' experience? Was this exposure different from that of an appropriate control group?

5. What were the potential exposures of troops to organophosphorus nerve agent and/or sulfur mustard as a result of allied bombing at Muhammadiyat and Al Muthanna, or the demolition of a weapons bunker at Khamisiyah?

6. What was the extent of exposure to chemical agent, other than at Khamisiyah, in the Persian Gulf as a function of space and time?

7. What was the prevalence of pyridostigmine (PB) use among Persian Gulf troops?

17. Can short-term, low-level exposures to pyridostigmine bromide, the insect repellant DEET, and the insecticide permethrin, alone or in combination, cause short-term and/or long-term neurological deficits?

A number of animal-based toxicology studies have shown that exposure to physiologically relevant doses of PB, DEET, and permethrin, alone or in combination, may lead to neurobehavioral deficits, sensorimotor deficits, region-specific alterations in acetylcholinesterase and acetylcholine receptors, and in some experiments, overt brain injury.

8. What was the prevalence of various psychophysiological stressors among Gulf War Veterans? Is the prevalence different from that of an appropriate control group?

18. Do Persian Gulf Veterans have a significantly higher prevalence of psychological symptoms and/or diagnoses than do members of an appropriate control group?

Perceived threat or fear of bodily harm in the war zone and self-reported or perceived exposures to environmental hazards may play a critical role in many aspects of health. Moreover, a synergistic effect of these two risk factors has been observed in the prediction of mental health and mental health functional status.

Gulf War-era onset mental disorders were more prevalent in deployed Veterans compared with non-deployed Veterans (18 percent compared to nine percent). Anxiety disorders were associated with co-occurring psychiatric disorders. Post traumatic stress disorder, panic disorder, and generalized anxiety disorder were each present at nearly twice the expected rates. The most recent IOM Report (Gulf War and Health Volume 8) concluded that although PTSD was causally linked to GW deployment, psychiatric disorders were not the underlying cause of the excess of unexplained medical symptoms reported by GW Veterans. Although the precise cause for these symptoms remains

unknown, the fact that GW Veterans are ill and suffer adverse effects on their daily lives remains unquestioned.

16. Is there a greater prevalence of organic neuropsychological and neurological deficits in Persian Gulf Veterans compared to appropriate comparison populations?

Multiple studies have identified alterations in neuropsychological function, neuroendocrine function and autonomic nervous system function in symptomatic Gulf War Veterans. There are conflicting studies on the prevalence of ALS; some studies indicate the incidence is elevated in all Veterans while others indicate it is elevated specifically in Gulf War Veterans. VA requested the IOM to examine this literature and as a result, the Secretary determined that service connection would be presumed for all Veterans with ALS. Multiple Sclerosis is the subject of a new study at the VA medical center in Washington, DC, to examine the possible link to service during the 1990-1991 Gulf War; additional studies will be needed, however, to determine if MS is more prevalent in GW Veterans.

10. Do Persian Gulf Veterans have a greater prevalence of altered immune function or host defense when compared with an appropriate control group?

Results have varied, but do not suggest that major immune dysfunction is a causative factor in all ill Gulf War Veterans. Results from these studies do, however, reveal a role for immune cell dysfunction in sustaining illness and as a possible biomarker.

11. Is there a greater prevalence of birth defects in the offspring of Persian Gulf Veterans than in an appropriate control population?

12. Have Persian Gulf Veterans experienced lower reproductive success than an appropriate control population?

13. Is the prevalence of sexual dysfunction greater among Persian Gulf Veterans than among an appropriate comparison population?

There are statistically significant, but modest, excess rates of a few types of birth defects in the children of Gulf War Veterans. Information on specific types of birth defects has been inconsistent; however, and overall rates are still within the normal range found in the general population." Rates of adverse reproductive outcomes are similar among GW-exposed and non-exposed pregnancies.

14. Do Gulf War Veterans report more pulmonary symptoms, or diagnoses, than persons in appropriate control groups?

15. Do Gulf War Veterans have a smaller baseline lung function in comparison to an appropriate control group? Do Gulf War Veterans have a greater degree of non-specific airway reactivity in comparison to an appropriate control group?

While some studies indicate that Gulf War Veterans are more likely to self-report pulmonary problems or to have more hospitalizations for diseases of the respiratory system (including asthma), other studies found no increased prevalence of pulmonary symptoms or link between exposure to oil well fires and development of asthma.

APPENDIX F: Historical Listing of VA Gulf War Related Research and Development

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-001	20, 21	VA Environmental Epidemiology Service	Mortality Follow-up Study of Persian Gulf Veterans	GW Veterans	VA's Environmental Epidemiology Service undertook this retrospective follow-up mortality study of Persian Gulf Veterans to compare the overall mortality rates and cause-specific mortality rate of all 697,000 service members who served in the 1990-1991 Persian Gulf theater of operations with a non-deployed Gulf era comparison group.	10/01/96	12/01/03
VA-002	1, 9	VA Environmental Epidemiology Service	National Health Survey of Persian Gulf Veterans	GW Veterans	This was a population-based health survey, conducted to estimate and compare the prevalence of various symptoms, medical conditions, and unexplained illnesses in Persian Gulf war Veterans and those of non-Persian Gulf Veteran	07/01/94	10/01/01
VA-002A	1, 9	VA Environmental Epidemiology Service	VA National Survey of Persian Gulf Veterans - Phase I	GW Veterans	This was a population-based health survey, conducted to estimate and compare the prevalence of various symptoms, medical conditions, and unexplained illnesses in Persian Gulf war Veterans and those of non-Persian Gulf Veteran	11/01/95	06/01/96
VA-002B	1, 9	VA Environmental Epidemiology Service	VA National Survey of Persian Gulf Veterans - Phase II	GW Veterans	This was a population-based health survey, conducted to estimate and compare the prevalence of various symptoms, medical conditions, and unexplained illnesses in Persian Gulf war Veterans and those of non-Persian Gulf Veteran	06/01/96	03/01/99
VA-002C	1, 9	VA Environmental Epidemiology Service	VA National Survey of Persian Gulf Veterans - Phase III	GW Veterans	This was a population-based health survey, conducted to estimate and compare the prevalence of various symptoms, medical conditions, and unexplained illnesses in Persian Gulf war Veterans and those of non-Persian Gulf Veteran	04/01/99	10/01/01
VA-003		Investigator Initiated	Use of Roster of Veterans Who Served in Persian Gulf Area	GW Veterans	Construct/establish a database to provide access to demographic data on over 697,000 deployed GW Veterans.	07/01/94	12/31/98
VA-004		Environmental Hazard Center RFA	Boston Environmental Hazards Research Center Program		See details under Projects VA-004A-E below	10/01/94	03/31/00
VA-004A	8, 18	Environmental Hazard Center RFA	Evaluation of Cognitive Functioning of Persian Gulf Veterans	GW Veterans	The primary focus of this research project was to determine whether specific cognitive deficits or deficit patterns are associated with the presence of self-reported health complaints and/or with hazardous environmental exposures in the Gulf. (Exposure information will be obtained either from self-report, exposure modeling and DoD data on troop locations). In examining these associations, the influence of war-zone stress, PTSD symptomatology, psychological distress, and post-deployment life stressors were evaluated.	10/01/94	03/31/00
VA-004B	8, 18	Environmental Hazard Center RFA	Evaluation of Neurological Functioning in Persian Gulf Veterans	GW Veterans	The specific objectives of this study were: (1) to objectively describe Gulf War Veterans' neurological status using standard clinical methodology, (2) to observe and determine patterns of central nervous system dysfunction in GW Veterans and GW-era Veterans and (3) to explore whether similar patterns of particular exposure characteristics exist within the groups and whether distinct patterns exist between the groups.	10/01/94	03/31/00
VA-004C	20	Environmental Hazard Center RFA	Gulf War And Vietnam Veterans Cancer Incidence Surveillance	GW and Vietnam Veterans	The overall objective of this study was to examine the pattern of cancer diagnosed in Massachusetts Vietnam Veterans as compared with Vietnam-era Veterans for the time period 1988-1993 and to establish a database linkage for New England area Gulf War Veterans so as to be able to examine cancer incidence in this cohort at a later point in time.	10/01/94	03/31/00

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-004D	14, 15	Environmental Hazard Center RFA	Evaluation of Respiratory Dysfunction Among Gulf War Veterans	GW Veterans	The objective of this study was to assess respiratory status in relation to exposure to oil fire pollution in Gulf War Veterans and evaluate the relationship between measures of pulmonary dysfunction and respiratory symptoms and exposure in subjects recruited for Project 4A	10/01/94	03/31/00
VA-004E	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	The Aromatic Hydrocarbon Receptor (AhR) as a Biomarker of Susceptibility	GW Veterans	The objective of this study was to test the hypothesis that the aromatic hydrocarbon receptor (AhR) is a molecular biomarker for polycyclic aromatic hydrocarbon (PAH) susceptibility. Veterans of the Gulf war were potentially exposed to relatively high doses of PAHs in smoke emanating from Kuwaiti oil well fires. The high incidence of physical complaints by Gulf War Veterans may reflect previously documented PAH toxicities including suppression of the immune system and neurologic dysfunction.	10/01/94	03/31/00
VA-004F	8, 16, 18	Environmental Hazard Center RFA	Validity of Computerized Tests	GW Veterans	The objective of this project was to continue the validation process of the Neurobehavioral Evaluation System (NES), a battery of computer-assisted behavioral tests developed for the purpose of detecting brain dysfunction secondary to exposure to neurotoxicants, with an expanded battery of subtests.	10/01/94	03/31/00
VA-005		Environmental Hazard Center RFA	East Orange Environmental Hazards Research Center Program		See details under Projects VA-005A-E below	10/01/94	03/31/00
VA-005A	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Health and Exposure Survey of Persian Gulf Veterans	GW Veterans	The aims of this study were: 1. To provide health and medical histories of registry Veterans who served in the Gulf War; 2. To characterize the medical and combat experiences of these Veterans during the Gulf War; 3. To perform case control comparisons for various categories and combinations of symptoms with respect to individual and environmental risk factors identified in Aims 1 and 2.	10/01/94	03/31/00
VA-005B	8, 16, 18	Environmental Hazard Center RFA	Physiological and Psychological Assessments of Persian Gulf Veterans	GW Veterans	The aims of this study were: (1) To determine whether viral or cytokine patterns may suggest an infectious agent as a cause of illness in Gulf Veterans; (2) To determine if these Veterans suffer chronic fatigue or chemical sensitivity; (3) To determine psychosocial risk factors that might have predisposed some Veterans to develop their medical problems; (4) To determine if there are neuropsychological deficits in Gulf Veterans; (5) To determine if these Veterans have abnormal physiological responses to physiological and cognitive challenges.	10/01/94	03/01/98
VA-005C	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Effects of Exertion and Chemical Stress on Persian Gulf Veterans	GW Veterans	The aims of this study were: 1) To assess the effect of exposure to diesel fumes and psychological stress in 4 groups of GW Veterans: Healthy, Healthy/Negative Affect, Fatiguing Illness/Negative Affect, and Fatiguing Illness/Defensive; 2) To assess the effect of exhaustive exercise on the cognitive abilities and cardiovascular response to autonomic stressors of GW Veterans with CFS and healthy GW Veterans.	10/01/97	03/31/00
VA-005D	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Effects of Genetics and Stress on Responses to Environmental Toxins	GW Veterans	This project was designed to determine if some of the unexplained medical illnesses in Gulf Veterans were similar to Chronic Fatigue Syndrome (CFS) or Multiple Chemical Sensitivity (MCS) in civilian populations. It included viral/immunological studies, neuropsychological studies, and studies of physiological responses to a number of physical and cognitive challenges. A series of psychosocial factors were evaluated to determine whether they were risk factors for the illnesses suffered by these Veterans.	10/01/94	09/30/97

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-006	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Portland Environmental Hazards Research Center: Environment, Veterans Health and the Gulf War Syndrome.	GW Veterans	The overall objective of this program was to illuminate the relationships between exposures (chemical, physical, stress) and unexplained illness in Gulf War Veterans. The specific aims included: 1) Defining 'caseness' of unexplained illness in Gulf War Veterans; 2) Developing a questionnaire of exposures and effects based on the results of Veteran interviews and other relevant data; 3) Conducting a case-control study focused on the spatial-temporal relationship between exposures and illness; 4) Providing subjects for research conducted in Projects 6A and 6B.	10/01/94	03/31/00
VA-006A	8, 18	Environmental Hazard Center RFA	Psychosocial, Neuropsychological and Neurobehavioral Assessment (Project I)	GW Veterans	The specific aims of this study were to: 1. Determine if there are objective memory and attention deficits in Veterans reporting (unexplained) symptoms which developed during or since the Gulf War. 2. Determine the relationships between neurobehavioral and psychological measures and unexplained symptoms referable to the Gulf War. 3. Employ in-depth neuropsychological examinations to identify neurobehavioral, neuropsychological and psychosocial factors that may explain or more fully characterize cognitive symptoms or objective cognitive deficits.	10/01/94	03/31/00
VA-006B	8, 16, 18	Environmental Hazard Center RFA	Clinical and Neuroendocrine Aspects of Fibromyalgia (Project II)	GW Veterans	The specific aims of this study were to: (1) Screen Veterans complaining of fatigue and musculoskeletal symptoms with previously developed and validated questionnaires and directed physical examinations to determine if fibromyalgia (FM) is present; (2) Correlate the presence or absence of FM with possible environmental exposures, as determined in the core part of this program, or with neuropsychological factors, as determined in Project 6A; (3) Evaluate a smaller group of Veterans with fibromyalgia and an age and sex matched group of Veterans without fibromyalgia, for the neuroendocrine abnormalities described in FM.	10/01/94	03/31/00
VA-006C	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Neurotoxicity of Environmental Pollutants and Warfare Agents (Project III)	Animal Study	The specific aims of this study were to: (1) To evaluate effects of pyridostigmine bromide on cholinergic function in spinal cord explants and (2) To examine the relationship between the chromogenic and neurotoxic properties of selected organic solvents.	10/01/94	03/31/00
VA-006D	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	DNA Damage from Chemical Agents and Its Repair (Project IV)	Tissue Culture models	The specific aims of this study were to: (1) Determine the type and quantity of specific DNA adducts and the capacity to repair these adducts in control and nitrogen mustard (HN2) treated genomic DNA isolated from normal human skin and brain; (2) Determine the type and quantity of specific DNA adducts and the capacity to repair these adducts in genomic DNA isolated from mouse cerebral cortex cultures treated with HN2; (3) Assess the relationship between DNA damage, DNA repair and cell degeneration in rodent neuronal cultures treated with HN2; (4) Compare and contrast DNA damage, DNA repair and cytotoxicity in primary neuronal and primary glial cultures treated with HN2.	10/01/94	03/31/00
VA-006E	2, 19	Environmental Hazard Center RFA	Clinical and Epidemiology Leishmania Research	GW Veterans	The goal of this study was to determine the possibility and rate of infection of GW Veterans with Leishmania, and to develop novel anti-leishmania chemotherapeutics.	10/01/94	03/31/00
VA-007	8, 18	Investigator Initiated	Desert Storm Reunion Survey	GW Veterans	The specific aims of this study were to: (1) Describe troop demographics of the Ft. Devens cohort of Gulf War Veterans; (2) Examine, both cross-sectionally and longitudinally, family and unit support factors, war-zone exposure, PTSD and psychological distress symptomatology in these Veterans; (3) Examine physical health status at Time 2 and explore potential risk factors important in the development of adverse physical health after return from a wartime environment.	04/01/91	09/30/95

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-008	8, 18	Investigator Initiated	Psychological Test Data of Gulf War Veterans Over Time	GW Veterans	The overall objective of this study was: (1) To learn more about reactions to combat exposure, stress, and Gulf War-related health concerns, (2) exploration of the relationships among symptoms, demographic variables and Veterans' psychological status, (3) to provide intervention, education, and support to GW Veterans by providing a) general information about reactions to combat/desert duty, and b) opportunities for individual discussion of experiences and current physical health, (4) administration of standardized psychological questionnaires and instruments, and (5) referral to VA and other community services available for health and other related concerns.	07/09/91	09/03/02
VA-009	8, 18	Investigator Initiated	Evaluation of Cognitive Functioning in Persian Gulf War Veterans Reporting War-related Health Problems	GW Veterans	The project examined potential differences between Veterans reporting high levels of health concern and those reporting low levels of concern on measures of psychological well-being, psychopathology, environmental exposure to toxins and adverse environmental events in the war-zone and prior to war-zone duty, and neuropsychological functioning.	10/01/94	09/30/95
VA-010	8, 18	Investigator Initiated	Memory and Attention in PTSD	Gulf War and Vietnam Veterans with PTSD	This research applied a comprehensive assessment protocol that included evaluation of psychopathology and neuropsychological functioning in Veterans of Vietnam and a younger cohort of Gulf War returnees. In particular, the project provided in-depth description and analysis of learning, memory, and attention functioning and an in-depth evaluation of attention and memory dysfunction in Vietnam and GW Veterans suffering from PTSD.	02/01/04	03/31/99
VA-011	8, 18	Investigator Initiated	Neuropsychological Functioning in Veterans	GW Veterans	The specific aim of this project was to compare learning, memory, and attention performances in samples of Gulf War returnees with and without diagnoses of PTSD.	02/01/92	03/01/95
VA-012	8, 18	Investigator Initiated	Psychological Assessment of Operation Desert Storm Returnees	GW Veterans	This research was designed to determine the psychological sequelae to war-zone exposure among troops who served during Operation Desert Storm (ODS) compared to troops who were activated during ODS but not deployed to the Gulf War.	08/01/91	09/01/97
VA-013	8, 18	Investigator Initiated	Neurobehavioral Aspects of Persian Gulf Experiences: A Pilot Study	GW Veterans	The aim of this project was to gain objective evidence of impairment in cognitive ability and brain function, or of psychosocial disability, in a sample of 50 Gulf Veterans who returned with physical or psychosocial complaints.	04/01/94	03/31/95
VA-015	2, 19	Investigator Initiated	Vaccine-Mediated Immunity Against Leishmaniasis	Animal Study	The objective of this study was to determine the expression and function of T cell co-stimulatory molecules during vaccination of mice with Leishmania major antigen and cytokine adjuvants. The investigators hypothesized that distinct costimulatory interactions could be manipulated in vivo to specifically induce or enhance responses that protect against disease.	01/01/93	04/01/03
VA-016	2, 19	Investigator Initiated	Protective Immunity in Experimental Visceral Leishmaniasis	Animal Study	The overall objective of this study was to characterize protective immune mechanisms in experimental visceral leishmania, and identify the parasite antigens which elicit such protective responses.	10/01/94	09/30/97
VA-017	10	Investigator Initiated	Immunological Evaluation of Persian Gulf Veterans	GW Veterans	The overall objective of this study was to evaluate potential changes in the immunological status of Gulf War Veterans using sensitive biological assays of immune cellular function such as those previously described for use in evaluating chemical sensitivities.	04/01/94	05/01/95
VA-018	1, 9	Investigator Initiated	Chronic Gastrointestinal Illness in Persian Gulf Veterans	GW Veterans	The objective of this research was to clearly define the most prevalent chronic gastrointestinal symptoms in a unit of Gulf Veterans by :(1) Determining and defining the symptom complex and (2) Looking for underlying pathophysiology.	10/01/94	10/01/96

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-020	8, 18	Investigator Initiated	Psychological Adjustment in Operation Desert Shield/Storm Veterans	GW Veterans	This study examined the psychological effects of military service in the Persian Gulf during Operation Desert Shield/Storm, comparing noncombat reserve and national guard troops who were in the Persian Gulf to activated and nonactivated troops who remained in the United States during the Gulf War. The study determined the difference between the three groups in terms of psychological adjustment and impact on cognitions and feelings about the war.	07/01/91	07/01/93
VA-021	8, 18	Investigator Initiated	A Comparison of PTSD Symptomatology among Three Army Medical Units Involved in ODS	GW Veterans	The objective of the study was to compare three Arizona Reserve Medical Units involved in Operation Desert Storm on PTSD symptomatology one year after the war utilizing the revised Mississippi Scale for Combat-Related PTSD (Keane, Caddell, and Taylor, 1988). One of the groups was deployed to Saudi Arabia, one to England, and one to Arizona.	01/08/92	12/03/94
VA-036	8, 18	Investigator Initiated	Stress Symptoms and Their Causal Attribution in Desert Storm Veterans	GW Veterans	This study administered a Life Stress Questionnaire to determine the relative strengths and importance of environmental stressors and aftermath of the war experience on determining the stress symptom levels in 2 samples of Desert Storm Veterans.	12/01/95	09/01/00
VA-040	1, 9	Investigator Initiated	Musculoskeletal Symptoms in Gulf War Syndrome	GW Veterans	This project addressed a fundamental question about the Gulf War Illnesses: Do the musculoskeletal symptoms reflect those of long foreign deployment or are there unique aspects of these symptoms that identify these symptoms as part of Gulf War Illnesses?	01/01/94	01/01/99
VA-046	1, 9	Investigator Initiated	Diarrhea in Persian Gulf Veterans: An Irritable Bowel-Like Disorder	GW Veterans	The overall objective of this proposal was to compare visceral sensation in normal subjects, patients with irritable bowel syndrome and patients with diarrhea that abruptly began while serving in the Persian Gulf to: (a) Determine if Gulf War Veterans with abdominal pain, diarrhea and bloating with a negative investigative work-up have an underlying visceral hypersensitivity or a generalized decreased pain threshold; (b) Examine the heightened visceral sensitivity present in patients with irritable bowel syndrome and compare the data to those obtained for GW Veterans with diarrhea; (c) Investigate whether an acute treatment with octreotide will increase the tolerance to balloon distention of the rectum and extremity immersion in ice water in GW Veterans, patients with the irritable bowel syndrome, and controls; (d) Determine the effect of octreotide on oral-cecal transit as measured by the lactulose hydrogen breath test..	11/01/95	06/30/00
VA-047	3, 4, 5, 6, 7, 17	Investigator Initiated	Retrospective Verification of Mustard Gas Exposure	GW Veterans	The specific aims of this study were to: (1) Establish a method for analysis of the mustard gas adduct with the N-terminal valine of hemoglobin; (2) Analyze blood samples from Gulf War Veterans collected within eight months of potential exposure to chemical weapons; (3) Analyze blood samples from military personnel at the Bluegrass Army Depot collected during routine health surveillance; (4) Survey Gulf War Veterans and military personnel working with chemical agents for reproductive difficulties and for developmental problems in their children; (5) Search for a correlation of verified exposure to mustard gas with reproductive and developmental problems; (6) Examine cross-linked hemoglobin as a more sensitive marker of mustard gas exposure; (7) Further characterize the endogenous protection against mustard gas afforded by S-methylation by the human enzyme, thioether methyltransferase.	01/01/97	01/31/00

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-048	1, 9	Investigator Initiated	Cross-Sensitization as a CNS Model for Gulf War Chemical Intolerance	GW Veterans	The objective of this study was to test the neural sensitization/cross-sensitization hypothesis for acquired chemical intolerance (ACI) in Gulf Veterans and appropriate controls and to determine individual differences in vulnerability to this process. Neural sensitization is the progressive amplification of a given response over the course of repeated, intermittent exposures to a particular stimulus. As many different classes of stimuli (e.g. chemicals, stress, drugs, microbial toxins) can initiate and elicit sensitized responding, cross-sensitization between multiple pre-War, War, and post-I factors could account for the clinical pictures in certain GW Veterans.	04/01/98	03/31/01
VA-049	3, 4, 5, 6, 7, 17	Investigator Initiated	Sensitivity to Pyridostigmine Bromide: Persistent Neural Dysfunction	Animal Study	The objective of this study was to determine the long term effects of pyridostigmine bromide (PB) on physiology and behavior in Sprague Dawley (SD) and Wistar Kyoto (WKY) rats.	04/01/98	04/30/02
VA-050	8, 18	Investigator Initiated	Neuropsychological findings in a sample of Operation Desert Storm Veterans	GW Veterans	This study performed an exploratory neuropsychological and psychological evaluation of returning Gulf War Veterans in response to ongoing complaints of memory, attention, and problem solving difficulties among Veterans of Operation Desert Storm/Shield.	09/01/95	09/01/96
VA-051	8, 18	Investigator Initiated	Psychobiological Assessment of Desert Storm Veterans	GW Veterans	This study examined the relationship of PTSD and somatic complaints in GW Veterans, specifically to determine if they exhibit PTSD effects similar to those observed in Veterans of other conflicts and to delineate the specific somatic complaints accompanying the PTSD symptoms in the Gulf War group.	04/22/92	06/01/00
VA-053	11, 12, 13	VA Environmental Agents Service	Spouses and Children Program	GW Veterans' Families	Under Public Law 103-446, Section 107 the VA was authorized to provide medical examinations to any individual; who: a) Is the spouse or child of a veteran, is listed in the Persian Gulf War Veterans Registry established under Public Law 102-585, Section 702; and is suffering from illness or disorder, b) Is suffering from, or may have suffered from, an illness or disorder (including a birth defect, miscarriage, or stillbirth) which cannot be disassociated from the Veteran's service in the Southwest Asia theater of operations, c) Has granted VA permission to include in the Registry, relevant medical information from the evaluation. Under this program, an eligible Gulf War Veteran would receive examinations and treatment at the local VA Medical Center; and the examination of spouses and children would be conducted under contract at the affiliated university medical center or under fee basis from a physician in close proximity to the Veterans' families. This program will continue until December 31, 2003 or until a maximum of $2.0M has been expended. As of August 2002, 1,380 spouses and children had been examined in this program.	01/04/96	12/31/03
VA-054	8, 18	Investigator Initiated	Follow-up of Psychological and Neurocognitive Gulf War Outcome: Relation to Stress	GW Veterans	This is a continuation of VA-010 "Memory and Attention in Posttraumatic Stress Disorder." The purposes of this continuation are to examine psychopathology and cognitive functioning longitudinally in Gulf War Veterans and to extend examination of neuropsychological functioning in Gulf War Veterans with and without PTSD.	04/01/99	03/31/04
VA-055	1, 9	Cooperative Studies Program	Antibiotic Treatment of Gulf War Veterans' Illnesses (ABT)	GW Veterans	This was a large, multi-site clinical trial to determine: (1) whether doxycycline treatment reduces symptoms of Gulf War Veterans' Illnesses (GWWI), (2) whether doxycycline treatment converts Mycoplasma (+) patients to mycoplasma (-) status, and (3) if the benefits of 12 months doxycycline treatment endure after termination of treatment. **This project was jointly funded by VA and DoD as separate projects (VA-055 and DoD-119).**	03/01/99	11/27/01

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-056	1, 9	Investigator Initiated	Birmingham's Gulf War Veterans' Illness Demonstration Clinic (13)	GW Veterans	Two hypotheses were tested in this two-year demonstration project: (1) Special Emphasis Clinics provide healthcare superior to that provided in Primary Care Clinics for Gulf War Veterans, and (2) Special Emphasis Clinics can be improved to provide greater patient satisfaction and better functional outcomes by enhancing application and coordination of support services currently available at VA Medical Centers throughout the country. Test new and innovative clinical approaches for treating Gulf War Veterans who have medically unexplained symptoms. The primary sources of patients were the Gulf War Registries located at eight VA Medical Centers	07/01/98	09/30/00
VA-057	1, 9	Investigator Initiated	Case Management and Residential Rehabilitation for Persian Gulf War Veterans (13)	GW Veterans	This study tested new approaches to health care delivery in order to improve the treatment satisfaction of Gulf War Veterans suffering from undiagnosed and ill-defined illnesses and disability. Key components of the study included: (1) a unique residential rehabilitation program targeted for at-risk GW Veterans and (2) random assignment of both at-risk and low-risk GW Veterans to either a GS-7 clerk case coordinator (usual care) or professional-level case manager (experimental care). The one-week residential rehabilitation program focused on health promotion and symptom management through multiple modalities including physical therapy, kinesiotherapy, recreational therapy, stress management and relaxation, and vocational rehabilitation, if required.	07/01/98	09/30/00
VA-058	1, 9	Investigator Initiated	Implementation and Evaluation of Gulf War Veterans' Demonstration Project (13)	GW Veterans	This project was designed to test innovative approaches with Gulf War Veteran clinical programs at two large VA medical centers (in VISN 20, Portland VAMC and Puget Sound VAMC). These clinical programs, which offer primary care and case management services within an interdisciplinary primary care clinic, were tailored to meet the medical problems reported by some Gulf War Veterans. The desired outcome was to correct problems in Veterans' satisfaction with VA services as reported in previous studies.	07/01/98	09/30/00
VA-059	1, 9	Investigator Initiated	Demonstration Treatment Program for Gulf War Veterans with Unexplained Physical Symptoms (13)	GW Veterans	The goal of this study was to determine treatment efficacy and efficiency of a demonstration treatment project for GW Veterans with multiple physical symptoms. The treatment comparison group was Group I (GW Veterans with multiple physical symptoms who have been thoroughly medically assessed, and who have no serious, explanatory medical diagnosis); Secondary study groups, Groups II (GW Veterans with significant medical diagnoses, such as hepatitis C, diabetes, AIDS, cancer, etc) and III (GW Veterans who had neither a medical diagnosis nor significant health complaints) were recruited at each site. Group I was used to determine the effect of the demonstration clinic treatment (at Cincinnati) versus standard care (at Cleveland) and was statistically compared by site over time on health status, clinical outcome and health service utilization. All study groups will be compared across health status, site and time to determine functional health status and health care utilization. These comparisons were used along with demographic data for Groups II and III to demonstrate that the two study sites are similar and comparable.	07/01/98	09/30/00

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-060	1, 9	Investigator Initiated	Identification and Management of Sleep Disorders in Gulf War Veterans	GW Veterans	This study established a Gulf War Veterans Sleep Evaluation and Education Program (Gulf War SLEEP). Gulf War SLEEP utilized case managers to direct a multidisciplinary program designed to improve diagnosis of sleep disorders in Gulf War Veterans, to provide optimal treatment regimens, and to improve patient satisfaction and retention. Successful treatment might reduce chronic symptoms, improve quality of life and improve patient satisfaction with VA care. The specific aims were to: (1) Establish a multidisciplinary specialized treatment unit in order to evaluate the symptoms of 300 GW Veterans and determine whether they have undiagnosed sleep disorders; (2) Treat those GW Veterans with sleep disorders and assess the outcome of therapy; (3) Measure the satisfaction with care of GW Veterans who participate in the treatment program and compare their level of satisfaction with that found in a control group.	07/01/98	09/30/00
VA-061	16	Investigator Initiated	An Epidemiological Investigation into the Occurrence of Amyotrophic Lateral Sclerosis (ALS) Among Gulf War Veterans	GW Veterans	This investigation ALS among Gulf War Veterans was designed to define the epidemiology of this neurological disease, to determine whether there is a higher than expected occurrence, and to ascertain the possible etiology. **This project was jointly funded by DoD and VA as separate projects (DoD-118 and VA-061).**	03/10/00	12/30/02
VA-062	1, 9	Cooperative Studies Program	A Randomized, Multi-Center, Controlled Trial of Multi-Model Therapy in Veterans with Gulf War Illness (EBT)	GW Veterans	This clinical trial studied Gulf War Veterans who have unexplained chronic medical symptoms such as pain, fatigue, and/or cognitive difficulties. Patients were randomized to one of four groups: (1) Cognitive Behavioral Therapy (CBT) plus aerobic exercise, (2) aerobic exercise alone, (3) CBT alone, and (4) usual and customary care. The primary outcome was a clinically meaningful improvement in the Physical Component Summary (PCS) scale of the SF-36V at one year relative to baseline. **This project was jointly funded by VA and DoD as separate projects (VA-062 and DoD-115).**	03/01/99	09/30/01
VA-063	1, 9	Investigator Initiated	VA/DoD Core Funding of the Medical Follow-Up Agency	GW Veterans	**This program is a joint program funded by VA and DoD (VA-063 and DoD-116)** to provide the Medical Follow-Up Agency with core funding to maintain its operational capabilities to perform epidemiological research on Veterans. The MFUA maintains a number of important Veterans' databases. VA and DoD consider this Program a vital adjunct to its Gulf War programs. It provides VA and DoD with a vehicle by which outside expert epidemiological skills can be quickly brought to bear to conduct small scale pilot projects to test the feasibility of new ideas, and to provide recommendations and proposals to VA and DoD for the conduct of more extensive projects. This Program was authorized under P.L. 102-585, and initially served to fund the IOM/MFUA study panel "The Health Consequences of Military Service during the Persian Gulf War", which produced its final report in September 1996.	10/01/93	09/30/03
VA-063A	3, 4, 5, 6, 7, 17	Investigator Initiated	Follow-Up Investigation of Troops Exposed to Nerve Agents at Aberdeen Proving Ground(Pilot Study)	Veterans	This was a pilot study to determine the feasibility of following up on soldiers exposed to anticholinesterase agents at the Edgewood Arsenal using a telephone survey for the more common OP exposure-associated outcomes; neurological deficits, particularly peripheral never disease, and neuropsychological impairment, including sleep disorders, anxiety, and depression **This project was jointly funded by VA and DoD as separate projects (VA-063A and DoD-116A).**	01/01/96	12/31/97

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-063B	1, 9	Investigator Initiated	Patterns of Pre-Persian Gulf War Illness and Health Care Seeking Pilot Study	GW Veterans	This study was designed to answer the question whether the patterns of illness and use of the Department of Defense (DoD) outpatient care during the year prior to deployment to the Gulf War in personnel who subsequently developed poorly defined illnesses differed from the patterns of controls. **This project was jointly funded by VA and DoD as separate projects (VA-063B and DoD-116B).**	10/01/96	12/31/98
VA-064	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Boston Environmental Hazards Research Center	GW Veterans	**This is a renewal of VA-004** to continue their research program in environmental hazards. Specifically, the Center's focus is on the field of behavioral neurotoxicology. The Center emphasizes the application of environmental health, neuroscience, and neurocognitive methodologies to issues in the field of behavioral toxicology.	04/01/00	09/30/06
VA-064A	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Functional Neuroimaging in Lead Exposed Adults	GW Veterans	The primary objective of this pilot research study is to develop a methodology for examining neurological and neuropsychological effects of lead exposure in adults and to assess the value and validity of magnetic resonance spectroscopy (MRS) in studying lead induced neurotoxicity.	04/01/00	04/01/05
VA-064B	16	Environmental Hazard Center RFA	Quantification and Validation of Structure-Function Relationships Through Visuospatial Test Performance	GW Veterans	This pilot project had four basic objectives: (1) Validate the sensitivity of the Stanford-Binet Copying Test and several other standard visuospatial tests in neurologic patients with well-defined focal damage to specific areas of the brain (i.e., explore the brain-behavior relationships revealed by performance on each of the tests). Four groups of patients with damage to brain areas that are also important with regard to the focal effects of neurotoxicant exposure are being studied: patients with Parkinson's disease (PD, basal ganglia), multiple sclerosis (MS, subcortical white matter), parietal/occipital strokes, and cerebellar atrophy. (2) Explore the sensitivity of these tests to the localization of focal brain damage as confirmed on magnetic resonance imaging (MRI) in patients with well-defined toxicant exposures. (3) Determine correlations in performance among the visuospatial tests in each of the subject groups and in all subjects. (4) Examine the psychometric properties of the tests.	04/01/00	04/01/05
VA-064C	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Development of a Structured Neurotoxicant Assessment Checklist (SNAC) for Clinical use in Veteran Populations	GW Veterans	The objectives of this project were to: (1) design a structured neurotoxicant assessment checklist (SNAC); (2) validate the SNAC in study group(s) in whom levels of neurotoxicant exposure have been or can be quantified; and (3) administer the SNAC to local VA in- and out-patients.	04/01/00	04/01/05
VA-065	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	San Antonio Environmental Hazards Research Center	**Animal Study**	The research focus of the Environmental Hazards Center was to develop novel transgenic/knockout mouse models that can be used to identify genetic deficiencies that increase the sensitivity of an animal to environmental hazards that cause oxidative damage. The hypothesis underlying the Center was that the sensitivity of animals to environmental hazards has a genetic component	04/01/00	03/31/05
VA-065A	16	Environmental Hazard Center RFA	Does a Variant of the Human SOD2 Gene Increase Sensitivity to Hazards?	**Animal Study**	The specific aims of this study were to: (1) generate mice that conditionally express the human Thr58 variant and Ile58 wild type MnSOD; (2) determine if Sod2+/- mice are more sensitive to oxidative stress than their Sod2+/+ wild-type littermates; (3) determine if the KO/KI mice expressing the Thr58 variant of MnSOD are more sensitive to oxidative stress than mice expressing the wild type (Ile58) MnSOD.	01/07/00	01/07/05
VA-065B		Environmental Hazard Center RFA	The Contribution of FEN-1 to Genetic Integrity Subsequent to Oxidative Stress	**Animal Study**	The specific aims of this study were to: (1) generate embryonic stem (ES) cells carrying a targeted recombination event that results in the inactivation of one allele of murine flap endonuclease-1 (Fen-1; (2) generate and characterize mice deficient in Fen-1; (3) determine the effects of model oxidative stressors in mice deficient in Fen-1.	01/07/00	01/07/05

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-065C		Environmental Hazard Center RFA	The Importance of Hydrogen Peroxide Detoxification in Cellular Protection	**Animal Study**	This project tested the hypothesis that alterations in catalase levels will alter the sensitivity of mice to agents that induce oxidative stress. Mice with a targeted mutation in the catalase gene were generated. The sensitivity of these mice to gamma-irradiation and paraquat was compared to wild type mice and transgenic mice that overexpress catalase.	01/07/00	01/07/05
VA-065D	3, 4, 5, 6, 7, 17	Environmental Hazard Center RFA	Do Defective Gpx1 and ALDH2 Genes Increase Sensitivity to Environmental Hazards?	**Animal Study**	The specific aims of this study were to: (1) Use mice homozygous and heterozygous for a targeted deletion of the glutathione peroxidase gene to test the hypothesis that deficiency in glutathione peroxidase increases sensitivity to long-term, low-level environmental exposure to hazards that promote lipid peroxidation, specifically paraquat and ionizing radiation; (2) Develop a mouse model with a targeted deletion of the mitochondrial aldehyde dehydrogenase gene to test the hypothesis that reduction in the capacity to remove biogenic aldehydes increases vulnerability to environmental exposure to paraquat and ionizing radiation; (3) Test the hypothesis that deficiencies in both mitochondrial glutathione peroxidase and aldehyde dehydrogenase increase the vulnerability to environmental exposure.	01/07/00	01/07/05
VA-066	8, 18	Investigator Initiated	Physiological Responding in Posttraumatic Stress Disorder	Gulf War and Vietnam Veterans with PTSD	This project examined the emotional processing deficits of Veterans with Posttraumatic Stress Disorder (PTSD) and focused on the changes in emotional responding that occur after exposure to trauma-related stimuli. This project was part of a larger program of research focusing on the emotional processing abnormalities underlying PTSD and the phenomenon of emotional numbing.	06/01/99	09/01/01
VA-067	1, 9	Investigator Initiated	Olfactory Functioning in Gulf War Veterans	GW Veterans	The primary objectives of this project were to: (1) investigate olfactory functioning as a possible proxy for neurotoxic exposure in cohorts of deployed and non-deployed GW-era Veterans; and, (2) examine potential associations between olfactory functioning and neurocognitive performance on measures known to be sensitive to neurotoxic sequelae. A secondary objective was to examine associations between olfactory functioning and stress-related psychopathology, namely posttraumatic stress disorder, in GW Veterans.	03/01/00	02/28/01
VA-068	1, 9	Investigator Initiated	Family Study of Fibromyalgia	GW Veterans	The goal of this study was to use family study methodology to examine whether fibromyalgia is a familial illness in Gulf War Veterans. A secondary goal was to study the relationship between fibromyalgia and psychiatric disorders within families. The work was designed to contribute to understanding the development of a functional somatic syndrome (fibromyalgia) following a stress (military service in a war), related to genetic vulnerability to develop the disorder.	10/01/99	09/30/02
VA-069	1, 9	Investigator Initiated	Cardiovascular Hyporeactivity and Fatiguing Illness in Gulf War Veterans	GW Veterans	This research project is a follow-up to a prior VA-funded study that found that chronic fatigue reported by Gulf War Veterans may be a symptom of a problem with the system of cardiovascular stress response regulation. The main objective of this study was to determine the specific mechanism through which this abnormality may contribute to Gulf War-related chronic fatigue. The study also examined the effects of comorbid posttraumatic stress disorder (PTSD) on cardiovascular autonomic function.	10/01/99	10/02/02
VA-070	1, 9	Investigator Initiated	A Clinical Evaluation of the Health Status of Persian Gulf War Veterans in VISN 8	GW Veterans	The objective of this study was to evaluate the self-reported health status of a group of Gulf War Veterans in Florida and South Georgia over a five-year period.	07/01/98	06/30/03

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-071	1 9	Investigator Initiated	Central Nervous System Modulation of Visceral Pain in the Persian Gulf Syndrome	GW Veterans	The major objective of the project was to determine the etiology of the abdominal pain and diarrhea experienced by a subset of Veterans who served in the Persian Gulf. The specific aims were to: (1) Determine if these subjects have visceral hypersensitivity as a cause of their abdominal pain; (2) Evaluate regional cerebral blood flow in these subjects during visceral pain and compare that to patients with the irritable bowel syndrome and normal controls.	01/02/00	12/31/02
VA-072	1 9	Investigator Initiated	Roles of Paraoxonase, Butyrylcholinesterase and Stress in Unexplained Illnesses	GW Veterans and spouses	The specific aims of the proposed work were to: (1) assay serum BuChE and PON activities and serum cortisol levels in 3,250 subjects who participated in the Phase III of the VA's National Health Survey of Gulf War Era Veterans and Their Families (VA-002C); (2) Create a database that matches these values with demographic, functional status and health data collected from these subjects as part of the National Survey; (3) Develop appropriate multivariate statistical models that examine the relationships between enzyme levels and health outcomes; (4) Understand the role that cortisol levels might have in determining enzyme levels; (5) Determine whether the relationships between enzyme levels, cortisol levels and health outcomes differ between GW Veterans and non-deployed era Veterans or between all Veterans and the spouses of GW Veterans; (6) Identify subjects with low enzyme levels and determine how they differ from matched subjects with normal enzyme levels across a range of variables.	10/01/01	09/30/03
VA-073	1, 9	Investigator Initiated	Pain Sensitivity in Gulf War Veterans with Medically Unexplained Musculoskeletal Pain	GW Veterans	The primary objectives of the project were to comprehensively examine pain in Gulf War Veterans with medically unexplained musculoskeletal pain using standard psychophysical measures, to determine whether Gulf War Veterans with medically unexplained musculoskeletal pain exhibit exercise induced analgesia, and to examine the relationship between pro-inflammatory cytokines and the perception of pain in Gulf War Veterans with medically unexplained musculo-skeletal pain.	10/01/01	09/30/03
VA-074	8, 18	Investigator Initiated	A Randomized Clinical Trial for Cognitive-Behavioral Treatment for PTSD in Women	GW Veterans	This was a randomized clinical trial comparing two types of individual psychotherapy for treating Post-Traumatic Stress Disorder (PTSD) in 384 female Veterans and active duty personnel at 12 sites. This trial tested the primary hypothesis that Prolonged Exposure will be more effective than Present-Centered Therapy for the treatment of PTSD due to military-related trauma in women, as measured by the Clinician Administered PTSD Scale at three months post-treatment. **This project was jointly funded by VA and DoD as separate projects (VA-074 and DoD-125).**	06/01/01	12/31/05
VA-075	16	Investigator Initiated	ALS and Veterans: Are Veterans at Increased Risk?	GW Veterans and other era Veterans	The objective of this study was to determine whether or not Veterans are at increased risk of ALS mortality and to assess age, gender, ethnic and veteran specific trends in ALS incidence and mortality in a large, multi-ethnic population. The data collected from this study were matched with VA and DoD databases to assess which cases and controls served in the Persian Gulf and other branches/eras of service.	07/01/02	01/30/04
VA-076	8, 18	Investigator Initiated	Analysis of Hippocampal Volume in Aging Combat Veterans with PTSD	Veterans with PTSD	This study was designed to: (1) Investigate the age-associated changes of various neuroendocrine markers of PTSD and to evaluate the functional impact of those changes in aging PTSD patients; (2) Study the effects of the observed HPA axis alterations on the hippocampus and on memory function known to be dependent on hippocampal integrity in a sample of aging PTSD patients; (3) Clarify the extent hippocampal atrophy and memory impairment may be associated with PTSD vs. the effects of normal aging.	10/01/01	09/30/06

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-077	8, 18	Investigator Initiated	HPA Axis Reactivity in Men and Women with Chronic PTSD	Veterans with PTSD	The specific aims of this current were: to (1) determine whether findings of increased pituitary ACTH and adrenal cortisol reactivity to CRF administration and increased adrenal cortisol and DHEA reactivity to ACTH administration can be replicated in premenopausal women with chronic PTSD; and (2) examine pituitary ACTH and adrenal cortisol reactivity to CRF administration and adrenal cortisol and DHEA reactivity to ACTH in male combat Veterans with chronic PTSD.	10/01/01	09/30/04
VA-078	1, 9	Investigator Initiated	Millennium Cohort Study	Veterans from multiple deployments	The Millennium Cohort Study is the largest prospective health project in military history. It is designed to evaluate the long-term health effects of military service, including deployments. The Department of Defense recognized after the 1991 Gulf War that there was a need to collect more information about the long-term health of service members. The Millennium Cohort Study was designed to address that critical need, and the study was launched by 2001.Funded by the Department of Defense, and supported by military, Department of Veterans Affairs, and civilian researchers, almost 150,000 people are already participating in this groundbreaking study. **This project was jointly funded by VA and DoD as separate projects (VA-078 and DoD-143).**	10/01/00	09/30/22
VA-080	3, 4, 5, 6, 7, 17	Investigator Initiated	Neurochemical and Neurobehavioral Impact of Pyridostigmine Bromide Treatment and Stress	**Animal Study**	This study is a follow-up to a prior study of the interaction of pyridostigmine bromide (PB) and stress on AChE activity in the brain of rodents that aimed to determine the nature and the functional significance of reduced acetylcholinesterase (AChE) activity in the brain of rodents when administered PB under conditions of intense stress.	10/01/02	09/30/07
VA-081	10	Investigator Initiated	Stress, Pro-Inflammatory Cytokines and Coping Behavior	**Animal Study**	The goal of this study was to further elucidate the relationship between stress, pro-inflammatory cytokines and coping behavior in Sprague-Dawley rats.	10/01/02	09/30/05
VA-082	1, 9	Investigator Initiated	Pituitary Adrenal Function in People with Fatiguing Illness	GW Veterans	The objective of this study was to evaluate factors that could influence the response of the hypothalamo-pituitary-adrenal axis (HPA) during stress in Gulf War Veterans (GWVs) diagnosed with chronic fatigue syndrome (CFS) or the less severe variant known as idiopathic chronic fatigue (ICF).	04/01/02	03/31/06
VA-083	8, 18	Investigator Initiated	Neuropsychological Assessment of a Population-Based Sample of Persian Gulf War Veterans and Controls	GW Veterans	The aims of this study were to: (1) Compare the differences in neuropsychological testing (cognitive and psychiatric) and self-reported quality of life (SF-36) between 35 population-based cases and 35 population-based controls; (2) Compare traditional neuropsychological testing results of 115 self-selected Veterans with subjective cognitive complaints referred to the Dept. of Veterans' Affairs Medical Center (VAMC)-Washington, DC Referral Center between 1992-2000 with population-based cases and controls as defined above; (3) Determine whether cognitive impairment is correlated with psychiatric distress in patients with GW multisymptom illness.	07/01/02	06/30/04
VA-084	8, 18	Investigator Initiated	Neurobiology of Severe Psychological Trauma in Women	Female patients with PTSD	The overall objective of this study was to understand the ways in which psychologic trauma interferes with normal brain functioning with a focus upon neurocognitive deficits in women with PTSD and associated neural substrates. The specific aims were to: (1) Continue studies of neuropsychological function in women victims of intimate partner violence and non-traumatized comparison subjects; (2) Use functional magnetic resonance imaging (fMRI) to locate brain regions mediating the neuropsychological deficits seen in women with PTSD; (3) Examine the relationship between cognitive deficits and functional disability.	10/01/01	09/30/05

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-085	8, 18	Investigator Initiated	Associative Learning in Veterans with and without Combat Experience	GW, Vietnam, and WWII/Korea Combat Veterans	The major objective of this study was to determine whether prior combat leads to associative learning and memory deficits. A secondary objective was to provide preliminary data on possible central nervous system structures/mechanisms that might be related to these deficits. The following hypotheses were tested: (1) Combat Veterans will show slower or perhaps no, acquisition of classical eye blink conditioning compared to Veterans without combat, and that this failure to condition will be related to less power in the respiratory band of the heart rate power spectrum in the combat veteran; (2) Enhanced classically conditioned autonomic responses will be observed in combat Veterans compared to Veterans without combat, based upon the model that limbic system involvement is critical to the development of the emotional reactions to stress, which appears to be hyperactive in combat compared to non-combat Veterans; (3) Combat Veterans will exhibit increased startle eye blink reflex amplitude in response to acoustic stimuli, compared to similar Veterans without combat, and will similarly show increased autonomic responsivity to such stimuli, compared to non-combat Veterans.	01/01/02	03/31/05
VA-086	8, 18	Investigator Initiated	A Clinical Trial of Magnetic Stimulation in Depression	Veterans with medication-resistant depression	The objective of this study was to determine the therapeutic efficacy of high frequency repetitive transcranial magnetic stimulation (rTMS) in the treatment of individuals diagnosed with medication-resistant depression. The specific aims were to: (1) To test the efficacy of prefrontal rTMS in patients with medication-resistant major depression in a sham-controlled, parallel group design clinical trial; (2) To test the differential effect of laterality of prefrontal rTMS for its efficacy in the treatment of medication-resistant major depression.	10/01/01	09/30/06
VA-087	8, 18	Investigator Initiated	Improving Outcomes of Depression in Primary Care	Veterans with depression	The primary objective of this study was to determine the impact of a low-intensity care management program on outcomes of patients with major depression in the primary care setting. Secondary objectives of the study were to determine (1) the extent to which primary care providers adhere to VA Major Depression Treatment Guidelines, and (2) the extent to which the care management intervention impacts measures of utilization.	01/01/02	12/31/04
VA-088	8, 18	Investigator Initiated	Prospective Assessment of Neurocognition in Future Gulf-deployed and Gulf-nondeployed Military Personnel: A Pilot Study	GW Veterans (2003 deployment)	The overall objective of this study was to establish predeployment neuropsychological and behavioral health baseline data and subsequent post-deployment alterations in troops that might be deployed to the Middle East in 2003. Data was analyzed for correlations with deployment variables (e.g., stress exposure; post-deployment emotional distress; specific deployment location; deployment duties and potential toxin exposures; etc.). The hypothesis to be tested was that post-deployment neurocognitive and behavioral health alterations correlate with specific premilitary, predeployment military and deployment risk factors that impact on post-deployment neurocognitive and behavioral health. **This project was jointly funded by VA and DoD as separate projects (VA-088 and DoD-154).**	10/01/03	01/31/07
VA-089	16	Investigator Initiated	National Registry of Veterans with Amyotrophic Lateral Sclerosis	Veterans with ALS	The overall objectives of this registry is to provide a mechanism for the VA to (1) systematically identify and track Veterans with ALS and (2) inform Veterans with ALS about clinical drug trials and other studies for which they may be eligible.	07/01/02	07/01/08

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-090		Research Enhancement Award Program RFA	Differential Gene Expression in Pathologies Associated with Neuronal Hyperexcitability: Links to Gulf War Illness	**Animal Study**	This proposal spanned a number of projects directly related to clinical disorders affecting thousands of Veterans, including neurodegenerative diseases, nerve injury, psychiatric & behavioral disorders, and seizures. These disorders represent an enormous challenge to the VA patient care mission, and are especially relevant in the context of Gulf War Veterans potentially suffering from exposure to environmental neurotoxins and the pathological consequences of neuronal hyperexcitability.	04/01/03	03/31/08
VA-090A	16	Research Enhancement Award Program RFA	Neuronal Hyperexcitability and Motor Neuron Regeneration	**Animal Study**	This was a pilot study to examine the effects of electrical stimulation on motor neuron gene expression during regeneration. The goal was to identify a list of potential candidate genes that are responsible for faster preferential motor reinnervation.	04/01/03	03/31/08
VA-090B	8, 18	Research Enhancement Award Program RFA	Gene Expression and Proteomic Strategies in Severe Psychiatric Disorders	Veterans with severe psychiatric disorders and **Animal Studies**	This study used state of the art-techniques to conduct gene expression and protein characterization of brain tissue collected post-mortem from subjects with schizophrenia, bipolar disorder and major depression. In addition, these tools were used to examine the amygdala gene expression profile and protein characterization in a rodent model of psychopathology	04/01/03	03/31/08
VA-090C	16	Research Enhancement Award Program RFA	Developmental Differences in Alcohol Withdrawal Sensitivity	**Animal Study**	This study assessed changes in hippocampal function and gene expression and characterized the excitability of hippocampal circuits using in-vitro electrophysiological and behavioral techniques.	04/01/03	03/31/08
VA-090D	16	Research Enhancement Award Program RFA	Seizures and Neuroplasticity: Physiology and Biochemistry	**Animal Study**	This study explored the underlying mechanisms by which seizures disrupt neuroplasticity and alter memory processing using a combination of electrophysiological, biochemical and molecular studies.	04/01/03	03/31/08
VA-091	3, 4, 5, 6, 7, 17	Investigator Initiated	The Role of Dietary Choline in Neuroprotection	**Animal Study**	This study was designed to test the hypothesis that dietary choline is neuroprotective in a rat model of neurotoxicity.	07/01/04	06/30/07
VA-092	8, 18	Investigator Initiated	Acetylcholinesterase Activity in Gulf War Veterans	Gulf War Veterans	The goal of this study was to determine whether mood and anxiety disorders or motor neuron diseases are related to serum levels of Acetylcholinesterase (AChE), Butyryl-cholinesterase (BuChE), and/or Paraoxonase (PON) among Gulf War deployed and era Veterans.	06/01/03	09/30/04
VA-093	8, 18	Investigator Initiated	HPA Axis Alterations in PTSD: A Comparison of Gulf War and Vietnam Veterans	Gulf War and Vietnam Veterans with PTSD	This study was designed to evaluate basal Hypothalamic-Pituitary Adrenal (HPA) axis activity in GW Veterans with PTSD and comparison subjects. **A clinical trial based on this work is currently funded by the Gulf War Illness Research Program within CDMRP (DoD).**	04/01/03	09/30/06
VA-094	2, 19	Investigator Initiated	The Immunology of Chronic Cutaneous Leishmaniasis	**Animal Study**	This study examined factors that regulate chronic Leishmania infection and provide essential new information about basic immunologic processes that limit Th1 (cell-mediated) immune responses with the hope of developing strategies to reverse these suppressive pathways.	10/01/03	09/30/06

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-095	20	Investigator Initiated	The Role of Signal Regulatory Proteins in Astrocytomas	**Animal Study** and Veterans with brain tumors	The objective of the proposed studies was to characterize the regulation by signal regulatory protein a (SIRPa) receptors of astrocytoma growth and movement. The studies examined both the in vitro behavior of cell lines as well as the clinical behavior of brain tumors in relation to SIRP expression. There were four specific aims: (1) Characterize the range of SIRPs expressed on astrocytomas, and their level of expression; (2) Examine the role of SIRPU expression on astrocytoma responses to mitogenic stimuli, motility, and adhesion; (3) Identify molecules associated with the SIRPa protein in astrocytomas; (4) Test the association of SIRP expression with clinical outcomes in patients with brain tumors.	07/01/03	06/30/06
VA-096	16	Investigator Initiated	Functional Imaging of Pain in Veterans with Unexplained Muscle Pain	Gulf War Veterans	The two main purposes of this study were to (1) determine if psychophysical differences in response to heat and pressure pain are present in GW Veterans with medically unexplained musculoskeletal pain versus healthy, pain free Veteran controls and (2) test the neural responses of specific pain related brain regions to both non-painful and painful experimental heat stimuli using fMRI.	07/01/04	12/31/07
VA-097	20	Investigator Initiated	Improving a mM-CSF Tumor Vaccine for Established Intracranial Gliomas	**Animal Study**	The goal of this proposal was to improve a treatment that would destroy a well-established intracranial T9 glial tumor by immunizing the tumor bearing animals at a subcutaneous site with glial tumor cells expressing the membrane form of macrophage colony stimulating factor (mM-CSF).	04/01/03	03/31/07
VA-098	20	Investigator Initiated	Post-Transcriptional Gene Regulation of VEGF in Malignant Gliomas	**Animal Study**	This study was designed to elucidate the molecular pathway of RNA stabilization in malignant tumors and ultimately it's potential as a target for anti-cancer therapy.	07/01/04	06/30/08
VA-099	2, 19	Investigator Initiated	Vaccination Against Visceral Leishmaniasis with a Multi-Epitope Vaccine	**Animal Study**	The objectives of this project were to: (1) identify the T cell antigenic epitopes responsible for the protective immune response to the histone antigens; (2) determine the immunogenicity and efficacy of a synthetic multi-epitope DNA vaccine in non-permissive and permissive models of visceral leishmaniasis; (3) determine the effector mechanisms responsible for histone DNA and protein vaccine-induced protective immunity.	04/01/02	03/31/07
VA-100	20	Investigator Initiated	Studies of the Blood-Brain Barrier and it's Manipulation	**Animal Study**	The goals of this research were to: (1) Investigate the effect of thiol chemoprotection on radiation- and chemotherapy-induced toxicity; (2) Determine the effect of standard drugs and dietary supplements on toxicity and chemoprotection; (3) Assess interactions of chemoprotection with anti-tumor efficacy in intracerebral and systemic tumors.	10/01/01	09/30/06
VA-101	16	Investigator Initiated	Biomarkers Discovery in ALS	Veterans and non-Veterans with ALS	The primary objectives of the proposed studies were to: (1) further characterize and sequence identify these novel indexes of ALS clinical progression; (2) test their predicative and prognostic value in a population at high risk to develop ALS such as the Veterans of the Gulf War; (3) continue to explore the (potential) functional relationship(s) of these biomarkers to the progression of ALS pathophysiology in mouse model systems Neurology 66(8):1218-22, 2006. **A combination of three protein species correctly identified patients with ALS with 95% accuracy, 91% sensitivity, and 97% specificity from the controls.**	07/01/04	06/30/06
VA-102	16	Investigator Initiated	Cholinergic and Monoaminergic Influences on Sleep	**Animal Study**	This study used a combination of molecular biology, lesion, pharmacology and anatomy studies to identify the neurons responsible for maintaining wakefulness.	04/01/01	03/31/06

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-103	16	Investigator Initiated	Hypothalamic and Basal Forebrain Regulation of Sleep and Arousal	**Animal Study**	This study was designed to evaluate the neurophysiology, neuropharmacology, anatomical distribution and connectivity of putative preoptic/anterior hypothalamic area sleep-regulatory neurons.	10/01/02	09/30/07
VA-104	1, 9	Investigator Initiated	Characterization of Pain Processing Mechanisms in the Irritable Bowel Syndrome	**Animal study** and Veterans with IBS	Systematically apply and compare pharmacological and psychophysical tests to patients with irritable bowel syndrome to determine if alterations in central pain processing mechanisms cause hypersensitivity.	10/01/03	03/31/06
VA-105	2, 19	Investigator Initiated	Expression of the Major Surface Protease of Leishmania Chagasi	**Animal Study**	The goals of this project were to define the major surface protease (MSP) genes expressed in different parasite stages, and to develop methods to functionally knock out each gene class separately.	04/01/02	03/31/05
VA-106	3, 4, 5, 6, 7, 17	2004 Gulf War RFA	Interoceptive Stressor Conditioning: A Model for Gulf War Illness	**Animal Study**	The goal of this study was to determine if effects of pyridostigmine bromide administration occurs through muscarinic or nicotinic receptors and if signaling through the vagus nerve to the brain is necessary for the development of conditioned responses. Physiological parameters included nausea, sympathetic/parasympathetic tone, and algesia/analgesia.	10/01/04	09/30/06
VA-107	1, 9	2004 Gulf War RFA	Evaluation of Stress Response Systems in Gulf War Veterans with CMI	Gulf War Veterans	This study was designed to establish whether there are measurable physiologic abnormalities in Gulf War Veterans with Chronic Multisymptom Illness and whether these measures differentiate affected from unaffected deployed Veterans.	10/01/04	09/30/08
VA-108	1, 9	2004 Gulf War RFA	Telemedicine Treatment for Veterans with Gulf War Illness	Gulf War Veterans	This study tested a cost-effective and innovative strategy for delivering cognitive behavioral therapy (CBT) over the telephone. The long term goal is to make specialized Telephone CBT services widely available to Veterans regardless of their geographic location.	01/02/05	12/31/08
VA-109	8, 18	Investigator Initiated	Effects of Stress on Memory: Brain Circuits, Mechanisms and Therapeutics	**Animal Study**	Provide important new information on how stress disturbs memory, drug sensitivity, electrophysiological plasticity and behavior. These experiments will provide insight into the endocrine basis of stress effects on memory and physiological plasticity.	04/01/05	03/31/09
VA-110	1, 9	Investigator Initiated	Pain Among Gulf War Veterans: Secondary Analysis of CSP#458 Data	Gulf War Veterans	Evaluate the nature of pain with the following aims: (1) assess and compare the prevalence, anatomic distribution, and character of acute and chronic pain among deployed (DV) and non-deployed Veterans (NDV); (2) examine the prevalence, distribution, character, and specificity of pain among DV and NDV; (3) assess and compare current physical functioning and quality of life of DV with pain to NDV with pain; and (4) characterize and compare current cognitive functioning of DV with pain to NDV with pain.	10/01/04	09/30/06
VA-111	10	2004 Gulf War RFA	T-Cell Responses to Multiple Immunizations and Stress	**Animal Study**	Use a well-characterized murine system to determine whether the timing of multiple immunizations and/or the juxtaposition of immunization to stress result in any measurable immunologic alterations.	10/01/04	09/30/06
VA-112	16	Investigator Initiated	National VA Amyotrophic Lateral Sclerosis Research Consortium	Veterans with ALS	Translate findings in the ALS mice generated at the Bedford VA into human studies. The outcomes of the proposed aims will contribute greatly to the planning of future clinical trials using phenylbutyrate alone or in combination with uncontrolled compounds, such as riluzole, in ALS patients.	09/15/04	03/31/07
VA-113	16	Investigator Initiated	Novel Cause of Motor Neuron Disease	**Animal Study**	Study the link between mutation in the gene for neuropathy target esterase, exposure to organophosphate compounds, and development of motor neuron disease (ALS) in animals.	10/01/04	09/30/08
VA-114	16	Investigator Initiated	Strategies in Therapeutic Development of Neurodegenerative Diseases	**Animal Study**	Study of the therapeutic capacity of bone marrow stem cells and anti-inflammatory compounds in animal models of ALS	01/01/05	12/31/09

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VA-115	1, 9	2004 Gulf War RFA	Autonomic System Changes Cause Intestinal Symptoms in Gulf War Veterans	**Animal Study**	Study of central nervous system control of gastrointestinal pain to identify novel targets for new therapies directed the treatment of visceral pain in Gulf War Veterans.	10/01/04	09/30/07
VA-116	1, 9	Investigator Initiated	Quantitative Trait Genes Controlling Circadian and Sleep Behaviors	**Animal Study**	Identify genetic mechanisms in the control of sleep. Once identified, such genes offer new insights into the molecular basis of sleep disorders.	04/01/05	03/31/08
VA-117	20	2004 Gulf War RFA	Estimates of Cancer Prevalence in Gulf Veterans Using State Registries	Gulf War Veterans	Compare the prevalence, distribution, and characteristics of cancer (including brain cancer) among Gulf War Veterans and non-Gulf War Veterans and assess demographic, military, and in-theater exposure characteristics associated with the cancer.	07/01/05	06/30/08
VA-118	21	2004 Gulf War RFA	Post War Mortality from Neurologic Diseases in Gulf Veterans, 1991-2004	Gulf War Veterans	Evaluate whether Gulf War Veterans are at increased risk of overall deaths or any cause-specific death, especially deaths such as amyotrophic lateral sclerosis (ALS) and multiple sclerosis (MS) or brain cancer.	07/01/05	06/30/07
VA-119		2004 Gulf War RFA	Patterns of Microarray Gene Expression in Gulf War Illness	Gulf War Veterans	Compare gene expression before and after exercise stress testing in ill deployed Gulf War Veterans, chronic fatigue syndrome ill controls, and healthy controls to identify the underlying pathophysiology of Gulf War Illness.	10/01/04	09/30/07
VA-120	16	Investigator Initiated	Arginase NO Synthase and Cell Death in Amyotrophic Lateral Sclerosis	**Animal Study**	Examine the role of nitric oxide (NO) in the pathogenesis of ALS.	04/01/05	03/31/09
VA-121	16	Investigator Initiated	Genes, Environment, and Oxidative Stress in Neurodegenerative Disorders	**Animal Study**	Use novel transgenic/knockout mouse models to identify environmental hazards, genetic deficiencies, and therapies that play a role in the etiology of neurodegenerative diseases of importance to Gulf War Veterans	04/01/05	03/31/10
VA-122	16	Investigator Initiated	Role of Mitochondrial Oxidative Stress in ALS	**Animal Study**	Determine if an increase in mitochondrial free radical production and mitochondrial dysfunction precedes disease onset and whether mitochondrial oxidative stress modulates changes in oxidative damage, cell death and disease initiation/progression of Amyotrophic Lateral Sclerosis (ALS) in transgenic mice.	04/01/05	03/31/09
VA-123	3, 4, 5, 6, 7, 17	Investigator Initiated	Interactions Between Maternal Care, Stress and Pyridostigmine Bromide	**Animal Study**	Determine the relative importance of stress reactivity and/or cholinergic responses to pyridostigmine bromide	10/01/04	09/30/07
VA-124	3, 4, 5, 6, 7, 17	2004 Gulf War RFA	Early Life Determinants of Vulnerability to Pyridostigmine Bromide	**Animal Study**	Determine how the environmental context of pyridostigmine bromide (PB) exposure can impact developmentally determined vulnerability to persistent effects of PB.	10/01/04	09/30/06
VA-125	16	2004 Gulf War RFA	Effects of Gulf War Illness on Brain Structure, Function and Metabolism: MRI/MRS at 4 Tesla	Gulf War Veterans	Determine if subjects with Gulf War Illness (GWI) have metabolic, structural, or functional changes in the basal ganglia and other regions of the brain, which are not accounted for by confounds such as post traumatic stress disorder (PTSD), depression, and/or alcoholism.	01/01/05	12/31/09
VA-126	16	2004 Gulf War RFA	Structural Magnetic Resonance Imaging in Gulf War-Era Veterans	Gulf War Veterans	Examine structural brain characteristics, cognition and mood as they relate to health symptom complaints among GW Veterans to determine whether these findings are related to deployment status or to some kind of vulnerability to physical stress	10/01/04	09/30/07
VA-127	2, 19	Investigator Initiated	Interactions of the Leishmania sp. with Mammalian Cells	**Animal Study**	Test how the initial route of entry into the mammalian cell influences the downstream survival or immune killing of the Leishmania sp. parasite and consequently the course of disease.	04/01/05	03/31/09

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VA-128	16	2004 Gulf War RFA	MR Tracking of Stem Cells for Replacement Therapy in ALS	**Animal Study**	Investigate how transplanted stem cells can be used to restore function in a rat model of Amyotrophic Lateral Sclerosis (ALS) and how their migration and integration in vivo can be monitored.	10/01/04	09/30/07
VA-129	8, 10, 18	2004 Gulf War RFA	Glucocorticoid Responsivity in Gulf War Veterans	Gulf War Veterans	This study combined neuroimaging, neuropsychiatric evaluation and glucocorticoid challenge tests to examine the glucocorticoid responsiveness in GW Veterans and examine the possibility that GW Illnesses and PTSD act synergistically.	10/01/04	09/30/07
VA-130	1, 9	2005 Gulf War RFA	Tissue Factor and Gulf War-Associated Chronic Coagulopathies	Gulf War Veterans	This study is designed to determine if an activated coagulation system is an underlying cause of some symptoms associated with GWVI. The results of this study will directly impact our understanding of the etiology of GWVI and provide new therapeutic targets for ill GW Veterans. **This investigator was also funded for related work through the Gulf War Illness Research Program within CDMRP (DoD).** **A clinical study to examine the effects of aspirin and Clopidogrel on biomarkers of Gulf War Veterans' Illnesses has been submitted to one of the recent VA RFAs.**	04/01/06	09/30/09
VA-131	1, 9, 10	Investigator Initiated	Neuroendocrine Regulators and Proteomics in GW Veterans with CMI	Gulf War Veterans	This study investigated whether abnormalities in proteins involved in neuroendocrine regulation are present in GW Veterans with chronic multisymptom illness. **This investigator was also funded for related work through the Gulf War Illness Research Program within CDMRP (DoD).**	10/01/05	09/30/07
VA-132	1, 9, 10	2005 Gulf War RFA	Immunologic Mechanisms and Biomarkers in Gulf War Illness	Gulf War Veterans and patients with CFS	Determine if ill GW Veterans have immune impairments, define the molecular biology of impaired immune function in GWI/CFS, and determine the relationship between immune dysfunction in GWVI/CFS and disease severity **This investigator was also funded for related work through the Gulf War Illness Research Program within CDMRP (DoD).**	01/01/06	03/31/09
VA-133	1, 9, 10	Investigator Initiated	Longitudinal Study of Gene Expression and Gene Products in Veterans with Gulf War Illness	Gulf War Veterans	Use microarray gene expression profiling and assays of immune function to differentiate individuals with GWI and CFS from healthy people. Potential biomarkers will be identified that will be useful in monitoring and defining the illness.	10/01/05	09/30/07
VA-134	16	2005 Gulf War RFA	Autonomic Functions of Gulf War Veterans with Unexplained Illnesses	Gulf War Veterans	A pilot study to determine if neurological symptoms noted in GW Veterans are associated with abnormal testing for heart rate variability, responses to tilt table test, sympathetic skin response, thermal threshold, and plantar nerve conduction	09/30/06	06/30/11
VA-135	16	2005 Gulf War RFA	Motor Neuron Function of Gulf War Veterans with Excessive Fatigue	Gulf War Veterans	Determine if GW Veterans with unexplained neuromuscular symptoms and impaired mitochondrial function have reduced motor neuron number counts compared to control GW Veterans. Loss of motor neurons and altered mitochondrial function may be early signs of ALS	09/30/06	12/31/10
VA-136	1, 9	Investigator Initiated	Central Mechanisms Modulating Visceral Sensitivity	**Animal Study**	Provide new pathophysiological information about disordered brain-gut communication that may lead to the development of novel therapies for Veteran's with abnormalities of the gastrointestinal tract, including irritable bowel syndrome	10/01/05	09/30/08

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-137	1, 9	2005 Gulf War RFA	Diarrhea-Predominant Irritable Bowel Syndrome in Persian Gulf Veterans	Gulf War Veterans with IBS	Determine if small bowel bacterial overgrowth (SBBO) is the cause of diarrhea-predominant symptoms in ill GW Veterans and if eradication of SBBO leads to improvement of symptoms. **This is an ongoing clinical trial of a new treatment for ill GW Veterans.**	01/01/06	03/31/09
VA-138	1, 9	Investigator Initiated	Inspiratory Flow Dynamics During Sleep in GWS and the Effect of CPAP	Gulf War Veterans	Determine the prevalence of sleep fragmentation in ill GW Veterans and measure the extent of inspiratory flow limitation (IFL). A group of ill GW Veterans with IFL will be randomized to receive nasal continuous positive airway pressure (CPAP) for three weeks to evaluate improvement in memory, fatigue and pain. CPAP produced a 50% improvement in fatigue, a 32% improvement in cognition, and a 29% improvement in pain. **Two abstracts presented at the 22nd Annual Meeting of the Associated Professional Sleep Societies in Baltimore, MD, June 7-8, 2008**	10/16/05	10/15/08
VA-139	16	Investigator Initiated	Sleep Neurobiology and Circuitry	**Animal Study**	Study the neuronal circuits (anatomy and neurotransmitters) responsible for the shift between sleep and wakefulness. It is important to investigate these circuits to identify appropriate targets for new therapies for specific sleep abnormalities	09/30/06	09/30/10
VA-140	16	2005 Gulf War RFA	Integrated Neuroimaging and Neuropathological Analysis of the Effects of Physical Activity on Progression and Therapy in ALS	**Animal Study**	Use magnetic resonance spectroscopy and magnetic resonance imaging to examine how exercise affects the nervous system of a transgenic mouse model of ALS and to correlate these changes with motor performance and pathological features of the disease	04/01/06	03/31/09
VA-141	16	Investigator Initiated	Genetic Analysis of an Invertebrate Model of Amyotrophic Lateral Sclerosis	**Animal Study**	Analyze mechanisms involved in the neurodegenerative process in invertebrate models and then determine if they are also involved in neurotoxicity in humans. These studies may help identify GW Veterans at risk for developing sporadic ALS and identify new therapeutic targets to treat and/or prevent this disease	10/01/05	09/30/08
VA-142	16	Investigator Initiated	VA Gulf War Biorepository Trust	Gulf War Veterans	A cooperative effort to collect high quality biological specimens linked to clinical information from consenting Veterans for use in biomedical research on GWVI. Initial efforts will focus on collection of central nervous system tissue (brain and spinal cord)	10/01/05	09/30/11
VA-143	3, 4, 5, 6, 7, 17	Investigator Initiated	The Role of Protein Oxidation in the Progression of ALS	**Animal Study**	Determine if accumulation of oxidative damage to specific proteins could be a diagnostic marker of vulnerability to ALS and whether pyridostigmine and permethrin can enhance protein oxidation and accelerate ALS in a transgenic mouse model.	10/01/05	09/30/07
VA-144	3, 4, 5, 6, 7, 17	Investigator Initiated	Testing the Role of Permethrin on the Progression of ALS	**Animal Study**	Test the effect of permethrin, an insecticide used in the GW, on the progression of ALS in three mutant mouse models that develop ALS symptoms	10/01/05	09/30/07
VA-145	3, 4, 5, 6, 7, 17	2005 Gulf War RFA	Proteomic Analysis of Cellular Response to Biological Warfare Agents	**Animal Study**	Use state of the art genomic and proteomic technology to investigate and characterize the response of human cells to PB, DEET, permethrin, and anthrax vaccination	04/01/06	03/31/09
VA-146	3, 4, 5, 6, 7, 17	2005 Gulf War RFA	Direct Delivery of Neurotoxins to the Brain by an Intranasal Route	**Animal Study**	Test the effects of direct delivery of DEET and permethrin (alone and in combination) to the brain following inhalation through the nose	04/01/06	03/31/09

Project #	Ques. #	Origin	Project Title	Population Studied	Description	Start Date	End Date
VA-147	2, 19	Investigator Initiated	The Diagnosis and Pathogenesis of Occult Leishmaniasis	Gulf War Veterans	Develop a real-time polymerase chain reaction (PCR) assay for detection and quantification of 4 different strains of Leishmania in tissues or blood and then use those assays to detect latent or active Leishmania infections in banked sera of ill GW Veterans	04/01/06	03/31/09
VA-148	1, 9	2004 Gulf War RFA	Profile of GW Veterans Who Applied for Undiagnosed Illness Compensation	Gulf War Veterans	An epidemiologic database study to better understand the characteristics of Veterans who have been compensated for undiagnosed illness and to determine the effect of this compensation decision on the Veteran's use of VA healthcare service	07/01/06	06/30/07
VA-149	3, 4, 5, 6, 7, 17	2005 Gulf War RFA	Behavior of Neural Stem Cells in a Rat Model of GWS	**Animal Study**	Determine if neuron production in the hippocampus and measures of learning and memory function in rats are impaired because of prolonged exposure to a combination of agents (i.e., pyridostigmine bromide, DEET, permethrin, and physiological stress	04/01/07	03/31/10
VA-150	1, 9, 16	Investigator Initiated	Gulf War Veterans Illnesses' Research IDIQ Contract	Gulf War Veterans	Supports support a contractual agreement with the University of Texas Southwestern Medical Center for research related to illnesses affecting Gulf War Veterans	FY 2007	FY 2010
VA-151	16	Investigator Initiated	Genetic Epidemiology of ALS	Veterans with ALS	Identify genes that may confer susceptibility to the development of ALS, as well as the interplay between environmental exposures and genetic susceptibility in the development of ALS	07/01/08	09/30/12
VA-152	16	Investigator Initiated	Multiple Sclerosis in Gulf War Veterans	Gulf War Veterans	Quantify the risk for developing MS in Gulf War Veterans deployed to the combat theater versus those not deployed, as well as the risk for developing MS in Gulf War Veterans	10/01/07	09/30/10
VA-153	1, 9	Investigator Initiated	Functional Imaging of Pain in Veterans with Unexplained Muscle Pain	Gulf War Veterans	The two main purposes of this study were to (1) determine if psychophysical differences in response to heat and pressure pain are present in GW Veterans with medically unexplained musculoskeletal pain versus healthy, pain free Veteran controls and (2) test the neural responses of specific pain related brain regions to both non-painful and painful experimental heat stimuli using fMRI. **This is a renewal of VA-096**	10/01/08	09/30/12
VA-154	16	Investigator Initiated	Bacterial Overgrowth Associated with Chronic Mult-Symptom Illness Complex	Gulf War Veterans	This is a second single-site clinical trial of rifaximin, an antibiotic, as treatment for gastrointestinal symptoms in GW Veterans who test positive for small intestinal bacterial overgrowth. **This is an ongoing clinical trial of a new treatment for ill GW Veterans.**	10/01/08	09/30/11

APPENDIX G: Key Stakeholder Roster:

- American Legion 1608 K Street NW Washington, DC 20006 (800) 433-3318
- AmVets 4647 Forbes Boulevard Lanham, MD 20706 (301) 459-9600 Fax: (301) 459-7924
- Catholic War Veterans 441 North Lee Street Alexandria, VA 22314 (703) 549-3622 Fax: (703) 684-5196
- Disabled American Veterans (DAV) P.O. Box 14301 Cincinnati, OH 45250 (606) 441-7300 (202) 554-3501
- Jewish War Veterans 1811 R Street, NW Washington, DC 20009 (202) 265-6280
- Military Order of the Purple Heart 5413-B Backlick Road Springfield, VA 22151
- National Gulf War Resource Center, Inc. 1224 M Street W Washington, DC 20005 (202) 628-2700, ext 162 Fax: (202) 628-6997
- Non Commissioned Officers Association (NCOA) 225 North Washington Street Alexandria, VA 22314
- Paralyzed Veterans of American (PVA) 801 - 18th Street NW Washington, DC 20006
- Veterans of Foreign Wars (VFW) 200 Maryland Ave, NE Washington, DC 20002 (202) 543-2239
- Vietnam Veterans of America (VVA) 8719 Colesville Road Suite 100 Silver Spring, MD 20910 (301) 585-4000
- Wounded Warrior Project (WWP) 7020 A.C. Skinner Parkway, Suite 100, Jacksonville, FL 32256 (904) 296- 7350

Other Veteran & Military Organizations

- Citizen Soldier 175 Fifth Ave., #2135 New York, NY 10010 (212) 679-2250
- Military Officers Association of America (MOAA) 201 North Washington Street, Alexandria, VA 22314 703) 549-2311
- Reserve Officers Association (ROA) 1 Constitution Avenue NE Washington, DC 20002 (202) 479-2200 Fax: (202) 479-0416
- Veterans For Peace, Inc. (VFP) P.O. Box 3881 Portland, Maine 04104 (207) 773-1431 Fax: (207) 773-0804
- Veterans Speakers Alliance (VSA) P.O. Box 40430 San Francisco, CA 94140 (415) 255-7331
- Veterans of Modern Warfare (VMW) #33107 P.O. Box 96503, Washington, DC 20090-6503 (202) 257-2202
- Veterans for Common Sense (VCS) 5434 Burnet Road, Suite B Austin, TX 78756 Phone (202) 558-4553
- Iraq and Afghanistan Veterans of America (IAVA), 308 Massachusetts Ave NE Washington DC 20002 (202) 544-3184
- Swords to Plowshares—1060 Howard Street, San Francisco, CA 94103 Phone: 415-252-4788

- American Red Cross, Sherri Brown, 2025 E St. NW, Washington, DC 20006, Phone: 202-303-8283
- Easter Seals HQ—1420 K. St, NW, Washington, DC 20005 Phone: 202-347-3066
- National Military Family Association, 2500 North Van Dorn Street, Suite 102, Alexandria, VA 22302, Phone 703-931-6632; Fax 703-931-4600
- Armed Forces Services Corporation, 2800 S. Shirlington Road, Suite 350, Arlington, VA 22206, Local (703) 379-9311, (888) 237-2872

WWW Sites, Bulletin Boards and Email List

- Gulf War Veteran Resource Pages - www.Gulfweb.org
- Desert Storm Justice Foundation - www.dsjf.org
- National Gulf War Resource Center – http://www.ngwrc.org/ , 2611 SW 17th Street, Topeka, KS 66604, Phone: Toll Free, 866-531-7153, Fax: 785-235-6531.
- Persian Gulf Information Network, Inc. - 24 Hour Bulletin Board of member organization. Call 615-431-9021 or 615-431-9023.
- Presidential Advisory Committee on Gulf War Veterans Illnesses Home Page - www.gwvi.gov / http://www.gulflink.osd.mil

Interagency Subject Matter Experts:

- Millennium Cohort Study Team (DoD)
- Deputy Assistant Secretary of Defense (DASD) for Force Health Protection & Readiness (FHP&R)

APPENDIX H: Key Dates from the 1990 – 1991 Gulf War.

- On the morning of August 2, 1990--Iraq invades Kuwait. Saddam Hussein proclaims Kuwait as a province of Iraq.
- On August 7, 1990--Operation Desert Shield begins. The first US forces arrive in Saudi Arabia.
- On August 20 President Bush signed National Security Directive 45, "U.S. Policy in Response to the Iraqi Invasion of Kuwait," outlining U.S. objectives.
- On November 29, 1990—UN authorizes any force necessary to remove Iraqi forces from Kuwait. Iraqis are given to 15 January to leave Kuwait.
- On January 12, 1991—Congress grants President George H.W. Bush the authority to use military force.
- On January 15, 1991—Deadline passes for Iraqi withdrawal.
- On January 16, 1991—Air campaign begins against military leadership targets in Kuwait and Iraq.
- On February 24, 1991—Desert Storm begins as coalition ground forces drive on Iraqi forces in Kuwait.
- On February 27, Kuwait City was declared liberated, and with allied forces having driven well into Iraq, President Bush and his advisers decided to halt the war.
- The coalition ceased their advance, and declared a cease-fire 100 hours after the ground campaign started on February 28, 1991.
- On March 3, 1991—Iraq accepts conditions for a permanent cease fire.
- Most ground forces were redeployed by July 1991.

APPENDIX I: Working Group and Advisory Committee Crosswalk

Crosswalk of Recommendations: Report of the Advisory Committee on Gulf War Veterans and Department of Veterans Affairs Task Force on Gulf War Veterans' Illnesses.

Background: The Advisory Committee on Gulf War Veterans has provided exceptional support to VA on behalf of Veterans, and VA is extremely grateful for their commitment. Established in April 2008, the Committee has provided valuable insights and recommendations to help improve VA's policies and programs in support of Gulf War Veterans. The Advisory Committee and the VA Task Force on Gulf War Illnesses had similar charges. Both were asked to look at the full scope of benefits and services for those who served during the 1990 – 1991 period of the Gulf War and to make recommendations for improvements. Because of the different make up of the groups, the recommendations demonstrate different perspectives and provide different levels of specificity with respect to recommendations and associated implementing actions. However, there is a great deal of overlap between the recommendations of the two groups.

Overlapping Issues: Both the Advisory Committee and the Task Force believe that education of VA staff will provide greater quality of care for Gulf War Veterans. The recommendation of the Committee was to implement specialized programs to educate VA and contract medical personnel on 1990 – 1991 Gulf War medical issues, research, and regulations. The Task Force has developed a training program that accomplishes this and much more.

The Advisory Committee recommended that VA should increase the quality of data with respect to 1990 – 1991 Gulf War Veterans. VA has established an Integrated Project Team (IPT) with VBA, VHA, OPP, VSSC, other VA organizations, and DoD as appropriate to address this shortfall. This team will develop a project plan and business rules, and identify roles and responsibilities to improve GWVIS data quality.

The Advisory Committee set forth some specific recommendations with respect to outreach for Gulf War Veterans. The Committee focused on contacting Veterans, providing increased information and creating positive opportunities for Veterans to return to the VA for benefits and services. The Task Force also has an outreach plan, including the conduct of a survey. Although the activities are not an exact match, the outreach efforts designed by the Task Force should address many of the concerns of the Committee.

The Committee recommended the conduct of a longitudinal study. The Task Force plan meets and exceeds this recommendation.

Finally, The Committee recommends improvements to the timeliness of communications. It is expected that the outreach plan, which contains elements of strategic communication, will address this issue.

Issues Not Addressed by the Task Force: The Advisory Committee recommended that VA reinstate authority to enroll Gulf War Veterans into health care Priority Group 6. Section 513 of Public Law 111-163, the Caregivers and Veterans Omnibus Health Services Act of 2010, provides VA the authority the authority to enroll certain Gulf War Veterans in Priority Group 6. Section 513, titled, "Hospital Care, Medical Services, and Nursing Home Care for Certain Vietnam-Era Veterans Exposed to Herbicide and Veterans of the Persian Gulf War," eliminated the sunset date that was provided in 38 U.S.C. § 1710(e)(3)(B) and authorizes VA to provide hospital care, medical services and nursing home care to any Veteran who served on active duty between August 2, 1990 and November 11, 1998 in the Southwest Asia theater of operation during Gulf War for any disability, notwithstanding that there may be associated medical evidence to conclude that such disability may be associated with such service. However, hospital care, medical services, and nursing home care may not be provided with respect to a disability that is found, in accordance with guidelines issued by the Under Secretary for Health, to have resulted from a cause other than such service.

Other elements were not specifically addressed by the Task Force. Below is a table displaying the recommendations of the Advisory Committee and a short description of where the recommendation is addressed in the Task Force Report or a short description of VA response status:

Issue 1: Health Care Priority for Gulf War 1 Veterans

	Recommendation	VA Response
Rec. 1	Reinstate authority to enroll Gulf War I Veterans into health care Priority Group 6.	This requires Congressional action therefore, it was not addressed.

Issue 2: Access to and Quality of Care for Gulf War I Veterans

Rec. 1	Include Gulf War I Veterans in the Post Deployment Integrated Care Initiative or expand the Service of the Environmental Agents to include services provided through the Post Deployment Integrated Care Initiative.	GW Veterans may be seen in these clinics in primary care settings where available. VA is considering this recommendation and will report out at a later date.

Issue 2: Access to and Quality of Care for Gulf War I Veterans

	Recommendation	VA Response
Rec. 2	Implement specialized programs to educate VA and contract medical personnel on Gulf War I medical issues, research, and regulations.	Task Force Recommendations 2A, 2B, 3A and 3B.
Rec. 3	Establish a much stronger and more formal health care support mechanism for Veterans at VA facilities by assigning a "Point Man," a friendly and informed person during their initial interaction with the VA.	VA provides this service through Environmental Health Coordinators and Patient Representatives at each facility.

Issue 3: Undiagnosed Illnesses

Rec. 1	Eliminate the end date for the presumptive period for compensation for Undiagnosed Illness in Gulf War I Veterans.	As we get closer to the December 31, 2011 expiration date VA will evaluate scientific evidence to determine the value of extending the presumptive period for undiagnosed illnesses.
Rec. 2	Apply the same standardized diagnostic criteria in VHA diagnoses and VBA ratings for Undiagnosed Illness.	VA is improving efforts to better coordinate; however, aligning the two systems would require a major reinvention effort and would take several years. VA will be addressing this further as part of the improvements in the claims process and the TF will continue to monitor.

Issue 4: Identification of Gulf War I Veterans in VA Records

Rec. 1	Identify Gulf War I Veterans as a distinct group in all VA databases pertaining to eligibility for service and service to Veterans.	Task Force Recommendation 2 will provide VA with the data necessary for this recommendation.
Rec. 2	Incorporate clinical reminders for identified Gulf War I Veterans in the VHA Computerized Patient Record System.	As part of the long term electronic record system this will be included. VA is examining what interim solutions can be done to include coding in the short-term. With accurate conflict data/identifiers, VA systems would be able to do this.
Rec. 3	Devote increased attention to the quality of information that populates the VA databases from which data to evaluate services to Gulf War Veterans are drawn.	VA agrees and has teams working to improve the quality of VA data.

Issue 5: Outreach

	Recommendation	VA Response
Rec. 1	Execute a comprehensive and targeted outreach to Gulf War I Veterans.	Task Force Recommendations 7A and 7B.
Rec. 2	Use the 20th Anniversary of the Gulf War as a positive opportunity to attract Gulf War I Veterans back to the VA.	Task Force Recommendation 7C.
Rec. 3	Contact Gulf War 1 Veterans who participated in the original Registry Exams and invite them back for follow-up exams.	This has merit and VA is assessing the scientific basis for this action.
Rec. 4	Place additional emphasis on outreach to female Veterans.	VA agrees and is committed to developing a comprehensive approach in summer 2010 to identifying and addressing Women Veterans concerns and solutions. Center for Women Veterans will assist in this effort.
Rec. 5	Conduct a longitudinal study.	Task Force Recommendations 4A, 4C, 4D, 4F and 4G.

Issue 6: Timeliness of Communication

Rec. 1	Respond to inquiries from Advisory Committees within 30 days.	VA has included this as a performance metric.
Rec. 2	Publish and distribute Gulf War Review Newsletters and other VA information products in a timely manner.	Task Force Recommendation 7D.

Crosswalk of Recommendations: Research Advisory Committee on Gulf War Veterans Illnesses.

Background: The Research Advisory Committee on Gulf War Veterans' Illnesses was created by Congress in 1998 in section 104 of Public Law 105-368, which modified section 707 of Public Law 102-585, and was first appointed by Secretary of Veterans Affairs Anthony J. Principi in January, 2002. The Committee was established to provide advice proposed research studies, research plans, or research strategies relating to the health consequences of military service in the Southwest Asia theater of operations during the Persian Gulf War. According to its charter, the guiding principle for the work of the Committee shall be the premise that the fundamental goal of Gulf War-related government research is to improve the health of ill Gulf War Veterans. The Research Advisory Committee on Gulf War Veterans Illnesses has provided valuable insights and support to VA on behalf of Veterans, and VA is extremely grateful for its continuing commitment to the Nation.

Overlapping Issues: The VA Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI) and the Task Force agree that identification of new treatments for ill Gulf War Veterans is a high priority. The recommendation of the RACGWVI was to also focus the Gulf War research effort on defining therapeutic targets to develop and test new treatments. A second area of importance identified by the RACGWVI was to develop objective measures to identify ill Gulf War Veterans. The Task Force has developed short- and long-term research plans that accomplish this and much more.

The 2008 Report from the RACGWVI included 32 specific recommendations for research topics of interest and guidelines for conducting clinical and epidemiological research on Gulf War Veterans. Over 80 percent of these recommendations have been accepted; 15 of the research topics and all 4 guidelines were incorporated into the recent RFAs issued by the Office of Research and Development, as described in Section 7 above, and 7 topics/recommendations have been addressed by the Population-Based Surveillance plan contained in Section 4 above. The six recommendations not addressed in this report have either been addressed by other VA programs or were identified in either the RACGWVI report or an IOM report as having low relevance to understanding the illnesses affecting Gulf War Veterans.

Issues Not Addressed by the Task Force: The RACGWVI also made four general recommendations that did not directly address the direction or scope of the VA research program on Gulf War Veterans' illnesses. These recommendations addressed Congressional appropriations for VA and DoD; these issues are outside the purview of this committee and have not been addressed by the Task Force. A third recommendation is to continue funding two current programs. This recommendation has not been addressed since neither program is in jeopardy of losing its funding. The last recommendation is for developing joint management of the VA and DoD research programs. VA has rejected this recommendation. Although VA and DoD maintain separate research programs designed to address the needs of the individual agencies, their efforts are coordinated through the interagency Deployment Health Working Group (DHWG). At the March 1-2 meeting of the RACGWVI the VA Office of Research &

Development presented its initial plans to create a Gulf War Research Steering Committee, composed of 9 members from the National Research Advisory Committee (NRAC) and RACGWVI, to provide external guidance for the scope and direction of the VA Gulf War Research program. Further discussions of this plan with both the RACGWVI and NRAC are planned.

Below is a table displaying the recommendations of the Advisory Committee and a short description of where the recommendation is addressed in the Task Force Report or a short description of its status within VA:

Issue 1: General Recommendations (1 – 4)

	Recommendation	VA Response
Rec. 1	That the Administration request and Congress appropriate a minimum of $40 million annually to DOD for the Gulf War Illness Research Program managed by DOD's Office of Congressionally Directed Medical Research Programs.	It would be inappropriate to comment on the appropriation for another Federal Agency, therefore, it was not addressed in the Task Force Report or RFAs.
Rec. 2	That the Administration request and Congress appropriate a minimum of $20 million annually to VA for Gulf War illness research. This should include $15 million annually to support the Gulf War illness research center of excellence at the University of Texas Southwestern through FY2010, with the balance to fund additional Gulf War research studies, through Gulf War-specific and general solicitations for peer-reviewed proposals consistent with research recommendations in this report.	Partially addressed in Task Force report or RFAs. 1) Due to contracting issues, VA has decided not to exercise the last 2 option years of the contract with UTSW. 2) The Task Force report contains the details of VA's short and long term plans to allocate $15 million per year through 2012 for Gulf War research.
Rec. 3	That VA continue to fund the ALS Registry and the Gulf War Biorepository.	The ALS Registry and Gulf War Biorepository are ongoing programs. VA has no plans to discontinue nor have there been any discussions of discontinuing support for either of these important resources. VA has initiated efforts to expand the Gulf War Biorepository to collect a broad variety of tissues from Gulf War Veterans.
Rec. 4	That DoD and VA collaborate in establishing a comprehensive Federal Gulf War research plan and a strategy to coordinate and manage Federal programs to ensure that priority research objectives are satisfactorily	This recommendation was not specifically addressed in Task Force report or RFAs as TF felt the on-going DoD-VA interactions suffice. TF will continue to monitor. Although VA and DoD maintain separate research programs, their efforts are coordinated

	achieved.	through the interagency Deployment Health Working Group (DHWG). The research subcommittee of the DHWG submits an Annual Report to Congress on Federally Sponsored Research on Gulf War Veterans' Illnesses; VA is the prime author of these reports. VA Gulf War research efforts are aligned with the Gulf War Research Program within CDMRP managed by DoD. VA presents its research portfolio to the CDMRP vision-setting panel and VA personnel are directly involved in the review process for CDMRP. The RAC also assists in keeping these 2 programs aligned since the VA RFAs are based on the research recommendations of the RAC and RAC members are directly involved in the vision setting panel for CDMRP. At the March, 2010 meeting of the RACGWVI the VA Office of Research & Development presented its initial plans to create a Gulf War Steering Committee, composed of 9 members from the National Research Advisory Committee (NRAC) and RACGWVI, to provide external guidance for the scope and direction of the VA Gulf War Research program. The Steering Committee convened an organizational meeting on June 22, 2010; See Appendix J for the Steering Committee Mission Statement and Roster.

Issue 2: Specific Recommendations on Research Priorities (1 – 32).
A. Identification of effective treatments for Gulf War illness.

	Recommendation	VA Response
Rec. 1	Studies that identify and systematically evaluate the effectiveness of currently available treatments used for Gulf War illness or conditions with similarities to Gulf War illness.	Included in topic list for RFA CX-09-013.
Rec. 2	Research to identify specific pathophysiological mechanisms underlying Gulf War illness that are potentially amenable to treatment interventions.	Included in topic list for RFA CX-09-014 and BX-09-014.
Rec. 3	Research to evaluate novel therapies based on scientific findings as they emerge.	Included in topic list for RFA CX-09-013.

B. Identification of objective measures that distinguish Veterans with Gulf War illnesses from healthy Veterans

	Recommendation	VA Response
Rec. 4	Neuroimaging studies to characterize aspects of brain structure and function that may distinguish between ill and healthy Gulf War Veterans.	Included in topic list for RFA BX-09-014 and CX-09-014.
Rec. 5	Evaluation of autonomic nervous system function associated with Gulf War illnesses.	Included in topic list for RFA CX-09-014.
Rec. 6	Investigate biological and genetic variability potentially linked to differences in vulnerability to Gulf War exposures.	Included in topic list for RFA CX-09-014.
Rec. 7	Evaluate alterations in central proinflammatory and inflammatory processes in ill Gulf War Veterans.	Included in topic list for RFA BX-09-014 and CX-09-014.
Rec. 8	Evaluate immune parameters associated with Gulf War illnesses, including parameters that may differ among illness and/or exposure subgroups.	Included in topic list for RFA BX-09-014 and CX-09-014.
Rec. 9	Evaluate hypothalamic-pituitary-adrenal axis and other neuroendocrine parameters in association with Gulf War illnesses, including parameters that may differ among illness and/or exposure subgroups.	Included in topic list for RFA BX-09-014 and CX-09-014.
Rec. 10	Determine the extent to which other physiological characteristics that distinguish CFS, FM, and MCS patients from healthy controls are also associated with Gulf War illnesses.	Included in topic list for RFA CX-09-014.
Rec. 11	Determine rates of latent or active leishmania and mycoplasma infection in Veterans with Gulf War illnesses and healthy controls.	Not included in RFAs On page 210 of their 2008 Report the RACGWVI concluded that "… there is little clear evidence implicating infectious diseases as prominent causes of Gulf War illness."
Rec. 12	Utilize proteomic, genomic, and metabolomic methods to identify unique molecular characteristics of Gulf War illnesses.	Included in topic list for RFA BX-09-014 and CX-09-014.

C. Characterize the effects of neurotoxic exposures associated with Gulf War illnesses.

Rec. 13	Use animal models to characterize persistent molecular, cellular, systemic, and behavioral effects of exposure to pyridostigmine bromide, pesticides and insect repellants used in the Gulf War, and low-level sarin.	Included in topic list for RFA BX-09-014.
Rec. 14	Use animal models to characterize persistent effects of Gulf War-related exposures on central proinflammatory processes and their biological mediators in the central nervous system and target organs.	Included in topic list for RFA BX-09-014.
Rec. 15	Identify markers indicative of past exposure to Gulf War-related neurotoxic compounds that can be applied to Gulf War Veterans.	Included in topic list for RFA BX-09-014 and CX-09-014.

D. Determine if Gulf War Veterans have excess rates of neurological diseases and/or abnormalities.

Rec. 16	Epidemiologic studies to identify rates of diagnosed neurological diseases (including multiple sclerosis, Parkinson's disease, ALS, and brain cancers) in Gulf War Veterans and appropriate comparison groups.	Included in topic list for RFA CX-09-014.
Rec. 17	Greater focus of VA's ALS Registry and Gulf War brain tissue bank on projects related to Gulf War Veterans, and expansion of both programs to include Gulf War Veterans with other diagnosed neurological diseases and difficult-to-diagnose neurological conditions.	Not included in RFAs The ALS Registry and Gulf War Biorepository are resources for data and biological sample collection that VA researchers may utilize as part of their studies. Neither of these entities directly conducts research studies.

E. Other Research Areas of Importance.

Rec. 18	Make results from the national longitudinal study of Gulf War Veterans publicly available at the earliest possible time.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.
Rec. 19	Continue current research evaluating cancer rates in Gulf War I era Veterans.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.
Rec. 20	Provide current information on overall and cause-specific mortality rates in Gulf War Veterans.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.

Rec. 21	Conduct additional analyses of available data from existing large population-based studies to more thoroughly evaluate rates of Gulf War illness, cancer, respiratory conditions, and other health outcomes.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.
Rec. 22	Make available comprehensive information on family members of Gulf War Veterans from the National Study of Gulf War I Era Veterans and family members.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.
Rec. 23	Continue to monitor health and disease outcomes among Veterans assessed in the National Survey of Gulf War Era Veterans and Their Families, conducting longitudinal surveys and appropriate clinical follow-up studies at five-year intervals.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.
Rec. 24	Further evaluate indications of possible increased risk of specific types of birth defects, as well as other health problems in children of Gulf War Veterans.	Addressed by the Population-Base Surveillance plan contained in Section 4 of the Gulf War Task Force Report.

F. Studies to further characterize effects of Gulf War exposures.

Rec. 25	Conduct an epidemiologic investigation to evaluate health outcomes in an expanded cohort of Gulf War Veterans who had the greatest exposure to depleted uranium during deployment.	This was not specifically included in RFAs because 1) VA operates the Depleted Uranium (DU) Follow-up Program at the Baltimore VA Medical Center to monitor the health of Veterans who have retained DU fragments in wounds. 2) This program also offers DU screening for any Veteran concerned about possible DU exposure. 3) The 2008 IOM report, “Epidemiologic Studies of Veterans Exposed to Depleted Uranium: Feasibility and Design Issues,” concluded that poor exposure data and other technical limitations generally ruled out the possibility of conducting meaningful studies on Veterans of the 1991 Gulf War.
Rec. 26	Commission a case-control study to determine whether Gulf War illness is associated with elevated levels of squalene antibodies.	This was not specifically included in RFAs because 1) On page 8 of their 2008 Report the RACGWVI concluded that "...the anthrax vaccine is not a likely cause of Gulf War illness for most ill Veterans." 2) The 2000 IOM Report “Gulf War & Health Vol. 1: Depleted Uranium, Pyridostigmine

		Bromide, Sarin, Vaccines," found inadequate and/or insufficient evidence to determine whether an association does or does not exist between anthrax vaccination and any long-term health problems.

F. Studies to further characterize effects of Gulf War exposures.

	Recommendation	VA Response
Rec. 27	Evaluate the association of anthrax vaccine adsorbed (AVA) with chronic symptoms, multisymptom illness, and diagnosed disease by conducting a retrospective cohort study of military personnel known to have received/not received AVA during the Gulf War and/or in the early years of the AVM program.	This was not specifically included in RFAs because 1) On page 8 of their 2008 Report the RACGWVI concluded that "...the anthrax vaccine is not a likely cause of Gulf War illness for most ill Veterans." 2) The 2000 IOM Report "Gulf War & Health Vol. 1: Depleted Uranium, Pyridostigmine Bromide, Sarin, Vaccines," found inadequate and/or insufficient evidence to determine whether an association does or does not exist between anthrax vaccination and any long-term health problems.
Rec. 28	Conduct an epidemiologic investigation to determine if personnel who served with the Army National Guard's 325th Maintenance Company in the Gulf War suffer excess health problems associated with exposure to Chemical agent resistant coating (CARC) paint during deployment.	This was not specifically included in RFAs because on page 210 of their 2008 Report the RACGWVI concluded that "It is therefore unlikely that CARC paint caused or contributed to Gulf War illness for the majority of ill Veterans."

G. Guidelines for Clinical and Epidemiologic Research on Gulf War Veterans.

Rec. 29	Use well-constructed and clearly-described case definitions for Gulf War illness and illness subgroups.	Included in RFA CX-09-013.
Rec. 30	Analyze results in relation to Gulf War Veteran subgroups of interest, including ill versus well Veterans and subgroups defined according to Veterans' locations in theater, exposures, and other military and deployment characteristics.	Included in RFA CX-09-013.
Rec. 31	Evaluate associations between deployment-related exposures and health outcomes in Gulf War Veterans using methods that appropriately control for the effects of confounding introduced by multiple exposures.	Included in RFA CX-09-013.

Rec. 32	Research studies whose principal focus is on psychiatric disorders such as posttraumatic stress disorder or effects of psychological stressors are not directly relevant to Gulf War illness and should not be considered Gulf War illness research.	Included in RFA CX-09-013.

APPENDIX J: Gulf War Steering Committee

Mission Statement

A. OFFICIAL DESIGNATION: Gulf War Steering Committee (GWSC)

B. OBJECTIVES AND SCOPE OF ACTIVITY: GWSC provides advice to the VA Office of Research & Development (ORD) and makes recommendations on the nature and scope of research and development sponsored and/or conducted by the Veterans Health Administration (VHA), to include (1) the focus of research on the high priority health care needs of Gulf War Veterans; (2) the balance of basic, applied, and outcomes research; (3) the projects supported by the VA Gulf War research program; (4) the appropriate mechanisms by which ORD can leverage its resources to enhance the research financial base; (5) the rapid response to changing health care needs, while maintaining the stability of the research infrastructure; and (6) the protection of human subjects of research.

B. OFFICIAL TO WHOM THE COMMITTEE REPORTS: GWSC reports through the National Research Advisory Council (NRAC), the VA Research Advisory Committee on Gulf War Veterans Illnesses (RACGWVI), and the VA Undersecretary for Health.

C. DUTIES OF THE COMMITTEE: GWSC (1) advises on matters related to integration of the VA Gulf War research program into global R&D policies, procedures and activities; and (2) conducts analyses and develops reports or other materials as necessary. In order to avoid duplication of effort, GWSC is encouraged to review deliberations of other committees or entities, and may incorporate or otherwise use the results of deliberations of such entities.

GWSC consists of approximately 9 members, including the Chair, selected from or recommended by NRAC and RACGWVI. Members will be selected from knowledgeable VA and non-VA experts, and Veterans' community representatives with special qualifications and competence to deal effectively with Gulf War research and development issues in VA. In addition, NRAC will have at least one Gulf War Veteran as a member to ensure an appropriate perspective on the health problems of this Veteran population.

Members will serve for overlapping one- or two-year terms of service and may be reappointed for one additional term. The Chair of the Committee will serve for a two-year term of service, which is also renewable one time.

D. ESTIMATED NUMBER AND FREQUENCY OF COUNCIL MEETINGS: GWSC will meet about four times per year, either by teleconference or in person.

Gulf War Steering Committee Roster

Chair

L. Maximilian Buja, M.D.

Dr. L. Maximilian Buja is internationally recognized for his research in cardiovascular pathology. He is author of over 240 research articles, 150 book chapters and two books in his scientific field. Buja served as dean of the UT Medical School at Houston from 1996 to 2003. Dr. Buja holds the Distinguished Chair in Pathology and Laboratory Medicine. In 2000, he was named the H. Wayne Hightower Distinguished Professor in the Medical Sciences.

Members

David C. Christiani, MD, MPH, MS

Dr. Christiani is Professor of Medicine, Director of the Harvard Education and Research Center for Occupational Safety and Health, and a Physician at Massachusetts General Hospital. Dr. Christiani's major research interests are occupational, environmental and molecular epidemiology. He is studying the impact of exposures to various pollutants on health and the interactions between host factors (genetic and acquired susceptibility), and environmental exposures in producing acute and chronic diseases. This research is part of an emerging field known as molecular epidemiology. Dr. Christiani is active in developing new methods for assessing health effects after exposure to pollutants and has an interest in international occupational and environmental health studies.

Tilo Grosser, MD

Dr. Grosser interests are in non-steroidal anti-inflammatory drugs (NSAIDs), which relieve pain, inflammation and fever by inhibiting the formation of bioactive prostanoids. Despite their efficacy in the relief of pain and inflammation, NSAIDs may be associated with gastrointestinal complications, including serious bleeds. Selectivity for COX-2 has been shown to reduce the incidence of these serious events, but is more likely to cause serious cardiovascular events than non-selective COX inhibition. Dr. Grosser is studying the mechanisms of these complications using genomics, proteomics, lipidomics approaches in model organisms and in proof-of-concept studies in healthy volunteers. One aim of this research is to identify approaches to the personalization of NSAID therapy.

Anthony Hardie

Mr. Hardie is the former Executive Assistant of the Wisconsin Department of Veterans Affairs, where he oversaw the agency's external relations, including those with the state legislature, Congress, the media, stakeholders, and the public. He is a Gulf War and Somalia Veteran, and has worked extensively on policy issues related to post-deployment and Gulf War Veterans' illnesses, including service on several national boards and committees. He is a former Congressional staff member, a graduate of the University of Wisconsin, and the recipient of Wisconsin's AMVETS Legislative Advocacy Award and Disabled American Veterans Department Distinguished Service Award, their

highest annual state awards. Mr. Hardie is an appointed member of the VA Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI).

Robert P. Kelch, MD

Dr. Kelch is Special Assistant to the President and the recently retired Executive Vice President for Medical Affairs at the University of Michigan. In this role, he led all three components of the University of Michigan Health System, including the Hospitals and Health Centers, the Medical School and the M-CARE managed care organization.

Dr. Loren D. Koller

Loren D. Koller is an independent consultant and former professor and dean of the College of Veterinary Medicine at Oregon State University. His areas of expertise include pathology, toxicology, immunotoxicology, carcinogenesis, and risk assessment. He is a former member of the NRC Committee on Toxicology and has participated on several of its subcommittees, primarily those involved in risk assessment. Dr. Koller has served on the Institute of Medicine's Committee on the Assessment of Wartime Exposure to Herbicides in Vietnam and has been invited to serve on committees for the CDC, EPA, Homeland Security, the Agency for Toxic Substances and Disease Registry, and the U.S. Army. He is considered one of the founders of the field of immunotoxicology.

James P. O'Callaghan, PhD

Dr. O'Callaghan is Distinguished Consultant and Head of the Molecular Neurotoxicology Laboratory in the Toxicology and Molecular Biology Branch of the Health Effects Laboratory Division of the U.S. Centers for Disease Control and Prevention (CDC). Prior to joining CDC, Dr. O'Callaghan founded the molecular and cellular neurotoxicology program in the Neurotoxicology Division, U.S. Environmental Protection Agency in Research Triangle Park, North Carolina. He directs a research program dedicated to the discovery and implementation of biomarkers of neurotoxicity. Dr. O'Callaghan is an appointed member of the VA Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI).

Richard P. Wenzel, MD, MSc

Dr. Richard P. Wenzel is Chairman, Department of Internal Medicine, Virginia Commonwealth University (VCU) and President, MCV Physicians Virginia Commonwealth University, The Practice Plan of the Health System. He previously was founder and director of the VCU Outcomes Research Institute and the Clinical Trials Institute. Dr. Wenzel holds an appointment as Professor, Department of Internal Medicine, VCU. His research interests include prevention and control of hospital-acquired infections, sepsis, Candida bloodstream infections, and policy development for quality of care of patients. Dr. Wenzel has been the recipient of numerous honors and awards, and he has very actively participated in the training of fellows. He was Lt. Commander in the U.S. Navy Reserve, from 1970-1972. He received an M.D. at Jefferson Medical College (Thomas Jefferson University) and M.Sc. (Epidemiology) London University, London School of Hygiene and Tropical Medicine.

Roberta White, PhD

Dr. White is Professor and Chair of the Department of Environmental Health at Boston University School of Public Health. She is a neuropsychologist with expertise in environmental and occupational epidemiology. Author of numerous scientific publications, her research interests include evaluation of chronic effects of exposure to neurotoxins, the use of imaging in behavioral toxicology, and gene-environment interactions that mediate the development of neurodegeneration following chronic exposures. Dr. White's current research projects include evaluation of cognitive function in military personnel who worked as pesticide applicators in the Gulf War, cognitive and neuroimaging correlates of Gulf War service, effects of prenatal pesticide exposures in South African children, and effects of metal exposures in the Framingham Heart Study cohort. Dr. White is currently the Scientific Director for the VA Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI).

APPENDIX K: Questions for the Record, House Committee on Veterans' Affairs, Subcommittee on Oversight and Investigations, The Implications of U.S. Department of Veterans' Affairs, Limited Scope of Gulf War Illness Research, July 30, 2009

Question 1: Please elaborate on the differences between the RAC Report 2008 and IOMs finding. How does the VA plan to mediate the differences of the two reports and how will this affect our Veterans?

Response: The major difference between the Institute of Medicine's (IOM) findings and the Research Advisory Committee (RAC) report is that the RAC ascribes symptoms of unexplained illnesses to the combined effects of pyridostigmine bromide and pesticides. The IOM, based on a review of peer-reviewed literature regarding undiagnosed /unexplained illnesses, concluded that the relevant scientific literature did not lead to a conclusion of such a specific cause and effect relationship based both on biologic plausibility and epidemiology. In February 2009, the Department of Veterans Affairs (VA) asked the IOM to address the differences in the two reports. While the IOM does not intend to specifically review the RAC report (since they only review primary research and not reviews of research), in early 2010, when the next IOM update is published, we expect that they will comment on the peer-reviewed scientific literature that may be cited in the RAC report, which meets the IOM's criteria for inclusion in its reviews. Furthermore, we have requested, and received from IOM, a proposal to specifically review the literature regarding the possible relationship between the use of pyridostigmine bromide tablets and exposure to pesticides and the development of unexplained and or undiagnosed illness in Gulf War Veterans. We are planning on having this topic be the subject of the IOM's next biennial update on Gulf War Veterans health.

Question 2: Please elaborate on the recommendations that the Task Force made to the Secretary regarding the IOM reports from the Gulf War and the recommendations that the Task Force made regarding the RAC findings for the 2008 Report.

Response: VA follows the statutory process for responding to the IOM reports. The Task Force was established to enable the Secretary to meet the specific statutory requirements for responding to reports of the IOM, and has not made recommendations based on the recent RAC report. In response to the last GW Veterans' illnesses update, VA determined that it would establish presumptions of service connection for nine infectious diseases and their long term sequelae for Veterans suffering from these sequelae.

Question 3: Please explain how the VA plans to alter the perceptions of Gulf War Veterans who believe that the VA provides Gulf War Veterans nothing but procedural excuses when it comes to care, treatment and answers that they feel there has been

little done to treat, acknowledge and explain Veterans' illnesses. How are Gulf War Veterans to believe their sacrifices and service are recognized by the VA, VBA and the caregivers in the VAMCs?

Response: After the July 30, 2009, hearing, VA subject matter experts in research and development, environmental hazards, and benefits met with members of the RAC to better ascertain the initiatives needed to improve services, care, and the perceptions about that care for GW Veterans. VA determined that meeting the basic matrix is already present to provide GW Veterans with excellent care despite the fact that their conditions remain undiagnosed. A Secretary level Work Group was formed in September 2009 to continue to forge the future directions of VA in support of these Veterans. The main focus of these efforts is treatment-oriented research, training of VA clinicians and benefits administrators regarding the conditions that are currently presumptively service-connected, and exposure related disease in general. Veterans Health Administration (VHA) has already initiated an overhaul of the Veterans Health Initiatives that are continuing medical education programs for providers.

The Work Group is focusing on:

- Defining all key areas of review (e.g., research; Veterans' access to services; treatment, claims service, policy, outreach, VA organizational and process relationships, and training of clinical staff);

- Consulting key experts and relevant stakeholders and reviewing relevant reports (e.g., the Institute of Medicine; VA advisory committees, and research experts);

- Capturing the issues, data, as well as program and performance information (e.g., complaints, claims statistics, treatment modalities, funding, and service gaps);

- Looking holistically at issues and opportunities to advocate for the Veteran (e.g., ways to deliver better and faster service and ways to expand programs); and

- Identifying, as a priority, initiatives that enhance identification and treatment of GW Veterans unexplained and undiagnosed illnesses.

Question 4: From your response given to us, please explain how and why ORD chose to organize their budget allocating only 7 million to Gulf War Research (with the exception of the 15 million specifically earmarked to UTSW), 16.9 million to TBI and 22.9 million to PTSD. Does the VA feel that this disparity is just and that there is enough Gulf War Research on-going at this time to provide answers for how these Veterans became sick and on-going studies for treatment?

Response: ORD planned budget allocation in Fiscal Year (FY) 2008 was to spend an additional $7 million on Gulf War Veterans Illnesses (GWVI) above the $15 million earmarked for the contract with The University of Texas Southwestern (UTSW) for its Gulf War Research Project, for a total GWVI allocation of $22 million. The premise

behind UTSW's research is that exposure to insecticide and nerve gas agents is a primary cause of GWVI, and a major focus of that research was brain imaging and blood tests designed to identify Veterans suffering from GWVI. VA supported this approach and was very hopeful that the research would provide a path forward in developing tests to help diagnose GWVI. In particular, the brain imaging studies held promise because they might show differences between afflicted and non-afflicted Veterans, no matter what the true cause or causes of GWVI might be. Accordingly, VA considered the contract studies to be a key component of its GWVI research effort. But, because most scientists studying GWVI do not believe the cause of GWVI has been solved, VA funded an additional $7 million in GWVI to look at additional possible causes as well as diverse research strategies that might provide other paths forward to developing future treatments.

Finding one or more safe and effective treatments for GWVI is critically important to suffering Veterans as well as VA. By investing an additional $7 million research funds in diverse strategies for diagnosis and treatment beyond those investigated by UTSW, VA is hoping to accelerate the research breakthroughs needed to begin the process of translating research findings into clinical support and treatment.

As such, VA never considered the UTSW contract to be a separate effort, but rather a significant component in VA's GWVI research program. The overall GWVI budget was determined with due regard to avoiding potentially wasteful duplication of the work underway as part of the UTSW contract.

VA is committed to funding research that might shed light on the cause(s) of GWVI and promising approaches to diagnosis and (eventually) treatment for Veterans suffering from GWVI. Funding for GWVI must necessarily be balanced against important studies related to other conditions faced by Veterans of the Gulf War, Veterans in other conflicts, and non-conflict related health conditions in Veterans resulting from military service. For example, Veterans who served in Vietnam and who were exposed to Agent Orange suffer from a variety of medical conditions which have been presumptively service connected, including peripheral neuropathy, leukemia, diabetes mellitus, Hodgkin disease, non-Hodgkin lymphoma, prostate cancer and respiratory cancer. Other diseases, such as osteoporosis, have been presumptively service connected for some former prisoners of war. Veterans of all eras suffer from disabling mental health issues including schizophrenia, depression, and post-traumatic stress disorder (PTSD). In addition to the somewhat narrowly defined GWVI portfolio, Gulf War Veterans may have highly prevalent mental health post-deployment disorders such as PTSD that ORD also supports at an appropriate level. At a minimum the funding for mental health research also relevant to Gulf War Veterans includes $22.9 million for PTSD; $5.9 million for mood disorders such as depression, and $12 million for addictive disorders in FY08. Current Veterans have particularly high rates of polytrauma and funding levels reflect allocation of those resources that have been provided by Congress to address this wide spectrum of conditions. These funding levels are determined largely as the result of competitive application from VA clinician-

investigators who treat these conditions, and thus reflect the balance of disease being treated by VA.

Question 5: Please explain how benefits are awarded to those with multisymptom or undiagnosed illness from Gulf War? Please describe at length the number of claims that are requested and awarded vs. requested and denied with Gulf War Veterans. Please report the number of symptoms related to Gulf War Veterans that are granted as service connected as compared to the number of symptoms that are denied for Gulf War Veterans?

Response: Service-connected disability benefits may be awarded on the basis of direct incurrence in service, aggravation of a pre-service disability, or on the basis of presumption, if there is no evidence of the disability during service. 38 U.S.C. § 1117, implemented by 38 CFR 3.317, establishes presumptions of service connection for chronic undiagnosed illness or medically unexplained chronic multisymptom illness, such as chronic fatigue syndrome, fibromyalgia and irritable bowel syndrome, that first manifested during service or to a degree of 10 percent or more during an established period following service in the Southwest Asia Theater of Operations (SWA).

The Veteran need only establish, through competent medical or lay evidence, the presence of chronic disabling symptoms lasting 6 months or more, that exhibit objective indicators or signs, and that can not be attributed to any known clinical diagnosis (except for chronic fatigue syndrome, fibromyalgia and irritable bowel syndrome).

Regarding Gulf War Veterans' claims for chronic undiagnosed illness or medically unexplained chronic multisymptom illness such as chronic fatigue syndrome, fibromyalgia and irritable bowel syndrome, VBA processed 38,359 claims as of September 30, 2009. Of these, 15,181 were granted service connection for at least one undiagnosed condition, and 23,178 were denied service connection for any undiagnosed condition.

Question 6: What is the percentage of denial of claims of Gulf War Veterans as compared to the population at large that applies for benefits through the VA? Are Gulf War Veterans denied at a greater rate than any other war?

Response: VA does not have the historical information necessary to respond to this question. We do have information for recent claims and for Veterans currently receiving VA compensation benefits. The data provided below was obtained from Compensation and Pension records that are currently active and does not include Veterans who received no grant of any service-connected disability or who have subsequently died. The data provided identifies the number of Veterans from each identified wartime period who have at least one service-connected disability or those who have no service-connected disability.

- For 300,000 Veterans of Operation Desert Shield/Storm with claims decisions, 85.7 percent were granted service connection for at least one condition, and 14.3 percent were not granted service connection for any condition.

- For over one million Veterans with in-country Vietnam service with claims decisions, 85.3 percent were granted service connection for at least one condition, and 14.7 percent were not granted service connection for any condition.

- For over 500,000 Global War on Terror (GWOT) Veterans with claims decisions, 83.5 percent have been granted service connection for at least one condition, and 16.5 percent were not granted service connection for any condition. The 500,000 GWOT claims came from Veterans with service after 9/11. The 300,000 claims noted above were from Veterans deployed to Desert Shield/Storm. These counts are for distinct periods of service, and Veterans who served in both may be included in both counts.

Question 7: After listening to the first panel explain the differences in their reports, could you please provide a step by step process by which the VA evaluates the reports once they are received from both the IOM and the RAC, and explain any differences in the mandate for each of these reports.

Response: The Agent Orange Act of 1991, Pub. L. No 102-4 (codified in part at 38 U.S.C. § 1116) and the Persian Gulf War Veterans Act of 1998, Pub. L. No. 105-277, title XVI (codified in part at 38 U.S.C. § 1118), direct the Secretary of Veterans Affairs to contract with the National Academy of Sciences (NAS) to evaluate the available evidence concerning the health effects of exposure to herbicides and exposure to certain hazards suspected to be associated with Gulf War service and to prepare biennial reports to the Secretary summarizing its findings based on such evidence. Pursuant to those statutes, NAS's Institute of Medicine (IOM) prepares such reports and provides them to the Secretary.

The process by which VA evaluates the IOM reports in order to assist the Secretary in making determinations is described below:

RECEIPTS OF REPORT AND IOM COMMITTEE BRIEFING

VA receives a draft copy of the IOM report about one week prior to the date of the report's public release. On the day of public release, a representative of the IOM committee provides VA a briefing on the report. The briefing identifies any significant findings in the report, any changes in the IOM's categorization of specific diseases in comparison to prior reports, and any significant changes, and responds to any questions from VA participants. The briefing is attended by the members of VA's Working Group (described below) and other interested VA personnel.

SUMMARY OF VA'S REVIEW PROCESS

VA has not adopted formal procedures governing its internal review of IOM reports under the two statutes discussed above. However, practice has been it involves a three-tiered review. In the first tier, a "Working Group" of VA employees from different operational elements of VA reviews the IOM report and any other relevant evidence and prepares a summary of its assessment and a statement of recommendations or options. This summary is intended for the benefit of a "Task Force" composed of high-level VA officials. In the second tier, the Task Force, based on the Working Group's input, provides recommendations to the Secretary, usually in the form of a separate written report. In the third tier, the Secretary determines, based on the Task Force's input, whether a presumption of service connection is warranted for any disease.

VA WORKING GROUP

The Working Group ordinarily consists of members of the Office of Public Health and Environmental Hazards (OPHEH) of VHA, the Compensation and Pension Service (C&P Service) of the Veterans Benefits Administration (VBA), and representatives from the Office of the General Counsel (OGC). Additionally, the Working Group often includes other VHA personnel with specialized medical training or experience concerning a health issue implicated by a particular IOM report. Members are assigned to the Working Group by supervisory personnel within VHA, VBA, and OGC.

The Working Group convenes after receiving the briefing from the IOM committee. Prior to the meeting, VHA personnel seek to identify, based on the IOM report and the committee briefing, the diseases that may warrant special consideration because the IOM's findings with respect to those diseases appear to be potentially significant. At the initial Working Group meeting, VHA provides the Working Group members with additional information concerning those diseases, including copies of any significant scientific studies identified in the IOM report and other information concerning matters such as the course of the disease, known causes or risk factors, related conditions or health effects, latency periods (if any), and any other known relevant information.

OGC representative briefs the Working Group on the legal standard governing the Secretary's decision. Members of the Working Group discuss whether any of the IOM's findings appear to be potentially significant, in that they might warrant a presumption of service connection for a particular disease or diseases, and the strength of the scientific evidence with respect to such diseases. The Working Group will attempt to reach consensus as to whether the scientific evidence appears to warrant a presumption of service connection for any diseases under the applicable legal standard. If the Working Group reaches agreement that a presumption is or is not warranted on the basis of the scientific evidence and the legal standard, it will agree to put forth a recommendation based on that conclusion. In arriving at such recommendations, the Working Group relies on scientific evidence and the legal standard, and does not consider matters of governmental policy or cost.

If the Working Group concludes that the scientific evidence and legal standard do not provide a clear basis for recommending for or against establishing a presumption, but permit a range of options, the Working Group agrees to set forth a range of options for decision by VA policy-making officials. In those circumstances, the Working Group will discuss the factors that preclude a clear recommendation, which may include ambiguity in the governing statutory standard as applied to certain IOM findings, the limited or conditional nature of the IOM's findings with respect to certain diseases, or other factors. The Working Group will discuss the decisional options available to the Secretary and may also discuss the factors that may be relevant to the Secretary's decision among those options. To this extent, the Working Group may discuss the policy considerations that would be relevant to the Secretary's choice among permissible courses of action.

Once the Working Group has reached agreement concerning its recommendations or presentation of options, a written report is completed. The Report will contain (1) a summary of the issues to be decided under applicable law and the IOM report, (2) a summary of the findings contained in the IOM report, (3) a summary of the legal standard governing VA's decision, (4) a summary of the Working Group's analysis of the medical evidence in relation to the legal standard, particularly with respect to any potentially significant findings in the IOM report, and (5) a statement of the Working Group's recommendations or of the options identified by the Working Group. The Working Group does not prepare or obtain a cost estimate for the options, although it may provide general information concerning, e.g., the prevalence rates of certain diseases under consideration. If the Working Group report lists a range of options available to the Secretary, it would identify the scientific and legal considerations relevant to the Secretary's choice among those options, and may also identify policy implications associated with various options.

VA TASK FORCE

The Task Force consists of the Under Secretary for Health, the Under Secretary for Benefits, the General Counsel, and the Assistant Secretary for Policy and Planning. There is no established procedure for the Task Force's deliberations. Task Force members receive a copy of the Working Group report and, based on that report, provide advice to the Secretary concerning the Secretary's determination, which may include recommendations based upon the options, if any, outlined by the Working Group. The Task Force often, though not always, provides a separate report to the Secretary.

SECRETARY

Based on the Task Force's report, the Secretary determines whether or not to establish presumptions for any diseases discussed in the IOM report and directs appropriate action to implement the decision.

VA Charter: Research Advisory Committee:

At the direction of Congress, VA in 2002 chartered the VA Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI) to advise the Secretary on the overall effectiveness of federally-funded research to answer central questions on the nature, causes, and treatments of Gulf War-associated illnesses. The RACGWVI's charter stipulates they are to provide information and recommendations to VA. Despite this limited charge, the RACGWVI published and released an independent report, including recommendations, in 2004 and again in 2008.

Question 8: Is the material provided to you by both the RAC and the IOM sufficient to meet the research needs of the Gulf War Veterans being treated at the VA? What has VA done beyond evaluating the RAC and the IOM reports to further research on Gulf War Veterans?

Response: Although the RAC and the IOM provide valuable advice in developing the VA research program, development and execution of meaningful research projects relies upon the skill and clinical experience of VA investigators who individually and collectively help develop specifics of the research agenda. Seventy percent of VA researchers are also clinicians who treat Veterans. This allows clinicians to develop research projects in response to the symptoms their patient's exhibit including Gulf War Illnesses.

Additionally, in an effort to generate more Gulf War illness related research proposals, VA's Office of Research and Development (ORD) has issued the following Requests for Applications (RFA):

Oct 2002 – Deployment Health Research RFA issued (ongoing for all Merit Review cycles)

… research focused on potential long-term health effects of exposures and risk factors among Veterans of hazardous deployments, such as the Gulf War, Project SHAD, Bosnia/Kosovo, or Afghanistan. … ORD recognizes five major research categories related to deployment health as priorities:

- Long-term health impacts of hazardous deployments
- Health impacts of specific military occupational and environmental exposures
- Improvements in evaluation and diagnosis of deployment-related illnesses
- Improvements in treatment of deployment-related illnesses
- Health risk communication for Veterans and health care providers.

Apr 2004 – 1st Gulf War Research RFA (14 of 54 proposals funded)

… for studies directly relevant to Veterans who were deployed during the 1990's to the Persian Gulf. … research studies that focus on potential long term health effects of exposures and risk factors among Veterans of the Gulf War in several areas of interest. … We are particularly interested in studies in the following areas:

- Immunological changes (activation, suppression, interactions) that may be associated with the unexplained illnesses reported by Gulf War Veterans
- Autonomic system changes that may be associated with symptoms reported by Gulf War Veterans
- The prevalence of neurological disorders in Gulf War Veterans
- Proposals that address other important objectives regarding causes, mechanisms, and treatments for Gulf War Veterans' illnesses.

March 2005 – 2nd Gulf War Research RFA (12 of 44 proposals funded)

… ORD will fund relevant and scientifically meritorious … research studies that focus on potential long- term health effects of exposures and risk factors among Veterans of the Gulf War in several areas of interest. … proposals related exclusively to PTSD or stress-related conditions will not be funded under this program announcement. … Research priorities include:

- Long-term health effects of hazardous deployments
- Health effects of specific military occupational and environmental exposures
- Improvements in evaluation and diagnosis of Gulf War Veterans' illnesses
- Improvements in treatment of Gulf War Veterans' illnesses.

May 19, 2009 – Gulf War Treatment RFA (5 proposals were reviewed in September 2009)

… solicits submissions of applications for studies that:

- Propose a controlled clinical trial or epidemiological investigation of the effectiveness of treatments for chronic multisymptom illnesses in Veterans of the 1990-1991 Gulf War compared with subjects meeting case definition for fibromyalgia (FM) and/or chronic fatigue syndrome (CFS).
- Identify biomarkers (i.e., genetic, neuroendocrine, immunological, biochemical, physiological, etc.) that either predict or explain differences in response to new treatments. Biomarker studies proposed without an accompanying treatment trial will not be considered for funding.
- Trials to identify new symptom-specific treatments (i.e. memory, attention, sleep, pain, etc) in ill Gulf War Veterans may be proposed.

Pharmacologic agents must have a plausible biological basis for anticipated efficacy. Treatments that have been tested in other chronic multisymptom illnesses (i.e., FM or CFS) may be proposed, even if they have been shown to be moderately effective or ineffective in treating those conditions.

Applications not employing appropriate populations of Gulf War Veterans will not be considered for funding.

VA has a proactive history of initiatives to further research on Gulf War Veterans beginning with the 1994 launch of the first VA study on the Health of Gulf War Veterans. Since then, VA has continuously supported an extensive Gulf War research portfolio dedicated to understanding chronic multisymptom illnesses, long-term health effects of

potentially hazardous substances to which Gulf War Veterans may have been exposed during deployment, and conditions or symptoms that may be occurring with higher prevalence in Gulf War Veterans, such as Amyotrophic Lateral Sclerosis (ALS), multiple sclerosis, and brain cancer.

VA is committed to funding new clinical trials to identify new therapies for ill Gulf War Veterans as well as using emerging technologies to move in new directions. VA recently announced funding available for VA researchers interested in conducting clinical trials to test treatments used for other chronic multisymptom illnesses such as chronic fatigue syndrome and fibromyalgia. The five applications were received and reviewed in September 2009. The results of these and other clinical investigations, together with new discoveries using the newest and most advanced technology, are expected to lead to improved treatments and a better quality of life for Gulf War Veterans.

VA has provided funding to UTSW Medical Center, through a contract from the Dallas VA Medical Center, for research that focuses on a new national survey of Gulf War Veterans; a proposed genome-wide association study of participants in the national survey to identify genetic markers of illness and potential susceptibility to illness; and identification of alterations in brain imaging that correspond to specific neuropsychological measurements (i.e. memory, attention, executive function, etc). Due to unsatisfactory contract performance, the option to extend the contract one year was not exercised. The funding will be redirected to other VA-funded Gulf War research projects, moving in similar directions, and utilizing research capacities in place. Specifically, VA will undertake the following efforts:

- Genome Wide Association Study (GWAS) of GWVI, Chronic Fatigue and Fibromyalgia;
- Request For Applications (RFA) for new treatments for ill Gulf War Veterans;
- RFA for Gulf War Research including, but not limited to:
    - Diagnostic Tests to identify ill Gulf War Veterans
    - Diagnostic tests to identify subpopulations of ill Gulf War Veterans
        - Neuroimaging paired with neurocognitive/neuropsychological testing
        - Structural and/or functional neuroimaging
        - Proteomics
        - Gene expression/polymorphisms
    - Genetic susceptibility
        - Gene expression and/or polymorphisms
    - Other illnesses potentially affecting Gulf War Veterans (studied in a Gulf War Veteran population)
        - ALS
        - Multiple Sclerosis
    - Animal Studies

- New treatment targets
- Pathophysiological mechanisms
- Mechanisms that underlie persistence of symptoms

These studies should lead to improved understanding of these diseases and development of new treatments by identifying disease susceptibilities, underlying damage pathways, and potential treatment targets.

VA research program for Gulf War illnesses is robust and we are confident that through this and other Federal research initiatives, such as the Congressionally Directed Medical Research Program (CDMRP) for Gulf War research, we will discover ways to provide enhanced health care for these ill Veterans.

Question 9: What areas of Gulf War Illnesses is VA funding research? When do you expect to see the results of these studies?

Response: Attached is a Gulf War research project list for FY07, FY08 and FY09. Data analysis, for any research project, usually takes at least 12 and often 15 -18 months before any results – peer-reviewed scientific literature – are published.
The average length of a research study is 4 years. It typically takes several years after funds have been provided before sufficient data can be accumulated, analyzed, and written as a manuscript. Once a manuscript has been submitted, it usually takes a minimum of 6-12 months for the manuscript to be peer reviewed and published by a scientific journal. Results are not considered final until results are peer reviewed and published. Clinical trials can even take longer before the results appear in a publication because results come only after the trial has been completed. This can take many years from beginning to the end. Additional results/publications may occur after a project is presented to scientific groups, professional associations, etc. or from further data analysis.

Public Law 102-585, as amended by Public Law 105-368, requires the VA to submit an annual Report on the status of Federally sponsored research on Gulf War Veterans' illnesses. Known as "The Annual Report to Congress on Federally Sponsored Research on Gulf War Veterans' Illnesses" -- this report provides Congress with an overview of Federal research activities for a given calendar year and highlights important research findings and milestones. Their have been 15 reports submitted to Congress. The reports can be found at the following weblink:
http://www.research.va.gov/resources/pubs/pubs_individual.cfm?Category=Gulf%20War%20Reports

The annual report covers the research activities of the Departments of Veterans Affairs, Defense (DoD), and Health and Human Services (HHS). Although each annual report contains the same sections as previous reports, key differences exist in the information reported. These reports discuss the results of Gulf War research that were published in a calendar year. Published research results and federally funded programs are categorized into 5 primary Focus Areas: Brain and Nervous System Function; Environmental Toxicology; Immune Function; Reproductive Health; and Symptoms and

General Health. In addition, the appendices are revised each year to reflect changes in funding amounts, new research findings, the addition of new programs, and the completion of previously funded studies.

Question 10: How much weight does VA place on IOM and RAC reports when determining presumptions for service-connected disabilities for the purposes of benefits and health care? Does VA ever make determinations of service-connection for disabilities without the use of IOM and RAC reports? Please explain.

Answer: Under the provisions of Public Law 105-277, The Persian Gulf War Veterans Act and Public Law 105-368, the Veterans Programs Enhancement Act, VA entered into a contract with the National Academy of Sciences (NAS) to review and evaluate the scientific and medical literature regarding associations between illnesses and environmental exposures associated with Gulf War service. VA considers reports from the NAS in determining whether any medical condition warrants a presumption of service connection based on Gulf War service. Recently, VA announced it was establishing presumptions of service connection for certain conditions based on the most recent IOM Study.

The Research Advisory Committee on Gulf War Veterans' Illness, (RAC-GWVI) was established by the Secretary of Veterans Affairs in March 2002 to provide advice and make recommendations to the Secretary of Veterans Affairs on proposed research plans and strategies related to understanding and treating the health consequences of military service in the Southwest Asia theater of operations during the 1990-1991 Gulf War (Operations Desert Shield and Desert Storm).

The Secretary considers all advice and recommendations of both the NAS and the RAC-GWVI when determining whether a presumption of service connection should be established for a particular condition. As described above, VA has an informal process of tiered review and recommendations with respect to IOM reports, to enable the Secretary to meet the statutory requirements applicable to such reports. The Secretary of Veterans Affairs has statutory authority to make determinations of presumptive service connection for disabilities without relying on IOM and RAC reports**.**

Question 11: How recently was the Veterans Health Initiative (VHI) Independent Study Guide for treating 1991 Gulf War Veterans updated? Do you have a copy of that study guide which you can provide to the Committee?

Response: VHA has just started a major revision of this document. The last update was completed in 2002. A copy of that VHI is attached. Our new initiative is to make the information in this program more relevant to busy providers and to modularize the content so that it is more accessible. The Office of Public Health and Environmental Hazards and the Employee Education System are working together on this project. We have an American Association for the Advancement of Science (AAAS) fellow with advanced degrees in post-secondary education and computer technology to spearhead this initiative**.**

APPENDIX L: VA Disability Compensation Program Benefits For Gulf War Veterans

VA Disability Compensation Program Benefits for Gulf War Veterans		
Diseases/Principles and Benefits	***Current Authority***	***Notes***
Special Provisions for Gulf War Veterans		
Disabilities due to Undiagnosed Illnesses	38 C.F.R. § 3.317	Statutory authority: 38 U.S.C. § 1117
Diagnosed Illnesses without conclusive etiology (referred to as medically unexplained chronic multisymptom illnesses)	§ 3.317	This provision is limited to the following 3 conditions: Chronic Fatigue Syndrome, Irritable Bowel Syndrome, and Fibromyalgia.
Pending Changes to § 3.317 to Enhance Benefits for Gulf War Veterans		
Chronic Unexplained Multisymptom illnesses without conclusive etiology	§ 3.317	Forthcoming proposed rule.
Presumptive Service Connection	§ 3.317	§ 3.317 will be amended to expand list of presumptive conditions for certain infectious diseases (proposed rule not yet published).
Presumptive Service Connection		
Chronic Diseases under general 1-year presumption	38 CFR 3.307 (a) (3) and 3.309 (a)	Applies to all who served in the military
Hansen's disease and tuberculosis within 3-year presumption	§ 3.307 (a) (3)	Applies to all who served in the military.
Multiple Sclerosis within 7-year presumption	§ 3.307 (a) (3)	Applies to all who served in the military.
Diseases specific to former POWs	§ 3.307 (a) (5) and 3.309 (c)	Applies to all former POWs.
Amyotrophic Lateral Sclerosis (ALS)	38 CFR 3.318	New presumptive effective 9/23/08 that applies to all who served in the military.

Diseases/Principles and Benefits	Current Authority	Notes
Direct Service Connection		
Chronic disability incurred in service	§3.303 and 3.304	Applies to injuries or diseases that were incurred coincident with military service.
PTSD	§3.304	Regulation is being amended to liberalize evidentiary standards for establishing an in-service stressor.
Aggravation of Preservice disability		
Aggravation of Preservice disability	38 CFR 3.306	Applies to preexisting injury or disease that was aggravated by military service.
Special Monthly Compensation		
Special Monthly Compensation	§3.350	In addition to basic rates of disability compensation, this benefit is payable for loss or loss of use of limbs, aid and attendance and housebound benefits, and combination of certain disabilities.
Special Benefits		
Clothing Allowance	§3.810	Annual allowance paid to disabled Veterans who use prosthetics or orthopedic appliances.
Adaptive Housing	§3.809	Veterans with certain service-connected disabilities (e.g., loss of both legs) can receive payments toward an adapted home to meet disability-related requirements.
Adapting an Automobile	§3.808	Veterans with certain service-connected disabilities (e.g., loss of both hands) can receive payments toward automobile or adaptive equipment.
Other Benefits		
Individual Unemployability	§4.16	Benefits paid at the 100% disability evaluation level to Veterans who do not meet the scheduler 100% evaluation and are unable to work due to service-connected disability.

[1] All total numbers represent the number of service-connected disabilities by body system rather than the total numbers of Veterans with such disabilities.

APPENDIX M: List of Acronyms

AFIP - Armed Forces Institute of Pathology
ALS - Amyotrophic Lateral Sclerosis
AVA - Anthrax Vaccine Adsorbed
CARC - Chemical Agent Resistant Coating
CDC - Centers for Disease Control and Prevention
C.F.R. - Code of Federal Regulations
CFS - Chronic Fatigue Syndrome
C&P - Compensation and Pension
DEET - N,N-Diethyl-meta-toluamide
DHWG - Deployment Health Working Group
DoD - Department of Defense
DU - Depleted Uranium
EES - Employee Education System
ENT - Ears, Nose and Throat
FM - Fibromyalgia
FY - Fiscal Year
GW - Gulf War
GWAS - Genome Wide Association Study
GWVI - Gulf War Veterans Illnesses
GWVI-TF - Gulf War Veterans Illnesses Task Force
HHS - Health and Human Services
IGA - Intergovernmental Affairs
IOM - Institute of Medicine
LOI - Letter of Intent
MCS - Millennium Cohort Study
MOU - Memorandum of Understanding
MS - Multiple Sclerosis
MSO - Military Service Organization(s)
MWD - Military Working Dogs
NAF - Naval Air Facility
NGO - Non-governmental Organization(s)
NHANES - National Health and Nutrition Examination Survey
NHIS - National Health Interview Survey
NIS - National Immunization Survey
OCLA - Office of Congressional and Legislative Affairs
OEF - Operation Enduring Freedom
OGA - Other Government Organization(s)
OIF - Operation Iraqi Freedom
OPHEH - Office of Public Health and Environmental Hazards
OPIA - Office for Public and Intergovernmental Affairs
ORD - VHA Office of Research and Development
OSVA - Office of the Secretary Department of Veterans Affairs
PB - Pyridostigmine
PGVC - Persian Gulf Veterans Coordinating Board

PTSD -	Post Traumatic Stress Disorder
RAC -	Research Advisory Committee
RACGWVI -	Research Advisory Committee on Gulf War Veterans Illnesses
RFA -	Requests for Application
SHAD -	Shipboard Hazard and Defense
SMA -	Subject Matter Expert
TBD -	To be determined
TMDS-VTA	Theater Medical Data Store-Veterans Tracking Application
VSO -	Veterans Service Organization
U.S.C. -	United States Code
UT -	University of Texas
UTSW -	University of Texas Southwestern
VA -	Department of Veterans Affairs
VAMC -	VA Medical Center
VBA -	Veterans Benefits Administration
VHA -	Veterans Health Administration
VHI -	Veterans Health Initiative
VISN -	Veterans Integrated Service Network
VRC -	Vocational Rehabilitation Counselor(s)
VSSC -	VHA Support Service Center
WRIISC -	War-Related Injury and Illness Study Centers

[i] 1) Young HA, Maillard JD, Levine PH, Simmens SJ, Mahan CM, Kang HK. Investigating the Risk of Cancer in 1990-1991 US Gulf War Veterans With the Use of State Cancer Registry Data. Ann Epidemiol. 2010, Jan 27 [Epub ahead of print].

2) Barth SK, Kang HK, Bullman TA, Wallin MT. Neurological mortality among U.S. Veterans of the Persian Gulf War: 13-year follow-up. Am J Ind Med. 52:663-70, 2009.