2012-13 Report of

the Department of Veterans Affairs

Gulf War Veterans' Illnesses Task Force

to

the Secretary of Veterans Affairs

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Executive Summary

The Gulf War Veterans' Illnesses Task Force (GWVI-TF) was formed to ensure that the Department of Veterans Affairs (VA) maintains a focus on the unique health issues faced by Veterans of the 1990-1991 Gulf War (Operations Desert Shield and Desert Strom). The Persian Gulf War is legally defined in title 38 United States Code (U.S.C.) § 101(33) as beginning on August 2, 1990, and ending on the date thereafter prescribed by Presidential proclamation or by law. Although the term "Gulf War Veterans" could refer to all Veterans of conflicts during this period, including Veterans of Operation Iraqi Freedom, and subsequent conflicts, 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, hereafter referred to as Gulf War Veterans.

In August 2009, the Secretary of VA directed a comprehensive review of VA's programs to support this population of Veterans with the goal of developing an overarching action plan to advance their services, and ultimately improving their satisfaction with the quality of services and support that VA provides. This is GWVI-TF's third annual report and is intended to document VA's roadmap for achieving these goals and the concrete actions that VA has taken to improve care and services to Gulf War Veterans. The work of GWVI-TF continues to be based on a premise that the efforts are part of the core VA mission "to care for him who shall have borne the battle and for his widow, and his orphan." Beginning with the 2011 report, GWVI-TF adopted seven lines of effort that served as an action plan for the last year and provide the framework for this report. The seven lines of effort are:

Clinical Care: Leveraging Veteran-Centric Specialty Services in Primary Care;
Clinical Education and Training: Putting Clinical Knowledge into Practice;
Veteran Benefits: Delivering Compensation and Pension and Fiduciary Services;
Veteran Outreach: Improving Communications to Gulf War Veterans;
Partnerships: Improved Data Sharing with the Department of Defense (DoD); Ongoing Scientific Review and Surveillance: Taking Advantage of Untapped Sources of Data Related to Veterans' Health; and Research and Development: Encouraging Targeted Efforts.

<u>Clinical Care: Leveraging Veteran-Centric Specialty Services in Primary Care</u>

Clinical health care for Gulf War Veterans is one of the most critical services VA can provide. This line of action is directly supported by clinical education and training to ensure VA providers are well prepared to care for this population. Clinical care also benefits from research and development and ongoing scientific review and surveillance which inform and direct the best in evidence-based health care. Through full implementation of Patient Aligned Care Teams (PACT), easier access to specialty care services, and a pilot program at the Salt Lake City VA Medical Center (VAMC), VA is moving toward a Veteran-centered model that will optimally integrate resources for the care of Gulf War Veterans.

Clinical Education and Training: Putting Clinical Knowledge into Practice

As discussed above, effective education of providers has the potential to significantly improve the care VA delivers to Gulf War Veterans. Over the past year the GWVI-TF clinical education and training effort focused on improving VA's ability to put critical clinical knowledge and expertise at the point of care. For example, the Veterans Health Administration's (VHA) Office of Public Health (OPH) created an "Environmental Exposures Pocket Card" to encourage health care providers to engage with Veterans' about their health concerns related to environmental exposures. It prompts care providers to "ask" Veterans about their concerns, "become informed" so they can discuss the issues with the Veterans and create individualized "care plans" to ensure the appropriate level of attention is paid to these issues. In addition, experts from across VA participated in the creation of a SharePoint site that provides post-deployment care training resources for PACTs.

Veteran Benefits: Delivering Compensation and Pension and Fiduciary Services

As research and environmental study evolves or new legislative and regulatory provisions are written regarding illnesses for Gulf War Veterans, the VA Compensation Service of the Veterans Benefits Administration (VBA) performs necessary rule-making and develops field training to support the changes.

Veteran Outreach: Improving Communications to Gulf War Veterans

VA is dedicated to improving the lives of Veterans of all eras and their eligible family members and survivors by providing them with the benefits and services they have earned. Research shows that many Veterans are not aware of the range of services and benefits available to them. Gulf War Veterans continue to require and rightfully expect timely and accurate information about VA's efforts to support them. In addition to traditional methods of outreach such as newsletters, VA has actively incorporated new methods of outreach such as Web sites, social media, and mobile apps.

Partnerships: Improved Data Sharing with DoD

DoD and VA provide health care and benefits to the same population at different times in their lives. Environmental exposures occur during active duty whereas the potential clinical consequences can manifest later when the former Servicemember is a Veteran. For this reason it is critical that VA and DoD coordinate research and share clinical and exposure data.

Ongoing Scientific Review and Population-Based Surveillance: Taking Advantage of Untapped Sources of Data Related to Veterans' Health

Ongoing medical surveillance and scientific studies are critical to understanding the long-term health effects of deployment-related environmental exposures. VA supports some Gulf War Illnesses related research, but many relevant studies are conducted by

non-VA researchers. To properly understand the complex health issues affecting Gulf War Veterans, VA must identify, access and utilize the full range of studies that examine the adverse health effects associated with the Gulf War deployment.

Research and Development: Encouraging Targeted Efforts

Through the Office of Research and Development (ORD), VA funds research that furthers the goal of improving the health and lives of Veterans who suffer the complex chronic symptoms associated with GWVI.

A draft of this report was made available for public comment. VA solicited comments through the Federal Register and using a Web-based tool for collecting comments and feedback. Feedback that was responsive to report content and format has been addressed in this final version.

The focus of the GWVI-TF is to integrate new knowledge into services that will directly benefit Gulf War Veterans. Taken together, the activities in the seven lines of effort summarized above and described in greater detail below demonstrate the work done by VA to support these Veterans and provide a road map to institutionalizing these efforts moving forward.

Introduction

Over 20 years have passed since the start of the deployment and combat operations of the Persian Gulf War. Since then, many Veterans of that conflict have endured adverse health consequences from the war. The Persian 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. Although the term "Gulf War Veterans" could refer to all Veterans of conflicts during this still open time period, including Veterans of Operation Iraqi Freedom, and subsequent conflicts, the GWVI-TF target population is Veterans who were deployed in the Operation Desert Shield and/or Operation Desert Storm components of the 1990-1991 Gulf War, hereafter referred to as Gulf War Veterans.

Based on data through fiscal year (FY) 2012, while 12 percent of all pre-9/11 Veterans had at least one service-connected disability and received health care from VA, 17 percent of Veterans who deployed to the Persian Gulf have at least one service-connected disability and received health care from VA. More specifically, 20 percent of living Desert Shield Veterans and 20 percent of living Desert Storm Veterans have at least one service-connected disability and received health care from VA. Similarly, while 24 percent of all living pre-9/11 Veterans are service-connected for at least one disability, 39 percent of living Desert Shield and 38 percent of Desert Storm Veterans are service-connected for at least one disability. These numbers for Desert Shield and Desert Storm Veterans have increased from 29 percent in FY 2009. It is important to note that the Desert Shield and Desert Storm Veteran cohorts are part of the larger pre-9/11 Veteran cohort and many Veterans served in both Desert Shield and Desert Storm.

Many Veterans continue to express concerns that the VA is failing to meet their needs. Unexplained medical symptoms and illnesses reported by deployed Gulf War Veterans have not been connected definitively to any specific medical condition or conditions. Some Veterans and representatives from the Research Advisory Committee have also criticized VA's emphasis in its research and clinician training materials and in public statements regarding the causes and treatment of Gulf War illnesses.

The GWVI-TF was established, in part, to address these concerns. The mission of the GWVI-TF is three-fold:

- To identify gaps in services as well as opportunities to better serve Gulf War Veterans;

- 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 (OEF)/Operation Iraqi Freedom (OIF)/Operation New Dawn (OND) Veterans.

Overarching Concept

The GWVI-TF published its first annual report in September 2010. The report was organized around overarching themes, which were identified though Veteran and other stakeholder feedback. GWVI-TF further refined those themes in 2011, ultimately establishing seven lines of effort:

- Clinical Care: Leveraging Veteran-Centric Specialty Services in Primary Care;
- Clinical Education and Training: Putting Clinical Knowledge Into Practice;
- Veteran Benefits: Delivering Compensation and Pension and Fiduciary Services;
- Veteran Outreach: Improving Communications to Gulf War Veterans;
- Partnerships: Improved Data Sharing with DoD;
- Ongoing Scientific Review and Population-Based Surveillance: Taking Advantage of Untapped Sources of Data Related to Veterans' Health; and
- Research and Development: Encouraging Targeted Efforts.

This year, emphasis was placed on implementing concrete actions and measurable performance objectives within the scope of GWVI-TF. The results-oriented recommendations made in last year's report were further developed and implemented to advance VA's ability to address the needs of the Gulf War Veteran through proactive and meaningful action. Most importantly, GWVI-TF members were asked to ensure that efforts to serve Gulf War Veterans were integrated into institutional practice and lasting VA culture by establishing measurable objectives, a clearly identified intent for each recommended activity, and a leadership reporting process to maintain accountability for completion.

GWVI-TF has also provided a mechanism to assess broader practices towards all Veterans based on lessons learned from our efforts to support Gulf War Veterans. VHA's Office of Disability and Medical Assessment, in a collaborative partnership between VHA and VBA, has been a leader in advocating for a meaningful separation health assessment for all Servicemembers, intended to reduce or eliminate many of the challenges that Gulf War and other Veterans face when trying to establish evidence to support service connection of a medical disability.

This report reflects the work completed since the last report was issued in March 2012. VA has and will continue to make strides to ensure services for this cohort of Veterans are integrated into VA's ongoing strategic and operational efforts.

As with previous reports, this report was made available for public comment. The draft report was posted in the Federal Register on May 14, 2013. VA received 41 comments

through the Federal Register announcement, two of which were specific to the content or format of the report. The balance of the comments received contained recommendations for activities that the Department should consider (areas to study, training efforts to consider, and changes regarding the claim approval process) or individual concerns regarding service from VA. In addition to the Federal Register feedback, VA solicited comments and feedback through a Web-based customer comment tool.[1] The combined feedback from these two venues was evaluated by GWVI-TF members and is summarized in Appendix A. The feedback has informed several activities described in the report (e.g., provider education, approaches to delivery of clinical care, and current efforts to reengineer outreach to Gulf War Veterans).

Clinical Care: Leveraging Veteran-Centric Specialty Services in Primary Care

Background:

In the previous report, we discussed multiple areas of clinical expertise that needed to be shared with the primary care field. Gulf War Veterans may have been exposed to toxicants that are not often encountered by providers in primary care practice within VA and in community settings. Also, Gulf War Veterans experience a collection of symptoms which do not have a clinically defined cause yet clearly result in significant medical problems and illness. Many also experience conditions such as irritable bowel syndrome and fibromyalgia, which are not fully understood by the medical community. Given the varying symptoms of Gulf War Veterans and problems of unclear clinical causes, VHA has recognized that it must improve efforts to help providers recognize the physical symptoms of Gulf War Veterans.

The Post-Deployment Integrated Care Initiative (PDICI) continues to develop advanced clinical programs and interdisciplinary care approaches that maximize access and optimize care for Veterans with deployment-related health concerns. These programs have provided care and leadership on addressing the deployment-related medical needs of any Veteran with deployment related health concerns.

VA has a well-defined program integrating mental health care in the primary care setting (The Primary Care-Mental Health Integration program). This also enhances all providers' abilities to properly address the full spectrum of health care concerns of Gulf War Veterans.

[1] The Web site is located at: http://vagulfwartaskforce.uservoice.com/forums/199352-2012-report-of-the-gulf-war-veterans-illnesses-ta

Current Efforts:

Facilities across VHA are currently working on innovative programs to enhance the care being provided to Veterans. Some of these programs are described below. The implementation of PACT supports VHA's redesign of how care is delivered, and increases access, coordination, communication, and continuity. PACT also empowers patients to take an active role in their health care, resulting in improved patient satisfaction. In addition, PACT provides a unique opportunity to combine primary care and specialty care services. This initiative is particularly important in providing care for our Gulf War Veterans. Many have multiple symptoms which occur together, yet do not have a clinically defined cause. Under PACT, each Veteran has: (1) the opportunity to more consistently receive care from their assigned primary care provider, (2) increased opportunities to communicate with their PACT by phone or secure messaging (a protected e-mail system) thus allowing more opportunities to have questions about unexplained symptoms addressed, (3) improved opportunities for same day appointments, and (4) easier collaboration between their primary care team and specialists. To improve access and services for women Veterans, VHA has implemented comprehensive primary care by designated women's health providers who are able to provide general primary care as well as gender specific care in designated women's health PACTs. In an additional pilot program, VHA is determining the benefits of combining Gulf War specific specialty medical treatment models with primary care to produce a seamless, patient-centric model that will improve patient and provider education, safety, and satisfaction in Gulf War Veterans.

The implementation of PACT is also being linked to innovative efforts to integrate primary care and specialty care including the use of modalities such as Specialty Care Access Network-Extension for Community Healthcare Outcomes (SCAN-ECHO) and electronic consultations (eConsult) that make it possible for PACT providers to obtain facilitated consultation from specialty care providers.

VHA continues to implement PACT across VHA. Measures of progress with respect to the targeted goals noted above (consistency, access for appointments, ease of communication with PACT) have all demonstrated improvement. Additionally, the network of specialty care providers available to provide consultation to primary care teams has expanded through the use of eConsults and the expansion of providers' access to specialists via SCAN-ECHO. Three VA War Related Injury and Illness Study Centers (WRIISC), located in Washington, DC; East Orange, New Jersey; and Palo Alto, California, are currently supporting primary care and implementing cutting edge research and treatment programs including those tailored to Gulf War Veterans. The WRIISCs provide teams of multidisciplinary clinicians uniquely qualified to evaluate Veterans with deployment-related health concerns and provide a clinical "second opinion" resource to Veterans and their providers via a referral process based on geographic location. The availability of this program has been communicated to providers and consultation processes are being streamlined. Furthermore, PDICI centers have been involved in disseminating best practices in the care of Gulf War Veterans.

In addition, GWVI-TF's clinical operations group is regularly meeting with the public health group, the research group, and the benefits group to collaboratively "brainstorm" innovative solutions to issues described by Gulf War Veterans. Current patient scenarios are being reviewed to identify opportunities for improvement and potential solutions.

VHA's Health Care Analysis and Information Group (HAIG) assisted OPH in the development, implementation and analysis of a first ever program survey of the Environmental Health Registry programs, including the Gulf War Registry. Registry exams provide Gulf War Veterans an exposure assessment, physical exam, and information that assists Veterans in obtaining further treatment and other services. The 2011-2012 HAIG Survey of the Environmental Registry Examination programs identified numerous strengths and weaknesses. Over 30 percent of Veterans Integrated Service Networks (VISN) reported that registry exams were available in their Community-Based Outpatient Clinics (CBOC). However, some programs are not able to meet their current registry examination responsibilities due to staffing shortages. Having identified this issue, we can now take steps to ensure that facilities can conduct registry exams.

Plan:

PACT: GWVI-TF supports the continuing implementation of PACT. Continuity or providers, access to appointments, and communication are key aspects of PACT and are especially important for Gulf War Veterans with multiple complex symptoms and conditions.

Specialty Care: Easy access to specialty care providers to provide more complete care to Gulf War Veterans. Interactions with specialty care providers are facilitated by eConsults and SCAN ECHO. Similarly, streamlining access to consultation from the WRIISCs enables the PACT provider to enhance the care of Gulf War Veterans. Finally, VA's PDICI focuses on post-deployment care. These specialized clinics have been developed to further understand environmental exposures and other deployment issues for Veterans. PDICI has developed educational presentations based on lessons learned in the care of Gulf War Veterans.

Salt Lake City VAMC Pilot Program: The pilot program to implement Gulf War specific care within the PACT concept at the Salt Lake City VAMC has provided a network-based system of care linking PACT teams with a specialty care capability that focuses on treating the unique health care requirements of the Gulf War Veterans population. This program further leverages information technology including the VA electronic health records and the existing VA telehealth infrastructure.

Metrics and Accountability:

PACT Implementation Measures relevant to Gulf War Veterans:

- Consistency of care – for example, seeing the same provider over time – is important to the care of all Veterans, but especially Gulf War Veterans, who have multiple symptoms with an as yet undefined cause. Consistency helps Veterans manage symptoms and gives providers have the opportunity to "put the pieces together" for clusters of unexplained symptoms. With the implementation of PACT, all Veterans are able to see their own primary care provider 77 percent of the time for any visit (including routine and sick calls). Altogether 75 percent of Veterans are seen the same day when they call their PACT and 63 percent are able to see their own primary care provider on the same day they contact the team. Although these data reflects information collected from all Veterans, prior analyses suggest that similar results are applicable to Gulf War Veterans as well.

- Improved communication is also crucial for Gulf War Veterans, who may have questions about symptoms or follow-up questions to conversations about their symptoms and the as-yet undefined causes. Six hundred thousand Veterans are now using secure messaging (a protected form of e-mail). One hundred percent of all PACT teams have the ability to interact by secure messaging.

Specialty Care:

- eConsults: The structure is in place to use eConsults across VHA. eConsults will improve the PACT provider's access to the expertise of specialists in the diagnosis and treatment of the array of symptoms presented by Gulf War Veterans. Accessing such expertise is an important step in allowing the PACT providers to "put the pieces together" in establishing the presence of symptom clusters in these Veterans. eConsult use has markedly increased. For FY 2013 to date, over 264,000 eConsults have been completed across our system.

- SCAN-ECHO: This network of consultation and education available to providers likewise facilitates access to the expertise of specialists. In addition, the SCAN-ECHO consults provide education for the primary care teams focused on the symptoms presented. The use of SCAN-ECHO has also increased. In FY 2013 to date, over 625 SCAN-ECHO sessions have occurred; this exceeds the number for all of FY 2012. Over 1,300 presentations have been given on specialty care via SCAN-ECHO.

- WRIISCs: The WRIISCs operate through VHA's OPH. Their focus is the post-deployment health concerns of Veterans and the unique health care needs that result. They provide post-deployment health expertise to Veterans

and their health care providers through clinical programs, research, education, and risk communication. They have worked to streamline the consult process and consults are now available to PACTs in all VA clinics.

- PDICI clinics continue their efforts to evaluate patients and educate others in the optimal care of these Gulf War Veterans.

Salt Lake City VAMC Pilot Program: The pilot program has educated over 60 front-line clinicians in Salt Lake City, Utah, regarding Gulf War specific conditions. These subject matter experts (SME) have further expanded the ability to share this information by using telehealth resources available at the Salt Lake City VAMC. Gulf War Veterans surveyed in focus groups are noting an improvement in the knowledge base of the providers. Gulf War Veterans have noted that trainee medical doctors "don't come in cold about Gulf War anymore," and "seem to have a clue." Veterans have been pleased that VHA has set up Web sites and identified SMEs to help our primary care physicians improve the quality of care that is delivered.

Clinical Education and Training: Putting Clinical Knowledge into Practice

Background:

Gulf War Veterans experienced unique exposures during their military service. Specific expertise concerning the health effects of environmental hazards is usually limited to clinicians trained in occupational medicine and emergency medicine. The challenge for VA is to ensure that such specialized knowledge is available to all clinicians who provide health care to Gulf War Veterans. Deployment related clinical education and training are essential to achieve optimal clinical care for Gulf War Veterans.

Current Efforts:

The following actions have been taken to address this issue:

- A WRIISC Webinar on medically unexplained symptoms was broadcast in March 2012 and made available on the VA training Web site until August 2013. Nearly 250 providers participated in the live broadcast. The Webinar presented material regarding environmental exposure screening, as well as numerous topics relevant to Gulf War Veterans and to Veterans from Iraq and Afghanistan. The training focused on improving providers' understanding of medically unexplained symptoms or chronic multi-symptom illnesses (MUS/CMI) and enhancing their confidence in meeting the needs of Veterans with these health conditions. The program offered providers additional knowledge and tools to effectively identify, manage the symptoms of, and communicate effectively about patients with MUS/CMI. Twenty-two requests for DVDs of this broadcast have been fulfilled to date.

- A listing of the environmental health (EH) coordinators has been developed, is frequently updated and is posted at: http://www.publichealth.va.gov/exposures/coordinators.asp. By providing this directory on VA's Web site, VA has given providers access to a local point of contact who can answer their questions about the concerns of their Gulf War Veteran patients and inform them about VA programs related to environmental hazards experienced during military service, such as the Gulf War Registry programs.

- OPH created and distributed the VA Environmental Exposure Pocket Card as a resource for VA providers who see Veterans with exposure concerns, including Gulf War Veterans. (See Appendix B). The Pocket Card lists questions to ask the Veteran regarding his/her concerns, contacts within VA for more information or further evaluation, and links to useful resources on the Web (e.g., details on exposures, benefits information). To date, over 23,000 cards have been distributed to providers and other VA staff in the field. Initial feedback from primary care providers has been very positive. We have also

provided copies of this card to Veterans Service Organization (VSO) representatives and have made it available for download on the OPH Web site.

- Using Gulf War Veteran feedback, OPH has updated its exposures Web site in ways that have made navigation more user-friendly (i.e., "Four Ways to Find" exposure information). This website is VA's primary way to ensure that we provide clinicians who see Gulf War Veterans with timely and accurate information about VA's efforts to support them, which addresses VA's goal for effective outreach. The site is currently receiving about 340,000 hits per month.

- OPH participated in the building of a primary care SharePoint site on post-deployment health resources for PACTs focusing on a stepped care approach where each PACT will have access to several local clinical champions with advanced knowledge on post-deployment health concepts like environmental exposures, pain, TBI, and PTSD (e.g., EH Champions, PDICI Champions). The site became active on July 1, 2013.

- OPH in collaboration with the U.S. Army Public Health Command and with support from the VHA Employee Education System brought over 100 subject matter experts from around the country to Crystal City, Virginia, for the Joint VA/DoD Airborne Hazards Symposium on August 21-23, 2012. The symposium was conducted because of concern from Veterans and Veterans' groups, VA and DoD officials, and other stakeholders over possible health effects of airborne hazards, such as particulate matter (PM) among Veterans who deployed during the Gulf War, OEF, OIF, and OND. Potential health effects, epidemiologic studies, research, Veteran outreach, and relevant case-reports were discussed. Through information sharing, workgroups contributed to a joint VA/DoD action plan and chapters for a planned DoD Borden Institute textbook on airborne hazards during deployment, expected to be published in 2014.

- OPH sponsored quarterly conference calls for EH coordinators and clinicians. These calls provide ongoing training addressing administrative and patient care questions from the field and providing policy and subject matter expertise from VA's Central Office to field facilities.

Plan:

The initiative to redesign primary care within VHA via PACT provides the opportunity for improved health care provider education regarding the health effects of environmental hazards. VHA is designing a three-pronged approach to the delivery of environmental hazards information and expertise. OPH will coordinate improved education of environmental clinicians and coordinators so they may provide consultations to primary care clinicians and their patients.

VHA's HAIG survey of the Special Environmental Registry Examination program identified numerous shortfalls for which a series of recommendations were developed. OPH will develop plans to implement these recommendations with the assistance of field advisory teams throughout 2012 and 2013.

- OPH is also planning to launch a provider-focused Web page as a part of our existing Military Exposures site. This Web page will include information on conducting an exposure assessment, exposure related symptoms, diagnoses, and treatments, and other information to guide providers through the process of addressing military exposure related concerns. The first phase of this Web site is expected to launch by April 30, 2014.

- Exposure fact sheets were updated spring 2013. These fact sheets provide both providers and patients with the most accurate information regarding the potential health risks associated with environmental exposures. The fact sheets and Web content are reviewed quarterly or earlier should a significant scientific development occur.

- An environmental exposures mobile application is being developed as a resource for providers who see Veterans of all conflicts including the Gulf War. Its purpose is to provide easy access to information on exposures, including historical context, associated symptoms/conditions, and potential treatments. Fact sheets for Veterans regarding frequently occurring issues will also be integrated into the application. Delivery of a prototype is expected in November 2013. The application is one example of VA's efforts to make critical clinical knowledge and expertise available at the point of care.

- A second version of the Environmental Exposures Pocket Card has been developed to target providers outside of VA who may care for Veterans and is currently posted on OPH's "Military Exposures" Web site. This version is projected to be submitted for inclusion in the online clinical training database of the "Joining Forces" initiative by December 31, 2013. (Joining Forces is an effort led by First Lady Michelle Obama and Jill Biden, Ph.D.),

- Planning and implementation of follow-on actions are scheduled to occur in FY 2013 to address issues identified in the 2011-2012 HAIG Survey of the Environmental Registry Examination programs. In the interim, VHA's Gulf War Registry Examination Handbook, which provides guidance for facility directors and EH coordinators and clinicians, is being revised to clarify their role in regard to primary care providers. Publication of the revised Handbook is anticipated in the summer of 2014.

- Specialized training of EH clinicians and coordinators through seminars, Webinars, and other media is ongoing. An interactive train-the-trainer workshop was held in August and September 2013. The workshop covered critical topics such as performing registry exams and establishing Veteran eligibility as well as

interacting with PACT and conducting outreach. The workshop aimed to aid in the standardization of care at EH clinics throughout VA's health care system. A total of 63 EH Champions were trained and will serve as SMEs and resources for their VISN. They will also train other EH staff.

Metrics and Accountability:

- Each EH Champion will provide at least five presentations to other clinicians in the year following their training.
- The revised Gulf War Registry Examination Handbook will be published by summer of 2014.
- Gulf War related exposure fact sheets available online will be reviewed by the OPH Veterans Board and updated annually.
- The provider-focused Web page will be posted online by April 2014.

Veteran Benefits: Delivering Compensation and Pension and Fiduciary Services

Background:

VBA's Compensation program provides a service-connected disability benefits to Veterans with honorable service during the Gulf War for disabilities incurred in or aggravated by such service. VBA's Pension program provides a needs-based benefit to Veterans who served in the Gulf War who are age 65 or older, or totally disabled from a disability not related to the Veteran's service. Service-connected death benefits and needs-based pension benefits are also provided to surviving dependents of Veterans.

The following description of VBA activities reflects initiatives intended to enhance delivery of benefits to Gulf War Veterans. However, we have also listed activities that aim to improve benefits delivery to all Veterans of the Persian Gulf War Era from 1990 to the present including those deployed for OEF/OIF/OND. This is important because VA's primary regulation that outlines benefits for Gulf War Veterans, 38 CFR § 3.317, generally extends the same benefits to Veterans of the recent conflict in Iraq and other Southwest Asia locations as to Veterans of the 1990-91 Gulf War, including disability compensation based on undiagnosed illnesses or medically unexplained chronic multisymptom illnesses. Further, VA has learned valuable lessons from policies and procedures developed in the 1990s. The initiatives described herein reflect VA's efforts to modernize the delivery of benefits to qualifying Gulf War Veterans based on lessons learned and scientific evidence that has become available in the last 20 years.

In FY 2010, the GWVI-TF reviewed the legislative and regulatory provisions unique to the Gulf War cohort of Veterans. Rule-making was undertaken to add additional diseases to the list of those subject to the presumption of service connection based on evidence provided by the National Academy of Sciences on infectious diseases associated with service in Southwest Asia:

Brucellosis	Malaria	Shigella
Campylobacter jejuni	Mycobacterium tuberculosis	Visceral leishmaniasis
Coxiella burnetii (Q fever)	Nontyphoid Salmonella	West Nile virus

For more information, visit
www.publichealth.va.gov/exposures/gulfwar/associated_illnesses.asp

To further assist Gulf War Veterans, VBA Compensation Service developed two training initiatives designed to inform and instruct regional office personnel on the processing of disability claims based on Southwest Asia service. The training in 2010 provided background information on the Gulf War of 1990-1991, and explained related laws and regulations, which were developed in response to the ill-defined disability patterns experienced by returning Gulf War Veterans. Due to the complexity of the Gulf War laws and disability patterns experienced by Veterans, the training explained the terms "undiagnosed illness" and "medically unexplained chronic multisymptom illness" and

stressed that service connection may be granted for other diagnosed chronic multisymptom illnesses in addition to chronic fatigue syndrome, fibromyalgia, and irritable bowel syndrome, which are identified as examples in the legislation. It also provided step-by-step procedures for gathering supporting evidence and for rating a disability claim based on Southwest Asia service. Included in the training package was a separate memorandum to be sent with the VA medical examination request so that examiners are informed of the issues related to qualifying chronic disabilities for Gulf War Veterans.

Additional assistance was provided in a separate training initiative in 2010, which was coordinated with DoD. The training provided regional office personnel with information on environmental hazards associated with Gulf War and Southwest Asia service. It discussed, among other things, airborne toxic substances resulting from the 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 Basrah, Iraq, from April through September 2003. The purpose of this information is to alert regional office personnel to the potential for disability claims based on exposure to these environmental hazards, outline claims processing procedures for such claims, and provide fact sheets for VA medical examiners that explains each hazard.

VBA continues to improve in the nationwide accuracy for Gulf War claims processing. Through VA's national accuracy review program, we monitor the quality of Gulf War claims and offer feedback to field offices, if appropriate. Based on a sampling of cases, a review of VA's nationwide accuracy data for Gulf War claims through June 2012 reveals a 7 percent improvement in quality since the Gulf War training in 2010. The improvement in quality is also attributable to the establishment of a dedicated mailbox for individuals who work Gulf War and other environmental hazard claims. Claims representatives from the 56 regional offices frequently send in questions and concerns regarding claim-specific issues. Through these inquiries, we are able to troubleshoot the current process and refine existing Gulf War claims processing policies, as appropriate.

In addition to efforts within VBA, VHA's Office of Disability and Medical Assessment (DMA) is tasked with oversight of all disability evaluation services including those conducted for Gulf War Veterans. VHA's DMA office supported the development of the Disability Benefits Questionnaires (DBQ). DBQs are designed to help medical providers clearly and easily document the ratable criteria necessary for VBA to rate a claim. This results in more accurate and timely claims processing. The DBQs specific to the Gulf War were released in 2011 and continue to be updated as needed.

Current Efforts:

VA continues to work with DoD to develop a separation health assessment program that will establish, at time of discharge, the Servicemember's health status as well as occupational and environmental exposure information, where it is available. This will assist Veterans trying to prove exposure to a particular event on active military service

that resulted in disabilities that may not have become clinically significant for many years after exposure. The experience of Gulf War Veterans has added to the drive to achieve this valuable joint process.

VA headquarters continue to work with regional offices to ensure that Gulf War claims are processed accurately. This includes offering feedback to claims processors who are responsible for completing Gulf War claims, and providing reminders through national conference calls, policy letters, and other training materials.

Public Comment Feedback:

Numerous comments have been received from the public regarding the process for determining which conditions are considered qualifying disabilities for those who served during the Gulf War. Additionally, some commenters expressed the need to have certain conditions such as sleep apnea added to the list of Gulf War presumptive conditions. Numerous scientific studies have been conducted to investigate possible causes and associations between Gulf War Veterans and these illnesses. The National Academy of Sciences' Institute of Medicine (IOM) has also conducted a series of reviews of scientific literature documenting research in these areas to identify and explain disability patterns associated with Gulf War service in terms of the potential health hazards experienced in the Southwest Asian environment. In response to these reviews and various laws that have been passed, VA has created a regulation in 38 CFR §3.317 that reflects the results of the scientific studies and statutory requirements. VA recognizes the disabilities and disability patterns which have been validated by scientific research in the regulation as qualifying disabilities for Gulf War Veterans for purposes of payment of disability compensation.

Lastly, VA has received public comments regarding VA decisions on both "undiagnosed illnesses" and "medically unexplained chronic multisymptom illnesses." The GWVI-TF recognizes that the application of the rules regarding these issues is difficult to understand and implement. VA regulations provide a list of specific presumptive disabilities that will be service-connected in a Veteran with a qualifying period of service in the Southwest Asia theater of operations. Most of the presumptive conditions must become manifest to a degree of 10 percent or more within 1 year from the date of separation from the qualifying period of service, but for certain diseases, the manifestation period is longer or unlimited. In addition to the specific presumptive conditions noted in the regulations, there are two distinct categories that are also considered qualifying conditions for purposes of providing disability compensation.

The first category is "undiagnosed illnesses," which may manifest with symptoms such as fatigue, signs or symptoms involving skin, headache, etc. Although this category, by definition, cannot be associated with a diagnosis, it is nonetheless subject to service connection. However, if a medical doctor links one of the listed symptoms to a disease, then service-connection may not be warranted under this undiagnosed illness provision, (e.g., doctor links the Veteran's claimed "fatigue" to hypothyroidism), but potentially may be established on other grounds, such as evidence or a presumption linking the diagnosed condition to service.

The second category is: "medically unexplained chronic multisymptom illnesses." This category refers to diagnosed illnesses that are without functional disorders or cause and are characterized by a cluster of signs and symptoms with features such as fatigue, pain, disability out of proportion to physical findings, and inconsistent laboratory findings. Illnesses that are partially understood in terms of etiology are not considered "medically unexplained." Examples of medically unexplained chronic multisymptom illnesses are provided in the regulation. They include, but are not limited to: (1) chronic fatigue syndrome; (2) fibromyalgia; (3) irritable bowel syndrome; and (4) functional gastrointestinal disorders. Service connection is appropriate for any of these when diagnosed.

The issue of whether a Veteran's particular disability pattern is linked to a conclusive or partially understood etiology, or represents one of the disability patterns listed above, must be determined on a case-by-case basis and will require a medical opinion.

Plan:

VBA will continue to participate in the VA/DoD Deployment Health Working Group to identify environmental exposures related to the Gulf War. Because of the complexity of Gulf War claims processing, VBA will continue to focus on quality improvement, which will include monitoring of nationwide quality trends, analyzing fact patterns for specific Veteran cases, and providing remedial training and reminders, as necessary.

Metrics and Accountability:

Continue to monitor research and studies on potential exposures to environmental hazards in the Gulf War.

Continue to review processes and procedures for the adjudication of claims for Gulf War Veterans to ensure consistency and accuracy across the Nation.

Veteran Outreach: Improving Communications to Gulf War Veterans

Background:

VA is dedicated to improving the lives of Veterans of all eras and their eligible family members and Survivors by providing them with the benefits and services to which they are entitled. VA must actively engage its Nation's heroes and educate them, their families, and their Survivors about the benefits and services they may be eligible to receive. Outreach must be proactive and systematic in order to provide important information and assistance on VA's services and benefits.

Current Efforts:

OPH collaborated with the Centers for Disease Control and Prevention (CDC) to obtain Internal Revenue Service mailing addresses for the entire list of Operations Desert Storm and Desert Shield deployed individuals. VA's past outreach mailings were limited to those who self-referred to the Gulf War Registry (about 130,000) and provided mailing addresses. Through this collaboration with CDC, VHA will expand its outreach to the approximately 700,000 Servicemembers who deployed to the Gulf War. OPH has developed a two-page Gulf War Update and expects to print and mail it to the full Gulf War Veteran list in 2014. It will be mailed with a survey asking for input on information needs and preferences. In addition, in 2012, OPH was given approval by the Office of Management and Budget to include a customer survey in its mailed newsletters to ask Veterans, including Gulf War Veterans, such questions as what features they like most, how useful the information is, and what the best ways are for them to receive information. This survey will enable VHA to obtain valuable feedback on these products from these Gulf War Veterans in particular.

OPH's GWVI Web site, www.publichealth.va.gov/exposures/gulfwar/index.asp, continues to be an essential, central communication channel to share information with Veterans, VA facilities and VSOs. OPH used feedback from Gulf War Veterans and staff to improve the content and layout of the Web site in order to make it more user-friendly. One example is a new navigational tool on the Web site that was developed with feedback from Gulf War Veterans, other Veterans, and staff. The tool, "4 ways to find exposures," enables Veterans and others to look for exposure information by related health concerns, wars and operations, exposure categories, and exposure topics (A to Z).

A listing of the environmental health (EH) coordinators has been developed, posted online, and is frequently updated at: www.publichealth.va.gov/exposures/coordinators.asp. By providing this directory on our website, we have given Gulf War Veterans access to a local point of contact that can answer their questions about potential exposures and inform them about VA programs related to environmental hazards to which they may have been exposed during military service. In 2012, OPH promoted the third health survey of Gulf War Veterans through a

news release, Web banners and announcements, e-mail announcements, and Facebook posts and continues to post up-to-date Web information on the study. VHA also promotes Gulf War Veterans' health news and updates via e-mail to Web site subscribers, Facebook posts, and tweets. During 2012 and 2013, a variety of topics were provided including GWVIs and how to obtain a Gulf War registry evaluation. VHA published a news release on the extension of compensation benefits for Gulf War Veterans with undiagnosed illnesses on the anniversary of the start of the war. OPH also promoted the third Gulf War health survey via a news release, social media, and e-mail announcements. In June 2013, VA published a blog post on its commitment to Gulf War Veterans written by the Principal Deputy Under Secretary for Health Dr. Robert Jesse. In addition, OPH created a Post-Deployment Health Veterans Community Board comprised of Veterans from different eras, including three Gulf War Veterans, to provide Veteran feedback on the effectiveness of outreach and educational efforts on deployment related health topics.

OPH features the findings of its Gulf War epidemiology research on its Web site. Research is important in understanding the adverse health effects associated with the deployment and in improving the care provided to Gulf War Veterans.

ORD developed a new brochure that covers the range of VA-sponsored Gulf War research as well as a fact sheet on the Gulf War strategic research plan. ORD exhibited at several annual conventions of VSOs, reaching out to some 64,000 Veterans, many of them from the Gulf War.

Recognizing the importance of effective point of care communication between the Gulf War Veterans and their provider teams in VA medical facilities, VA has enhanced its training and education of PACT with respect to the health concerns of this group of Veterans. In addition to updating and promoting existing trainings such as the Veterans Health Initiative on Caring for Gulf War I Veterans, education and training is available through Rural Health Initiative trainings (Deployment Health, Deployment Related Environmental Exposures, Military Culture and Compensation and Pension/Benefits for Veterans), Veterans Health University virtual conferences as well as periodic trainings on monthly nationwide PDICI Community of Practice calls. National conferences sponsored by the WRIISCs for PDICI champions as well as for Environmental Clinicians (Registry exam providers) have been held in 2013. The PDICI integrated post-deployment care programs, all of which are now aligned with the PACT model in conjunction with Primary Care/Mental Health Integration, offer an ideal clinical platform for the integrated approach to assessment and ongoing management of CMI in Gulf War Veterans as has been recommended by IOM. A central feature of PACT involves greater team function and more effective communication between team members and Veterans.

Plan:

In 2014, VA will implement a re-engineered communications plan to improve two-way communication with Gulf War Veterans. VA is working to develop multiple avenues for dissemination of information to Gulf War Veterans as described above, but is also

working to focus on more interactive mechanisms to allow VA to communicate with these Veterans. Activities under consideration include round tables, additional Web blogs and posts on specific topics of interest, and efforts to engage and partner with VSOs to better share information with Gulf War Veterans. VA will also continue to engage with Congressional Members and staff to inform them about VA's efforts to improve delivery of health care, benefits, and services to Gulf War Veterans.

The overarching message for Gulf War Veterans is that VA has not forgotten their service and dedication and is committed to working to improve their health and well-being. We continue to invest in research to better understand and treat GWVI.

Besides the health care and benefits described in the introduction of this report, current efforts to support Gulf War Veterans include:

- Carrying out the third health survey of 30,000 deployed and non-deployed Gulf War Veterans;
- The Women Veterans Barriers to VA Care Survey will survey 8,400 women Veterans about barriers to use of VA health care and will be completed in 2015.
- Execution of a 5-year strategic plan for research into GWVI, supporting a wide array of studies, especially those aimed at developing new treatments and improving existing ones; and
- Improving delivery of care and support for Gulf War Veterans through multiple initiatives aimed at improving education of health care providers and delivery of care to Gulf War Veterans.

Sustained outreach will not only educate Veterans and their families about VA's excellent health care, benefits and services, but also empower Veterans to make more informed decisions concerning health care and benefits.

VA will analyze and act upon the results of the survey of the Gulf War Update. We also expect to learn from interactions with the Gulf War Veterans on the newly formed Post-Deployment Health Veterans Community Board.

VA, through GWVI-TF, will provide regular updates on the implementation of the outreach strategy through established channels, including:

- Gulf War Issue Roundtables (physical and virtual)
- Hot Topic Web Blogs
- Regular Gulf War Web site updates;
- Postings on Facebook and Twitter;
- Print Publications;
- Briefings to Congressional members and staff; and
- Media interviews.

Other strategies to enhance communication will include proactively engaging VSOs that serve Gulf War Veterans, producing printed materials (reports, posters, brochures) as appropriate, and providing Veterans who opt in at: www.publichealth.va.gov/exposures/gulfwar/index.asp and for updates on other

exposures at: www.publichealth.va.gov/exposures/ with e-mail updates on Gulf War Veterans health issues.

Metrics and Accountability:

GWVI-TF will facilitate content for outreach efforts and the results of communications research and feedback via the newsletter survey, suggestions of the Veterans Community Board, social media, and other means will be captured to better inform the discussion and shape future efforts.

GWVI-TF intends to evaluate available metrics related to usage and effectiveness of the Web and social media. VA will also continue to analyze feedback received from Veterans through the roundtables, Veterans advisory group recommendations, and other engagements.

Partnerships: Improved Data Sharing with DoD

Background:

DoD and VA provide health care and benefits to the same population at different times in their lives. Environmental exposures occur during active duty whereas the potential clinical consequences often manifest later when the former Servicemember is a Veteran. For this reason, it is critical that VA and DoD share clinical and exposure data. Confidentiality provisions, such as the Privacy Act and the Privacy Rule implementing the Health Insurance Portability and Accountability Act of 1996, generally prohibit disclosures of personal information without the individual's authorization and can make data sharing between Federal agencies challenging. Improved data sharing is an important component in providing optimum clinical care to Gulf War Veterans.

Current Efforts:

Deployment Health Working Group (DHWG): The DHWG is tasked by VA and DoD senior leadership to increase VA/DoD collaboration by identifying potential gaps in Gulf War related research, eliminating barriers to collaborations, and developing coordinated response plans to potential environmental hazards. The following actions have been taken to improve VA/DoD information sharing and research collaboration:

- A robust VA/DoD Data Transfer Agreement (DTA) that will facilitate research and medical surveillance on Veterans exposed to potential environmental hazards during deployment was completed in February 2013. This agreement will strengthen research of GWVI by allowing scientists to integrate DoD and VA data.

- In 2012, the Joint Executive Council (JEC) tasked the DHWG to create a joint VA/DoD plan to respond to environmental exposures. The DHWG used the lessons learned from the Gulf War experience to develop a response plan that emphasizes early collection of exposure data that is linked to individual Veterans. The plan, which was approved by the JEC, included a proposal to develop the Integrated Lifetime Exposure Record (ILER) to document military exposures. The JEC provided funding over 2 years to develop a prototype ILER. The ILER will enable DoD exposure information to be integrated into the VA electronic medical record. This will improve health care, adjudication of compensation, and facilitate research.

- Airborne hazards such as oil fires, burn pits, and PM are potential hazards for both Gulf War and OEF/OIF/OND Veterans. During the past year, DHWG has monitored new studies related to burn pit exposure and implemented a Joint Airborne Hazards Action Plan. This joint strategy includes a clinical evaluation protocol, an outreach plan to affected Veterans, a prioritized airborne hazards research plan, and clinician training. This plan will improve clinical care for Gulf War Veterans exposed to airborne hazards and will facilitate research on the effects of airborne hazards such as oil fires on Gulf War Veterans.

- Congress has mandated that VA create a burn pit and airborne hazards registry by early 2014. VA plans to allow Gulf War Veterans who are concerned about their exposure to airborne hazards during the Gulf War to be included in this registry. Veterans will be able to enter information online. The questionnaire includes demographic, exposure and symptom information. Those Veterans with concerning symptoms or exposures will be asked to come into their nearest VA medical center for an in-depth evaluation. As with the Gulf War Registry all Veterans are eligible for a free examination if they are concerned about exposure to airborne hazards. A draft questionnaire was published in the Federal Register to obtain Veteran input during the summer of 2013.

DoD/VA Medical Research Work Group: The Health Executive Committee created a DoD/VA Medical Research Work Group during 2012. This work group is charged with coordinating the research efforts of VA and DoD. Such coordination will allow prioritization and reduce duplication in VA/DoD post-deployment related research. The work group has already produced a comprehensive review of research related to deployments to the Persian Gulf.

Congressionally Directed Medical Research Programs (CDMRP): ORD staff continues to remain engaged with DoD staff to collaborate more closely and coordinate research efforts. VA participated in several additional meetings with CDMRP and discussed collaborative efforts regarding funding and programs. In December 2011, ORD's Gulf War research portfolio was presented during a CDMRP online teleconference. This was followed up by a CDMRP vision-setting meeting in January 2012, where ORD participated in discussions of research directions. In February 2012, ORD members met with the senior CDMRP staff to discuss possible mechanisms for collaborating in funding research, and CDMRP staff briefed VA Gulf War researchers at a VA meeting held in September 2012.

Plan:

VA will continue to build successful partnerships that will improve research and clinical care for Gulf War Veterans. Key components of this plan will be a functioning ILER and continued VA/DoD research on the long term health effects of deployment related exposures.

Metrics and Accountability:

- The DTA will be utilized by VA and DoD.
- ILER implementation goals will be met.
- The number of clinicians trained in airborne hazards clinical seminars will be documented.
- Monitoring of research and issues related to potential environmental toxicants encountered by Gulf War Veterans will continue.
- The burn pit registry will be available by February 1, 2014.

Ongoing Scientific Review and Population-Based Surveillance: Taking Advantage of Untapped Sources of Data Related to Veterans' Health

Background:

Ongoing scientific review is critical to understanding the environment that impacts health. Veterans' health related data and information are reported from sources other than studies conducted by VA. Having access to and understanding reports is important to comprehending the complex array of adverse health effects associated with deployment. Additionally, it is important to expand and continue VA funded long-term studies of Veterans' health as it relates to deployment and associated environmental exposures. Data from all these activities helps inform policy makers of the adverse health effects associated with deployment, provides information relative to treatment, and identifies future potential preventive strategies.

In some well-defined environmental exposures, medical surveillance can prevent disease or allow the early detection of disease. Exposure to chromium at Qarmat Ali, radiation, depleted uranium, and toxic fragments are examples of well-defined exposures with known potential clinical consequences. These programs are well-established but are dependent on clinical providers being aware that they are available for Veterans. Throughout VA, there will be continued emphasis on educating medical providers on these programs, and ensuring that evolving knowledge and understanding of these complex issues can be quickly leveraged for care of Veterans. The key enablers for getting this information from these programs to providers are clinical education and publication of findings in the peer-reviewed medical literature.

Current Efforts:

Veterans Health Examination Survey – Comprehensive Assessment of the Health Status of All Veterans

- This observational study, consisting of a series of cross-sectional health assessments of all Veterans via a combination of telephone interviews and in-person examinations, will expand current epidemiologic studies of the health effects of military service, deployment, and environmental exposures among U.S. Veterans. A principal aim of the proposed health assessments is to advance the understanding of the effects of potential environmental exposures on health as well as the effects of the deployment as a whole.

Collaboration with Centers for Disease Control and Prevention (CDC)/National Center for Health Statistics (NCHS): Increased collaboration with CDC/NCHS provides an opportunity to collect and examine data related to Veterans' health from a national sample of the U.S. population. The data collected by the CDC/NCHS may expand VA's understanding of the range of illnesses associated with deployment to the

Gulf and other theaters of operation. The following actions have been taken to expand health related data collection on Veterans:

- VA has worked with CDC/NCHS to ensure Veteran-specific identifying questions and analyses are included in two major longitudinal health related national surveys: the National Health and Nutrition Examination Survey (NHANES), and the National Health Interview Survey (NHIS).

- In 2011, NHANES and NHIS added detailed questions regarding Veteran status to ascertain better enumeration of participants who have served in the military. The precise wording of the questions was agreed upon by both NHANES and NHIS.

The NHANES program began in the early 1960s and has been conducted as a series of surveys focusing on different population groups or health topics. In 1999, the survey became a continuous program that has a changing focus on a variety of health and nutrition measurements to meet emerging needs. The survey examines a nationally representative sample of about 5,000 persons each year.

NHIS is the principal source of information on the health of the civilian non-institutionalized population of the U.S. and is one of the major data collection programs of the NCHS which is part of CDC. The National Health Survey Act of 1956 provided for a continuing survey and special studies to secure accurate and current statistical information on the amount, distribution, and effects of illness and disability in the U.S. and the services rendered for or because of such conditions. The survey referred to in the Act, now called the National Health Interview Survey, was initiated in July 1957. Since 1960, the survey has been conducted by NCHS, which was formed when the National Health Survey and the National Vital Statistics Division were combined.

Collaboration with the DoD Millennium Cohort Study (MCS): The MCS is examining the health related effects of deployment on military personnel and Veterans. As with the CDC/NCHS studies, the data collected by the MCS may expand VA's understanding of the range of illnesses associated with deployment. To expand collection of health related data on Veterans from this study, representatives from VHA offices, including OPH and ORD, have met with MCS investigators on multiple occasions. OPH has worked with MCS investigators on multiple occasions to design and conduct a study of respiratory symptoms among study participants who have separated from active duty. This collaboration is proceeding well and a peer-reviewed journal article is being finalized. OPH has nearly finalized an agreement with the MCS to place an epidemiologist and a statistician at MCS to collaborate on Veteran-specific studies.

Conduct a National Health Study for a New Generation of U.S. Veterans: The Epidemiology Program (EP) within OPH is conducting a study on the health status of 60,000 Veterans who have separated from active duty, National Guard, or Reserves,

half of whom served in either Iraq or Afghanistan. This includes an oversampling of women Veterans to permit an appropriate examination of health effects associated with deployment in this group. The following actions have been taken:

- Data collection is complete and preliminary results became available in late 2012. Initial studies are focused on respiratory illness and traumatic brain injury.
- The pilot of a clinical follow-up study was initiated in the second quarter FY 2012.

Military Working Dog (MWD) Health Review: Military working dogs are exposed to many but not all of the same potential toxicants as military personnel and, therefore, may serve as sentinels for adverse health effects in humans. This research may provide additional data to develop research hypotheses to better study multisymptom illnesses in Gulf War Veterans. During 2012, VA studied the feasibility of reviewing MWD health records to identify diseases common to deployed military personnel and deployed MWDs. The following actions have been taken:

- VHA negotiated with the MWD Center at Lackland Air Force Base and with the Armed Forces Institute of Pathology (now the Joint Pathology Center) to create a research database.
- A project has begun to review MWD health records. These health records represent the clinical history of MWDs deployed to the Gulf and other regions. Data collection began during the fall 2012.

Study of Post-War Mortality from Neurological Disease in Gulf War Veterans:
The second phase of the study of post-war mortality from neurological disease in Gulf War Veterans has completed data collection; data validation and analyses are underway with results expected in early 2014. The third phase of the study scheduled for solicitation in FY 2013 will extend the population under study to include Veterans of OEF/OIF/OND.

Follow-up study of an established permanent panel of 30,000 deployed and non-deployed Veterans from the 1990-1991 Gulf War period:
This study is examining health trends over time and the current status of the health of 1990-1991 Gulf War Veterans. The pilot phase of the study was initiated in May 2012 with the main survey beginning mid-September 2012. Baseline and follow-up data were previously collected (1995 and 2005). The survey is using postal and Web-based surveys and telephone interviews to collect information. Completion of data collection is planned for 2013, and results should be available for publication in late 2014.

Depleted Uranium (DU) Surveillance:
The purpose of the DU surveillance program is to determine DU related health effects in exposed soldiers and to study the medical and surgical management of fragments. Submitted by VA providers, 3,192 urine samples have been screened for DU with 4 Veterans found to have a positive screen. Seventy-nine Veterans with documented DU exposure (mainly from embedded fragments) have been followed every 2 years since 1993. Veterans travel to the Baltimore VAMC and have had a

complete medical examination with extensive laboratory studies to include urine, semen and blood uranium, chromosomal analysis, and neurocognitive testing.

No clinical diseases have yet been attributed to DU. This well-established program is now evaluating new Veterans from current conflicts. It is vitally important that clinical providers are aware of this program and understand how to refer Veterans, or Veterans know to request referrals if they are aware of exposure to DU.

Toxic Embedded Fragment Surveillance Center (TEFSC) and Registry:
As many as 40,000 Veterans may have retained fragments secondary to being exposed to explosions. The TEFSC was established to create a registry of wounded Veterans with retained fragments; determine fragment composition, provide biomonitoring services (via mail), assist in medical and surgical management guidelines for Veterans with fragments, and provide consultation to local providers concerning care and management of patients. As with the DU program described above, the key to this successful program is wide dissemination of knowledge of this resource among clinical providers and Veterans. OIF/OEF/OND Veterans are flagged through clinical reminders in the electronic medical record prompting their care team to screen for embedded fragments.

Qarmat Ali Medical Surveillance Program:
Although this surveillance program focuses on environmental exposure during OIF, it is noted here because it is an extensive effort to systematically monitor the health of a group of deployed personnel post-exposure through a well-defined medical surveillance program. In July 2010, VA started contacting affected Veterans by phone and offered enrollment in the Qarmat Ali medical surveillance program. This initial phone contact was followed by a letter signed by both Secretary Shinseki and former DoD Secretary Gates. Currently, 794 out of a possible 830 Veterans have been contacted either by letter or phone. Inevitably some addresses are out of date and VA and DoD are continuing to find addresses and contact all remaining Qarmat Ali Veterans. To date, 135 Veterans have obtained medical surveillance exams. Medical exams will be repeated every 5 years to monitor the health of each Veteran exposed to chromium.

Plan:

CDC/NCHS:
The studies associated with the CDC/NCHS collaboration are intended to continue for as long as the CDC/NCHS maintain their efforts in this area.

Veteran-specific data from NHIS and NHANES became available in the fourth quarter of 2012. The benefit of these data will depend upon the need to accumulate sufficient numbers of subjects who are Veterans in order to accomplish meaningful statistical analyses, as well as NCHS and VA resources.

MCS was initiated by DoD in 2001 to study Gulf War Veterans and is scheduled to continue until 2022. VA plans to continue to examine Veteran-specific data related to health outcomes through the end of the study.

The National Health Study for a New Generation of U.S. Veterans was funded through its first iteration. VA is planning to repeat the study, contingent on resources, in 2013.

MWD Studies are at present a feasibility study designed to determine the value of examining MWD health records for adverse health effects and the utility of using MWDs as a sentinel population for human health. Whether or not this effort continues will be dependent on the value of the data collected for this purpose and the availability of resources.

The Study of Post-War Mortality from Neurological Disease in Gulf War Veterans is a follow-up study. We plan to continue this study at approximately 5-year intervals as findings suggest and resources are available.

DU Surveillance is a long-term surveillance effort. These Veterans will be followed for years to monitor their health and newly identified Veterans will be brought into the program as they are identified. Information gleaned from the program will identify long-term clinical consequences if they occur, help to identify treatment if appropriate, and inform prevention strategies where applicable. VHA Handbook 1303.1, Evaluation Protocol for Gulf War (Including Operation Iraqi Freedom) With Potential Exposure to Depleted Uranium (DU), is under revision and will be finalized in FY 2014.

TEFSC will continue to determine fragment composition, provide biomonitoring services (via mail), assist in medical and surgical management guidelines for Veterans with fragments, and provide consultation to local providers concerning care and management of patients. New Veterans will be enrolled in the registry as required. A new VHA handbook that improves program guidance was revised and publication is anticipated in FY 2014.

The **Qarmat Ali Medical Surveillance** program will monitor the health of the Veterans for decades. Additionally, the program itself, established as a new way to monitor the health of Veterans potentially exposed to an environmental toxicant during deployment, will be evaluated by sending questionnaires to Veterans who did not participate in the initial exam or have not returned for the 1-year follow-up exam.

VA will continue to work with DoD to evaluate the health status of these Veterans, DoD civilian employees, and Servicemembers during FY 2013 and intends to publish these findings in a peer-reviewed journal.

<u>Metrics and Accountability:</u>

These studies are longitudinal and long-term by design. Where reasonable for each study, date of availability of results serves as the essential metric. It is worth noting that these dates are estimates as the study process is dependent on contracting, availability of resources, and other factors that are often beyond the control of the study proponents.

Results of studies will be presented in peer-reviewed publications and data will be presented in appropriate scientific and other forums, informing Veterans and the public of study results, ensuring that study findings are considered in discussions of presumption of service connection as appropriate, and informing Congress of new information related to the health of Veterans post-deployment.

For all surveillance programs, VA will initiate the appropriate treatment and prevention strategies and inform research strategies as indicated by the information being collected.

Research and Development: Encouraging Targeted Efforts

Background:

ORD provides funding for research that will further the goal of improving the health and lives of Veterans who have GWVI, a term which refers to the complex chronic symptoms that affect Gulf War Veterans. The illnesses are characterized by chronic headaches, chronic widespread pain, cognitive difficulties, unexplained debilitating fatigue, gastrointestinal problems, respiratory symptoms, subtle neuropsychological symptoms, and other abnormalities that are not explained by familiar medical or psychiatric diagnoses.

Particular areas of VA ORD interest include studies that can improve diagnostic testing for GWVI and/or understanding of the biological basis of the conditions. These include research on objective indicators of biological processes or abnormalities in GWVI. ORD also provides funding for controlled clinical trials and epidemiological investigations of the effectiveness of new drug treatments or non-drug treatments for GWVI. In addition, ORD is committed to funding research that improves VA's understanding of and ability to treat illnesses, such as Amyotrophic Lateral Sclerosis and Multiple Sclerosis (MS), which may occur at higher rates in Gulf War Veterans than in other Veterans.

Current Efforts:

Maintain and Promote a Robust Gulf War Research Portfolio:

ORD continues to refine its focus on Gulf War related research, and these projects constitute the Gulf War Research Portfolio. The Director of Deployment Health Research and the Program Manager for GWVI/Military Environmental Exposures Research lead this effort.

The VA Gulf War Research Portfolio was presented to the RACGWVI in January and June 2012 and to the National Research Advisory Council (NRAC) in February, June, and September, 2012. In their advisory capacity, these Committees make recommendations regarding the research program. The listing of the membership of the RACGWVI is available in Appendix C, and of the NRAC in Appendix D.

VA's Gulf War Program Manager also presents VA's Gulf War research portfolio as part of the annual vision setting meeting for the Gulf War Illness Research Program (GWIRP) within the Congressionally Directed Medical Research Programs (CDMRP), managed by DoD. The scope of the VA Gulf War Research Portfolio (types of projects funded as well as specifics about individual funded projects) and all upcoming "requests for applications" (RFA) are discussed at this meeting. This allows VA and CDMRP to coordinate their Gulf War research programs.

ORD uses two mechanisms to provide funds for Gulf War research. Research ideas which are proposed by doctors at VA facilities can be solicited through RFAs, or ORD can support "service-directed projects" where researchers are invited to propose

projects aimed at solving particular problems. Each type of project is reviewed by experts in the field to ensure that the best possible research is funded.

For investigator-initiated projects, five different RFAs are released twice a year. Two of these RFAs involve research using laboratory animals or laboratory specimens, while the other three RFAs involve Gulf War Veterans as test subjects. There is an effort underway to increase the number of VA researchers involved in Gulf War research. A meeting of VA Gulf War researchers was held in September 2012 to improve communication between researchers and ORD and to encourage collaborations among investigators. More than 35 people attended and most presented results from their own studies. The positive feedback from attendees suggests that more meetings of this group should be held to ensure the continued growth of the Gulf War research program.

In response to the two sets of RFAs issued in 2012, 31 proposals were received and 6 were recommended for funding. Funding for Gulf War research projects in 2012 was $6.7 million.

Two major service-directed Gulf War research projects were launched in 2012. In September, the Gulf War Era Cohort and Biorepository received approval for their overall plan to conduct the project. Gulf War Veterans will be asked to donate blood and complete a health care questionnaire. The second project, the Gulf War Veterans' Illnesses Biorepository, is a pilot repository for autopsy tissue from Gulf War Veterans from across the U.S. The tissue biorepository became active on July 9, 2012 and so far has enrolled seven Veterans.

New Strategic Plan for Gulf War Research:

As previously reported, the Gulf War Steering Committee (GWSC) met on April 20, 2011, to develop a new Strategic Plan for VA Gulf War research. The intent of the Gulf War Research Strategic Plan is to complement the existing VA Research and Development Strategic Plan, which is the strategic plan for all research in ORD. The listing of the membership of the GWSC is available in Appendix E.

The Steering Committee Chair presented a draft Strategic Plan at the June 27-28, 2011, meeting of the RACGWVI. The Steering Committee made suggestions for improving the draft Strategic Plan, and between September 2011 and January 2012, 10 working groups (composed of Veterans and SMEs recommended by VA or the RACGWVI) met to discuss ways to improve the various subsections of the plan. On January 31, 2012, the Steering Committee Chair presented the revised draft Strategic Plan to the RACGWVI. The plan was also reviewed by the NRAC on February 22, 2012. The issues raised by these two advisory committees were reviewed, and in June 2012 the RACGWVI and NRAC were asked for additional comments. The Strategic Plan was approved by VA in early 2013 and is posted at http://www.research.va.gov/resources/pubs/. The Gulf War Research Strategic Plan will also be reviewed each year and modified as necessary.

Plan:

Gulf War Research Portfolio:

Investigator Initiated Gulf War Research

Twice per year, ORD will reissue five RFAs. Two RFAs will specifically solicit "pilot" project applications which are small scale, preliminary studies designed to determine the best way to conduct a larger study. Two will solicit more complete "merit" projects which are larger studies designed to answer specific research questions. The fifth RFA will solicit applications for clinical treatment trials. Special RFAs will be issued as appropriate.

The lists of topics of interest for these RFAs incorporate over 80 percent of the research recommendations contained in the 2008 report from the RACGWVI and recent RACGWVI input to ORD. These lists are also fully aligned with the major elements of the current Gulf War Research Strategic Plan. A draft timeline for implementing the Gulf War Research Strategic Plan was developed, and can be updated now that the Strategic Plan has been approved.

An area of emphasis for the Gulf War Research Portfolio is to increase the involvement of VA researchers and to increase the number of proposals submitted to ORD for evaluation and possible selection for funding. ORD plans to assist potential researchers in planning their proposals, to include help in designing effective treatment trials and help in recruiting sufficient numbers of participants. ORD will also initiate awards for Gulf War researchers. As a follow-on activity from the successful researchers meeting in September 2012, ORD will hold regular teleconferences, the first of which will be in, fall 2013 and created online mechanisms for researchers to share information.

Service-Directed Gulf War Research

ORD is reviewing recently completed, single-site treatment projects involving Gulf War Veterans to determine if larger-scale follow-up projects at multiple VAMCs are warranted.

Two ongoing service-directed pilot Gulf War research projects have moved from the "development" stage to the point where Veterans can be enrolled. They will facilitate clinical trials and other investigative studies on this population of Veterans by helping researchers locate appropriate research subjects.

The first of these, the Gulf War Era Cohort and Biorepository (CSP 585) is a pilot project which will begin to enroll Gulf War-era Veterans in August 2013. This will create a new group of Veterans enrolled over the next few years from across the entire U.S., regardless of whether or not they receive their health care from the VA health care system. This new study will request that Veterans donate blood and complete a newly-developed questionnaire on health care utilization and their symptoms. Gulf War Veterans who sign up for CSP 585 will also be contacted about participating in other

Gulf War studies. The cohort will be a resource for other investigators to utilize for future research projects. More information is available at http://www.research.va.gov/programs/csp/csp585.cfm.

The second service-directed pilot Gulf War research project, the Gulf War Veterans' Illnesses Biorepository, is a pilot repository for autopsy tissues from Gulf War Veterans from across the U.S. Now that the project has been launched, the main effort will be to inform Veterans and their families, VSOs, and other interested parties about the project. More information is available at http://www.research.va.gov/programs/tissue_banking/gwvib/.

VA is making an effort to increase the number and quality of projects that are submitted by researchers and subsequently funded by VA. The long-range goal is to conduct research that will help with the diagnosis and treatment of ill Gulf War Veterans.

Metrics and Accountability:

The VA Gulf War Program Manager presents the VA Gulf War research portfolio as part of the annual vision setting meeting for the GWIRP within DoD's CDMRP. A joint VA/DoD program review is also scheduled for 2013. This allows VA and CDMRP to coordinate their respective Gulf War research programs. Additionally, the VA Gulf War research portfolio is presented and discussed at meetings of the RACGWVI and NRAC, which allows the advisory committees to maintain their understanding of the activities within VA so that appropriate recommendations may be formulated.

In response to the two sets of RFAs issued in 2012, 31 proposals were received and 6 were recommended for funding. By contrast, in 2011, 26 proposals were received and 3 were funded. Funding for Gulf War research projects increased from $5.6 million in 2011, to $6.7 million in 2012, to a projected $7.8 million in 2013. This represents increases in submissions and funding success rates, and this trend is a measure of the growth of the Gulf War research program. At the same time, the Merit Review process, which utilizes outside experts to evaluate research projects, ensures that the ongoing research is of the highest quality.

VA is the lead agency for preparing the Annual Report to the Committees on Veterans' Affairs of the Senate and the House of Representatives on Federally Sponsored Research on Gulf War Veterans' Illnesses that is required by § 707 of Public Law 102-585, as amended by § 104 of Public Law 105-368 and § 502 of Public Law 111-163. The report focuses on the status and 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, status and priorities of federally funded research activities related to the health consequences of military service in the Gulf War identified during that year. The 2011 Annual Report to Congress was released in September 2012 and can be found at: www.research.va.gov/resources/pubs/pubs_individual.cfm?Category=Gulf%20War%20

Reports. Funding totals for Gulf War research taken from the draft 2012 report are summarized in Appendix F.

APPENDIX A – Responses to Public Feedback

The GWVI-TF released a draft of this report for public comment in May 2013. During the 30 days that the draft report response period was open, VA accepted public comment through both the Federal Register and a social medial platform (UserVoice) that collected feedback online. In total, VA received nearly 180 comments from 600 individuals. These comments ranged from specific feedback on the report to testimonials regarding Veterans' experiences with VA health care and benefits delivery and their service during the 1990-91 Gulf War. The online platform also provided an opportunity for users to "vote" for various ideas presented on the Web site related to Veteran concerns and report subjects. A review of the comments received was completed and the following broadly supported concerns were identified:

1. **Sleep apnea and other sleep disturbances are a problem for many GW Veterans, but they rarely are able to get Service Connected for these problems and often also are not receiving effective health care to minimize their impact on Veterans' quality of life.**

VA is aware of the concerns regarding sleep apnea and other sleep disturbances in the Gulf War Veteran population. VA regulations, 38 CFR § 3.317, consider "sleep disturbances" as a sign or symptom of qualifying disability for certain Gulf War Veterans who experience sleep disturbances as a result of an unknown clinical diagnosis. In many cases, when there is a known diagnosis of a condition that produces symptoms of sleep disturbance, VA may not be able to establish service connection for such condition unless the condition manifested itself during service or, if manifested later, is shown to be related to service. Regarding sleep apnea, VA understands the challenges this condition can present for Veterans. Additional research related to sleep apnea is needed to determine the extent of the problem in Gulf War Veterans and to determine if there is a link to some aspect of their service. Numerous scientific studies have been conducted to investigate possible causes and associations between Gulf War Veterans and various illnesses. The National Academy of Sciences' IOM has conducted a series of reviews of scientific literature documenting research in these areas to identify and explain disability patterns associated with Gulf War service in terms of the potential health hazards experienced in the Southwest Asian environment. In response to these reviews, VA recognizes those disabilities and disability patterns which have been validated by scientific research in the regulation (38 CFR § 3.317) as qualifying disabilities for Gulf War Veterans for purposes of payment of disability compensation. VA will continue to monitor the body of scientific evidence specifically as it relates to sleep apnea.

Although the scientific body of evidence surrounding sleep apnea in Gulf War Veterans is still being developed, VAMCs and clinics are committed to treating eligible Veterans with sleep apnea and other sleep disturbances using the most current medical treatments available. A very small preliminary study with eight Gulf War Veterans suggests that treating their symptoms of sleep apnea improved the general health of

Gulf War Veterans, and this outcome needs to be investigated in a larger group of Veterans.

A number of factors complicate solving Veterans' sleep problems. First the science of sleep is relatively young, and as the science advances, treatment ideas also change. Next, the different sleep problems (insomnia, nightmares, and obstructive sleep apnea) experienced by Veterans can require different treatments or combinations of treatments. In addition, medications commonly used in improving sleep like use of benzodiazepines and some kinds of anti-depressants generally are ineffective or have only a limited effect. Third, in the military, schedules that result in sleep deprivation result in the same symptoms as obstructive sleep apnea (excessive daytime sleepiness) and some people following forced changes in sleep patterns have great difficulty re-establishing a normal sleep pattern. Fourth, studies have only recently identified that sleep is a primary target to improve rather than a consequence of other problems. Fifth, patients variably adopt or poorly tolerate even effective treatments like establishing better sleep hygiene practices (avoiding alcohol, caffeine, going to bed at same time every night, etc.) and continuous positive airway pressures (CPAP) for sleep apnea. Perhaps 50 percent of patients dispensed a CPAP device do not use it. Sixth, the obesity epidemic is associated with increased obstructive sleep apnea (perhaps as many as 50 percent of the population would meet criteria for at least mild sleep apnea from some centers) blurring contributing factors to the development of sleep disturbance. We agree that there are not very many studies that examine interventions in the sleep disturbances of Veterans, although some new studies have recently been funded. Finally because the science of sleep is changing rapidly, communicating these changes with primary care teams adds challenges. VA is working to improve sleep management through its Specialty Care Neighborhoods and collaboration of specialists with the PACT, as well as by implementing a telehealth approach to allow greater access to sleep specialists. The Specialty Care Neighborhoods is a pilot project that is based on the American College of Physician's Medical Neighborhood principles, System Redesign Principles and the use of Specialty Care Navigators.

2. **Similarly, diabetes was reported as a concern by many providing public comment, particularly the inability to establish a service connection for GW Veterans.**

At this point there is not enough evidence to presumptively link a cause of diabetes to service of Gulf War I Veterans. More evidence may emerge about a linkage, but the evidence is not yet sufficient.

3. **Clinicians often do not effectively recognize and support GW Veterans suffering from symptoms common among them, referred to variably as chronic multi-symptom illness or more commonly as Gulf War Illness/Syndrome. Comments also raised concerns about adequate access to specialty consultations, diagnostic work ups, and referrals to the War Related Illness and Injury Study Center (WRIISC) to fully describe and understand the clinical picture for ill GW Veterans.**

Clinician training that supports better recognition and treatment of Gulf War Veterans suffering from chronic multi-symptom illness is a major focus of this Gulf War Task Force Report. VA's plan to improve clinician training is covered in the section of the report titled "Clinical Education and Training" on pages 15-18.

VA recognizes that the unique exposures experienced by Gulf War Veterans during their military service requires specialized knowledge concerning military service and environmental hazards be widely available throughout VA and specifically within the clinical environment. Specific expertise concerning the health effects of environmental hazards is usually limited to clinicians trained in occupational medicine and emergency medicine. The challenge for VA is to ensure that specialized knowledge about deployment related environmental hazards is available to all clinicians who provide health care to Veterans. Deployment related clinical education and training are essential enablers of optimal clinical care for Gulf War Veterans.

There have been multiple efforts at education directed at assisting providers in diagnosing GWVI. For example, there have been Webinars which have been very well attended. Some were sponsored by primary care and others by the PDICI. However, VA recognizes that not all providers have participated, and more educational material is available in various online formats.

To assist providers with accurately diagnosing chronic multisymptom illness, a clinical reminder has been developed. However, linking that reminder to this group of Veterans has met some barriers, and we are working to overcome those barriers. This reminder serves to lead the provider through the process of putting together the pieces of the various aspects of multisymptom illness in this group of Veterans.

Also, there is a well-developed network of primary care providers in many VA health care facilities supported by the highest levels of specialty medical care at larger teaching medical centers through VA's SCAN-ECHO program. SCAN-ECHO uses teleconferencing to increase the ability of primary care providers to manage common

specialized medical problems by connecting them to a specialty team. The specialty teams provide training through a variety of presentations and more formal instruction.

The following is a link that describes the SCAN-ECHO program at San Francisco:

http://www.sanfrancisco.va.gov/features/SCAN_ECHO.asp.

Finally, VA's three WRIISCs located in Washington, DC; East Orange, New Jersey; and Palo Alto, California, are currently supporting primary care and sharing timely education and cutting edge research and treatment programs tailored to Gulf War Veterans. The WRIISCs provide teams of multidisciplinary clinicians uniquely qualified to evaluate Veterans with deployment-related health concerns and provide a clinical "second opinion" resource to Veterans via a referral process based on geographic location. This also serves as a "tertiary level" in a stepped care approach to post-deployment health concerns. Step one in care involves the education, training, and experience of the Veterans' PACT.

4. **Research funding and focus needs to be better targeted towards practical steps to improve Veterans lives. Comments asked what VA research has done to assist GW Veterans and how it has improved their lives. Many comments asked that treatments need to be found for many ailments that GW Veterans suffer from and asked why the research had not found adequate explanations for why GW Veterans are sick.**

Many different types of research projects are being conducted that will help Gulf War Veterans. As examples, VA has supported: (1) imaging studies (MRI) that show differences in the brains of Gulf War Veterans, (2) projects to develop laboratory tests, and (3) new clinical treatments designed to relieve Gulf War Veterans' symptoms. Together, the results of VA and non-VA projects are giving us a better understanding of the problems faced by ill Gulf War Veterans. VA will also consider research projects designed to evaluate new treatments or measure patient satisfaction with their health care.

VA is committed to supporting research that will ultimately help Gulf War Veterans. Funding for VA's Gulf War research program dropped suddenly when a very specialized project came to an end, but VA is in the process of reaching its target of $15 million per year by increasing the number of active projects. Before a project can be selected for funding, it must be evaluated by a panel of experts (physicians and scientists) to determine if the study is scientifically valid and appropriate to Gulf War Veterans. At the present time, every project that meets the quality standards set by the expert panel is approved for funding.

Recent research efforts have been on treatments for the symptoms affecting Gulf War Veterans, and on better ways of diagnosing Gulf War Veterans. New treatments being tested include exercise training to improve memory and reduce pain, transcranial magnetic stimulation to reduce pain, antibiotics to treat digestive problems, positive airway pressure devices to improve sleep and fatigue, new prescription drugs to reduce pain and improve cognition, and new light therapies to improve cognition. If these

treatments prove to be successful at one medical center, then VA will organize multi-site studies that would involve larger numbers of Veterans in many locations.

Studies to improve the ability to diagnose Gulf War Veterans are also ongoing. These include the imaging studies of the brain, studies of inflammation that affects blood flow, and studies of central nervous system problems that affect many different organs. The brain imaging techniques show promise for use as biomarkers of fatigue, muscle function, and exposure to chemicals in theater. Additionally, early results of research into the use of blood plasma for laboratory tests for chronic multisymptom illness is promising.

Even with the emphasis on treatments and diagnostic tests, VA continues to support research involving animal models (mice and rats) of the exposures to hazardous materials in Southwest Asia. Gulf War Veterans were exposed to unknown quantities of so many different hazards that it has been difficult to determine which one(s) caused adverse health effects. The ongoing animal studies should help to resolve this issue.

5. Many comments were submitted regarding the Gulf War Registry. Questions were asked regarding what the registry is used for, how to be get on the registry or update information in a record, and what the registry has done to improve the lives of GW Veterans.

The VA's Gulf War Registry is a free, voluntary medical assessment for Gulf War Veterans who may have been exposed to certain environmental hazards during military service. The evaluations alert Veterans to possible long-term health problems that may be related to exposure to specific environmental hazards during their military service. Veterans may enroll in the Gulf War Registry by contacting their local VA Environmental Health Coordinator. A list of EH Coordinators is available on the internet at the following address: http://www.publichealth.va.gov/exposures/coordinators.asp

Enrollment in the Gulf War Registry starts with a comprehensive health exam which includes an exposure and medical history, laboratory tests, and a physical exam. A VA health professional will discuss the results face-to-face with the Veteran and in a follow-up letter. Veterans enrolled in the Gulf War Registry receive periodic updates on issues related to the Gulf War. New VA programs or research are examples of updates that are sent to Gulf War Veterans who enroll in the registry.

Important points about registry health exams:

- Free to eligible Veterans with no co-payment;
- Not a disability compensation exam or required for other VA benefits;
- Enrollment in VA's health care system not necessary;
- Based on Veterans' recollection of service, not on their military records;
- Veterans can receive additional registry exams, if new problems develop; and
- Veterans' family members are not eligible for registry exams.

The Gulf War Registry consists of self-identified individuals and so any study of registry participants would not include the entire population of Gulf War Veterans.

For this reason VA has been following a population based cohort of 30,000 Gulf War and Gulf War Era Veterans since 1995. This cohort has been carefully sampled from the 697,000 Veterans who served in the Gulf War and 803,000 Veterans who served in that era to represent the entire population of Veterans serving in 1990-1991. The goal of this research project is to determine whether or not the health of Veterans deployed to Gulf War I is better, worse, or the same as their non-deployed counterparts. Currently, OPH is completing the Follow-up Study of a National Cohort of Gulf War and Gulf Era Veterans, which is the third assessment in a series of surveys that examines trends in health status over time, and health outcomes of self-reported military exposures in the 1991 Gulf War. The results of this study will help VA to better understand the health consequences of military deployment and to guide delivery of health care. More information and results of this study are posted on the Internet at http://www.publichealth.va.gov/epidemiology/studies/gulf-war-follow-up.asp

6. **There is a disconnect between what Veterans' current medical records, WRIISC work ups, and other specialty clinical diagnostics report, and the claims that GW Veterans find are too often denied. Comments ask that VA find a way to better synchronize the clinical picture that health care providers develop with the claim adjudication process. Of particular concern was the diagnosis of Chronic Fatigue, Fibromyalgia, inflammatory bowel disease, and symptom patterns consistent with chronic multi-symptom illness in the health care setting, but denial of these same illnesses in the disability compensation claim process.**

Multisymptom illnesses are very challenging for patients because the symptoms are often treated individually until someone links them to a multisymptom illness. The diagnosis is frequently complex and made over time as the various symptoms emerge and are treated. VA understands the complexities involved in the treatment of multisymptom illnesses and the evaluation of such conditions for purposes of paying disability compensation. For this reason, VA clinicians who perform examinations in conjunction with disability claims are receiving enhanced training. Further, through individual quality reviews planned for the upcoming year, VA will better monitor the results of Gulf War claims decisions to determine if qualifying conditions are being granted appropriately.

7. **Comments regarding disability compensation concerns were focused around the backlog/long waiting times for claims processing and an impression that there is a great deal of inconsistency in how GW claims are adjudicated between Regional Offices.**

VA is committed to eliminating the national backlog of disability claims and the associated delays occurring in the claims process, which includes Gulf War claims. VA is implementing a comprehensive Transformation Plan—a series of people, process and technology initiatives—to increase productivity and accuracy of disability claims processing. Once the Transformation Plan is fully implemented, VA expects to systematically reduce the backlog and reach its 2015 goal - to eliminate the claims backlog and process all claims within 125 days with 98 percent accuracy. For more information, please visit: http://www.benefits.va.gov/TRANSFORMATION/
VA has established a national quality review program that evaluates how well decision makers from all regional offices agree on an eligibility determination on disability compensation claims when reviewing the entire body of evidence. Due to concerns about consistency in the processing of Gulf War Veterans' claims, VA will include a specific review of commonly rated Gulf War conditions during the next year. The data from this review will allow VA to develop training and enhance procedures, as appropriate, to ensure all regional offices are processing Gulf War Veterans' claims in a consistent manner.

Additional Questions and Comments and Responses:

1. Why does VA use outdated criteria to diagnose Chronic Fatigue Syndrome?

There is no single laboratory or x-ray test that can definitely indicate chronic fatigue syndrome. Because the symptoms of chronic fatigue syndrome can look like so many other health problems, diagnosis takes time. The provider must rule out other possible treatable illnesses before diagnosing chronic fatigue syndrome. These other illnesses include:

- **Sleep disorders.** A sleep study can determine if rest is being disturbed by things like obstructive sleep apnea, restless leg syndrome or insomnia, all of which can result in significant fatigue.
- **Medical problems.** Several medical conditions cause fatigue, including anemia, diabetes and underactive thyroid (hypothyroidism). Lab tests help with diagnosing these.
- **Mental health issues.** Many different mental health problems, such as depression, anxiety, bipolar disorder and schizophrenia, can also cause fatigue. A qualified mental health professional can help determine if one of these problems is causing the symptoms of fatigue.

For VA purposes, the diagnosis of chronic fatigue syndrome requires:

(1) new onset of debilitating fatigue severe enough to reduce daily activity to less than 50 percent of the usual level for at least six months; and

(2) the exclusion, by history, physical examination, and laboratory tests, of all other clinical conditions that may produce similar symptoms; and

(3) six or more of the following:

(i) acute onset of the condition,

(ii) low grade fever,

(iii) nonexudative pharyngitis,

(iv) palpable or tender cervical or axillary lymph nodes,

(v) generalized muscle aches or weakness,

(vi) fatigue lasting 24 hours or longer after exercise,

(vii) headaches (of a type, severity, or pattern that is different from headaches in the pre-morbid state),

(viii) migratory joint pains,

(ix) neuropsychologic symptoms, and

(x) sleep disturbance.

38 CFR § 4.88a.

2. Why has VA not done a follow up study on diagnosed illnesses among GW Veterans?

VA has been following a cohort of Gulf War and Gulf War-era Veterans since 1995, and has been documenting changes in health status. Data collection for the second follow-up study of this cohort is in the final stages. The results of this study have been published in the following peer reviewed journals:
Li B, Mahan C, Kang H, Eisen S, Engel C. Longitudinal Health Study of U.S. 1991 Gulf War Veterans: Changes in Health Status at 10-year Follow Up. 2011. American Journal of Epidemiology. 174(7): 761-8.

Kang HK, Li B, Mahan CM, Eisen SA, Engel CC. Health of U.S. Veterans of the 1991 Gulf War: A follow up survey in 10 years. 2009. Journal of Occupational and Environmental Medicine. 51(4): 401-10.

Additionally, VA has performed follow-up analyses on neurological mortality among Gulf War Veterans, and is in the process of initiating another follow-up study. Results from this first follow up study have been published in the following peer reviewed journal:

Barth SK, Kang HK, Bullman TA, Wallin MT. Neurological mortality among U.S. Veterans of the Persian Gulf War: 13-year follow-up. American Journal of Industrial Medicine. 52(9): 663-70.

3. Why has VA not done the Congressionally mandated study on MS in GW Veterans?

VA's long-term studies conducted by the VA MS Center for Excellence satisfy the law. No evidence has been found of an increased risk. A new epidemiological study by IOM that addresses the requirements of the law as originally intended is scientifically infeasible and fiscally prohibitive. Section 804 of Public Law 110-389 enacted in October 2008 required VA to enter into "a contract with the Institute of Medicine (IOM) of the National Academies to conduct a comprehensive epidemiological study for purposes of identifying any increased risk of developing multiple sclerosis as a result of service in the first Gulf War." The IOM Gulf War and Health literature review on the Health Effects of Service in the Gulf, Volume 8 – Update 2009, found that neither MS nor any other neurological condition was occurring more frequently in deployed personnel than in non-deployed personnel. VA has published two studies that show no increased incidence of MS in deployed Veterans. These studies of neurological mortality are ongoing at the VA Multiple Sclerosis Center of Excellence. The law requires the determination of the incidence and prevalence of "central nervous system abnormalities that are difficult to precisely diagnose," however, it is scientifically infeasible to determine the occurrence of such abnormalities because they are not defined. IOM has stated that an epidemiological study solely addressing MS would take 12 years.

4. Does ALS occur in higher prevalence in GW Veterans?

In the late 1990's there were concerns that Gulf War Veterans had higher rates of ALS than other groups. Two scientific studies were published in 2003 indicating approximately twice as many cases of ALS in deployed Gulf War Veterans relative to control groups. ALS is believed to be initiated by "triggers" in the environment, so there was concern that either the preparations for deployment or an exposure in the Kuwait Theater of Operations might be responsible for this increase. An article published in 2005 suggested that all Servicemembers might have an elevated risk of developing ALS, and the Institute of Medicine (IOM) reported in 2006 that "on the basis of its evaluation of the literature…, there is limited and suggestive evidence of an association between military service and later development of ALS."

To date, it is still unclear whether military service itself leads to an increased incidence in ALS. However, because of the IOM conclusion, in 2008 VA issued a presumption of service connection for ALS in any Veteran who served continuously for 90 days or more on active duty in the military.

References:

Haley RW. Excess incidence of ALS in young Gulf War Veterans. Neurology. 2003; 61(6): 750-756.

Horner RD, Kamins KG, Feussner JR, Grambow SC, Hoff-Lindquist J, Harati Y, Mitsumoto H, Pascuzzi R, Spencer PS, Tim R, Howard D, Smith TC, Ryan MA, Coffman CJ, Kasarskis EJ.

Neurology. 2003;61(6):742-749. Weisskopf MG, O'Reilly EJ, McCullough ML, Calle EE, Thun MJ, Cudkowicz M, Ascherio A. Prospective study of military service and mortality from ALS. Neurology. 2005; 64(1): 32-37.

5. Why is presumptive period for MS based from date of discharge and not date of deployment? What are the rules and why?

In accordance with 38 U.S.C. § 1112(a)(4), service connection on a presumptive basis may be established for any Veteran who develops MS to a degree of 10 percent or more within 7 years from the date of separation from military service. The establishment of the beginning of the presumptive period at the time of discharge, instead of date of deployment, provides a longer period of opportunity for establishing service connection for MS.

6. **Does VA use clinical data from health records to help prioritize what it researches? (i.e. research treatments for problems GW patients suffer from at higher rates.)**

VA health care providers generally use their interactions with Veterans in the clinics rather than patient records to determine which health questions they will investigate as research projects. In this way, VA research can target the specific problems facing Veterans, which may or may not affect the general population. Reviewing patient records can be challenging because of the safeguards which are in place to protect privacy and patient confidentiality. Any research project suggested by a VA clinician must be explained in detail with a specific goal and a complete description of any testing to be done or any information to be gathered about patients. Each proposed project is evaluated by a panel of outside experts to determine (1) if the medical/scientific principles are valid and (2) if the procedures are safe for the patients. VA only approves research projects that meet all the evaluation criteria.

7. **Regarding Depleted Uranium (DU): A mention should be made that, in spite of a lack of clinical studies of humans (not sure how that would ethically be undertaken) and DU exposure, a July 1990 report from the U. S. Army Armament, Munitions and Chemical Command noted that depleted uranium is linked to cancer when exposures are internal. Another report by the AMCCOM (the army's radiological task group) states that long term effects of low doses of depleted uranium have been implicated in cancer and that "there is no dose so low that the probability effect is zero." Don't white wash DU like the initial white wash of Agent Orange.**

VA has followed a group of highly-exposed DU Gulf War Veterans for over 20 years. This medical surveillance program has included biennial physical exams and extensive laboratory tests. The 10-year results of this study have been published and can be obtained from the following link: http://www.veterans.gc.ca/eng/department/external-reports/science-advisory-com/report-summary. To date, this study has found no evidence of increased cancer risk.

While there are no comprehensive epidemiologic studies of cancer in DU-exposed military populations, studies of uranium workers have provided some assurances about the cancer risk from uranium exposure. Even in the most recent follow up of a large retrospective cohort study examining mortality from all causes over a 50-year period in a group of 718 uranium millers who had relatively low radon exposure and high uranium ore exposure, the findings showed no statistically significant increase in mortality from any cause (Boice, 2008). There are challenges to assessing exposures in workers, however. Beyond exposure to natural uranium, exposures may also include radon and other carcinogens in the mines, and in the case of miners, and some processing workers, enriched uranium, plutonium, asbestos, and other chemical toxicants. All of these exposures add to the burden of parsing out a potential cancer risk from uranium exposure alone.

An IOM report that reviewed this topic in 2000 in the context of military exposures to DU regarding the cancers of concern, stated that for bone cancer and lymphatic cancer, there was inadequate/ insufficient evidence to determine whether an association does or does not exist between exposure to uranium and development of these cancers. Surprisingly, their determination regarding evidence for a lung cancer excess was even stronger stating that it "concludes that there is limited/suggestive evidence of no association between exposure to uranium and lung cancer at cumulative internal dose levels lower than 200 mSv or 25 cGy. However, there is inadequate/ insufficient evidence to determine whether an association does or does not exist between exposure to uranium and lung cancer at higher doses of cumulative exposure."

In 2008, the IOM updated their review of this topic and stated similar findings and with regard to lung cancer, that 'there is no consistent evidence of an effect of exposure to natural or depleted uranium on lung-cancer incidence in the studies reviewed.

The National Research Council (NRC) also weighed in at that time, finding that "the epidemiologic data on workers exposed to uranium compounds are substantial…but the preponderance of the evidence indicates that there is not an appreciable risk of cancer in humans exposed to uranium." (NRC, 2008).

Other radiologically mediated health effects in humans due to exposures to natural or depleted uranium are thought to be unlikely due to the relatively low specific activity of these isotopes. This is supported by available animal and human data (Agency for Toxic Substances and Disease Registry (ATSDR), 1999)).

Enriched rather than depleted uranium, however, may pose true carcinogenic and other noncarcinogenic hazards, although even in this case, no human cancers have been documented from enriched uranium exposure. The Biological Effects of Ionizing Radiation (BEIR) IV report raises the possibility that if uranium were a human carcinogen, bone sarcomas would be the most likely cancer type seen (BEIR,1988). The report stated that "exposure to Natural uranium is unlikely to be a significant health risk in the population and may well have no measurable effect." Therefore, risks from low exposures to DU would be expected to be even less.

References:

ATSDR, Toxicological Profile for Uranium, ATSDR, Agency for Toxic Substances and Disease Registry, Atlanta, GA, 1999.

BEIR IV (Committee on the Biological Effects of Ionizing Radiation), Health Risks of Radon and Other Internally Deposited Alpha Emitters, Boice JD, S. S. Cohen, M. T. Mumma, B. Chadda et al., A cohort study of uranium millers and miners of Grants, New Mexico, 1979–2005. J. Radiol Prot. 28, 303–325 (2008).

Guilmette RA, Parkhurst MA, Miller G, Hahn FF, Roszell LE, Daxon EG, Little TT, Whicker JJ, Chen YS, Traub RJ, Lodde GM, Szrom F, Bihl DE, Creek, KL, McKee, CB. Human health risk assessment of Capstone depleted uranium aerosols. Columbus, OH: Battelle Press, 2005.

Institute of Medicine (IOM), Gulf War and health. In C. E. Fulco et al., eds., Depleted uranium Pyridostigmine Bromide, Sarin,Vaccines,Vol. 1, National Academy Press,Washington, DC, 2000.

Institute of Medicine (IOM), Gulf War and health. Updated review of depleted uranium. National Academy Press, Washington, DC, 2008.

National Research Council. Review of toxicologic and radiologic risks to military personnel from exposure to depleted uranium during and after combat. Washington DC; National Academy Press, 2008.

Parkhurst, MA, Daxon EG, Lodde GM, Szrom, F, Guilmette RA, Roszell LE, Falo GA, McKee CB. Depleted uranium aerosol doses and risks: Summary of U.S. Assessments. Columbus, OH: Battelle Press, 2005.

8. Regarding nerve agent exposure: the findings in the following article: <u>Meteorological and Intelligence Evidence of Long-Distance Transit of Chemical Weapons Fallout from Bombing Early in the 1991 Persian Gulf War</u> by Tuite J.J. · Haley R.W. (Neuroepidemiology 2013;40:160–177 (DOI: 10.1159/000345123)) need to be addressed. The veterans who were exposed need to be contacted and examined and followed medically—the ones who are still alive, anyway.

The following is the abstract from the above referenced article: "Coalition bombings on the night of 18–19 January 1991, early in the Gulf War, targeted the Iraqi chemical weapons infrastructure. On 19 January 1991, nerve agent alarms sounded within Coalition positions hundreds of kilometers to the south, and the trace presence of sarin vapor was identified by multiple technologies. Considering only surface dispersion of plumes from explosions, officials concluded that the absence of casualties around bombed sites precluded long-distance transit of debris to U.S. troop positions to explain the alarms and detections. Consequently, they were discounted as false positives, and low-level nerve agent exposure early in the air war was disregarded in epidemiologic investigations of chronic illnesses."

VA scientists reviewed the paper. The authors present a largely descriptive, rather than quantitative, review of unclassified and declassified intelligence and meteorological data concerning the possibility that coalition forces may have been exposed to chemical weapons fallout after bombing of Iraqi chemical weapons sites early 1991. VA scientists were unable to fully review this article as they do not have the meteorological expertise required to evaluate the data and theories proposed in this paper. VA requested that DoD scientists evaluate this paper. DoD scientists opined that the paper has major methodological flaws and does not provide new evidence of exposure. DoD has also contacted the National Oceanic and Atmospheric Administration (NOAA) to evaluate this paper. The NOAA evaluation is pending. The DoD evaluation of the article's major claim -- that coalition bombings on the night of 18-19 January 1991 resulted in sarin exposure of US troops many miles away -- is included below.

Summary of initial VA evaluation of this article:

1. This paper does not provide new evidence to support the need to provide medical surveillance to Veterans possibly exposed to chemical agents from the Khamisiyah incident.
2. VA is conducting an ongoing study on neurological mortality which includes Veterans possibly exposed to nerve agents from Khamisiyah as well as Veterans stationed elsewhere in the Persian Gulf area of operations. Those Veterans exposed to the Khamisiyah plume are identified in the study and analyzed separately. (Barth SK, Kang HK, Bullman TA, Wallin MT. 2009. Neurological mortality among U.S. Veterans of the Persian Gulf War: 13-year follow-up. American Journal of Industrial Medicine. 52(9): 663-670.)
3. As part of the IOM's biannual Gulf War and Health series, IOM reviews all published scientific papers related to the Gulf War. This paper and others will be evaluated by IOM and recommendations will be provided to VA.

DoD Evaluation:

From the DOD Gulf War Link (Special Assistant Gulf War Illnesses, Medical Readiness, and Military Deployments):

http://www.gulflink.osd.mil/al_muth_ii/

"II. SUMMARY

The Special Assistant undertook this investigation because some Gulf War Veterans expressed concern that they may have been exposed to chemical warfare agents released into the environment by a bombing raid on Iraq's Al Muthanna chemical weapons storage site. This narrative describes how we investigated this concern and presents our assessment of the threat to Veterans.

The State Establishment for Pesticide Production at Al Muthanna, near Samarra on the Tigris River, north of Baghdad, was the nucleus of Iraq's entire chemical warfare program. By 1985, Iraq referred to the installation as the Muthanna State Establishment. It consisted of the Al Muthanna main site and three other sites near Al Fallujah, west of Baghdad. At Al Muthanna, the chemical warfare agent production and munition filling facilities were separate from chemical munition storage where Iraq stored chemical munitions in the open and in large, structurally hardened bunkers built in the form of a cross.

Early in the Iran-Iraq War, Iraq manufactured mustard and nerve chemical warfare agents at Al Muthanna and filled bombs, artillery shells, and rockets with them. Before the Gulf War, Iraq halted production of the nerve agent tabun, but produced the nerve agents sarin and cyclosarin instead. In mid-January of 1991, the Defense Intelligence Agency assessed that Iraq transferred chemical munitions from Al Muthanna during the week before the air campaign started. Nevertheless, because of its history, Al Muthanna and the rest of the Muthanna State Establishment were major targets in the air campaign of Operation Desert Storm.

Iraq's response to United Nations Resolution 687 after the war declared that air attacks on Al Muthanna destroyed sarin-filled 122mm artillery rockets stored in a bunker there, but did not damage 122mm rockets stored in the open. United Nations inspectors estimated that, at the time of the bombing, the bunker identified as Bunker 2 contained between 1,000 and 1,500 leaking or problem-plagued sarin-filled 122mm rockets, probably left over from Iraq's war with Iran. The Central Intelligence Agency accepts the United Nations estimate.

Our investigation determined that an F-117 attacked Bunker 2 at Al Muthanna early in the morning of February 8, 1991, with a laser-guided bomb. Although the bomb caused little external damage to Bunker 2, it destroyed the sarin-filled 122mm rockets stored inside the bunker. Iraq reported that an extensive fire in Bunker 2 caused by the air attack consumed all the rockets and associated packing materials. United Nations photographs taken after the war confirmed this report.

The Central Intelligence Agency estimated that Bunker 2 contained 1.6 tons of viable chemical warfare agent at the time of its destruction, and that approximately 10 kilograms of the sarin escaped from Bunker 2 into the atmosphere in the first few seconds after the bomb exploded. After that time, the extreme temperatures inside the bunker destroyed all the remaining vaporized agent before it vented into the atmosphere.

We used a combination of meteorological and dispersion models as recommended by the Institute for Defense Analysis to estimate the dispersion of the sarin vapor cloud possibly released by this air attack. Using the Central Intelligence Agency estimates of the size and character of the chemical warfare agent released, our modeling shows the maximum downwind hazard extended approximately 50 kilometers to the southeast of Al Muthanna.

On February 8, 1991, the closest U.S. forces were 412 kilometers south of Al Muthanna and 388 kilometers south of the nearest point of the downwind hazard area that might have resulted from the attack on Bunker 2 at Al Muthanna. Therefore, we assess that the hazard area of the possible sarin release at Al Muthanna definitely did not extend far enough to reach any deployed U.S. forces, and any chemical warfare agent released from Bunker 2 at Al Muthanna definitely did not expose U.S. Servicemembers to hazardous levels of contamination."

http://www.gulflink.osd.mil/al_muth_ii/al_muth_ii_s03.htm#2StrikesAgainstAlMuthanna

"2. Strikes Against Al Muthanna

According to U.S. Central Command Air Tasking Orders, the U.S. Navy launched 19 TLAMs [Tomahawk Land Attack Missiles] against Al Muthanna targets on January 17, 1991, and 12 more on January 19 and 20. Three U.S. Navy A-6 aircraft dropped 12 GBU-10 [Guided Bomb Unit] bombs and 3 additional A-6s dropped 12 Mk-84 bombs on January 19th (Tab F). Three more A-6s delivered Mk-84 bombs on January 27, 1991. These attacks proved relatively ineffective against the reinforced cruciform bunkers.[40]

Beginning February 3, 1991, and continuing for 20 days, USAF [United States Air Force] F-117s attacked Al Muthanna with GBU-10 and GBU-27 bombs (Tab F).[41] The GBU-27 is a 2,000-pound laser-guided bomb with a warhead capable of penetrating hardened structures like Al Muthanna's Bunker 2.[42]

On February 3, 1991, F-117s dropped 1 GBU-27 and 5 GBU-10 bombs on suspected chemical ammunition storage bunkers. The F-117s returned and dropped 55 more GBUs on suspected chemical warfare agent bunkers between February 7 and 8. Finally, on February 23, 1991, F-117s dropped 10 GBU-27 bombs on the Al Muthanna bunkers (Tab F). Aircraft video that F-117 pilots routinely used to preserve the history of their attacks against targets in Iraq confirmed these events.

The Combat Mission Report for US Air Force mission 3323B (Tab F) reports it destroyed Bunker 7 at Al Muthanna on February 8, 1991.[43] However, our careful review of the gun camera film from this mission revealed it actually attacked Bunker 2.[44] Since the mission flew at night in a hostile environment, it was easy for the pilot to mistake which bunker he struck.

We used the Weapons Effects and Performance Data Archival (WEAPDA) system developed by the Defense Special Weapons Agency (now named the Defense Threat Reduction Agency) to review the weapon effects, mission, and target data collected and assembled for most of the successful F-117 attacks on Al Muthanna. WEAPDA video shows that an F-117 attacked Bunker 2 with a GBU-10 on February 8, 1991. It shows the GBU-10 flying into a crater from a previous bomb strike. The video of this attack captured the expulsion of smoke and dust from Bunker 2.[45] Additional frames show several previous hits on Bunker 2, later confirmed on site by UNSCOM [United Nations Special Commission] inspectors.[46] However, these other attacks did not penetrate the structure."

9. Does the VA share reports with UK Ministry of Defense, if VA compares statistics with UK Veteran data, and if VA asks for research support from UK GW Vets?

OPH has a British Army liaison officer who has shared the VA Gulf War Task Force reports with the UK Ministry of Defense. This officer also provides comparable information from the UK. In addition, VA is part of the Senior International Forum (SIF) (Australia, New Zealand, United Kingdom, U.S., and Canada) which meets every 18 months, and shares deployment related information such as the Gulf War Task Force Report. The most recent SIF meeting was in Canberra, Australia in November 2012. The United States will host the SIF in 2014.

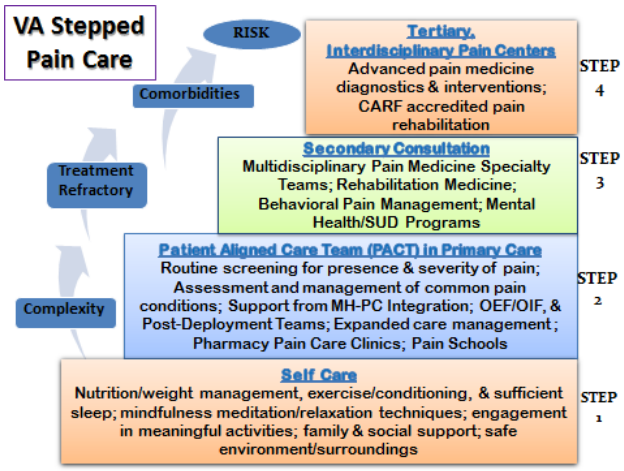
10. Many GW Veterans experience pain which reduces their quality of life substantially. What is VA doing to assist these Veterans?

Chronic pain is our society's most common and most costly chronic illness. Chronic pain has the potential to change a person's life trajectory, sometimes catastrophically, when treated inadequately or unwisely. Without a good pain care plan, a Veteran can become discouraged, even despairing, about his/her ability to achieve a comfortable

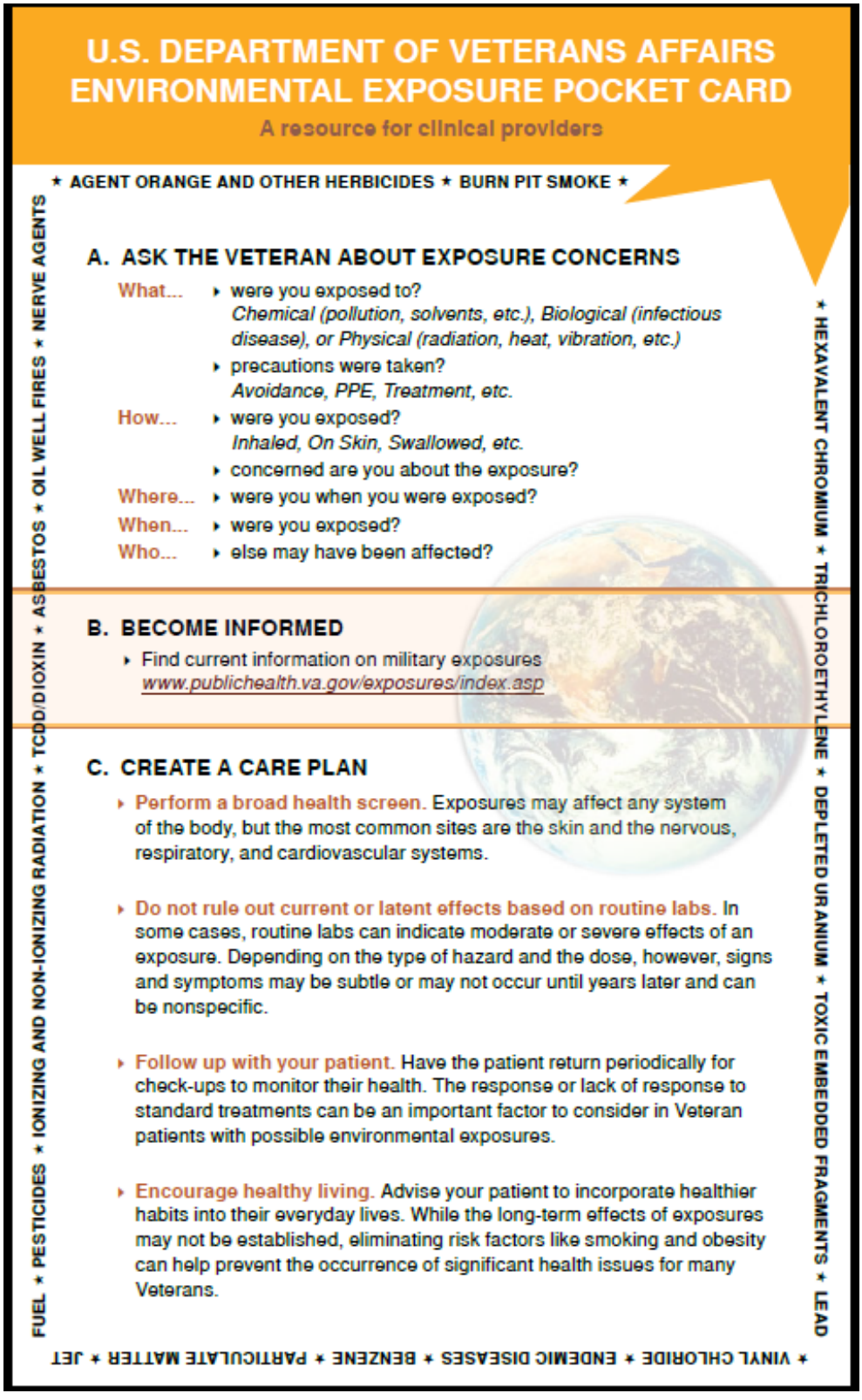
and meaningful quality of life. Veterans are not alone. A recent study by IOM reported that chronic pain affects more than 100 million Americans and costs our economy between $565 and $635 billion annually, more than the estimated costs of cancer and heart disease combined. IOM has recommended a cultural transformation in the way pain is managed in our society – how doctors and other health care providers are educated and trained to manage pain, how the public understands the causes and management of pain, and how policy-makers facilitate changes that support these goals and improve pain management throughout our society.

The most common single problem of all Gulf War Veterans is chronic pain, caused by either a painful musculoskeletal condition from battlefield wear and tear or the aftermath of severe battlefield injuries which they have survived. Injuries or environmental exposures that may seem inconsequential at the time may lead to chronic pain later on, and are worsened by other neurological conditions such as TBI or psychological conditions such as chronic stress in PTSD or depression. This may be especially true in GWVI, in which the body's and brain's ability to turn off pain signals may be impaired, so that even low pain signals are permanently "turned on and turned up" due to changes in the brain, resulting in sometimes debilitating pain. The good news is that although many of these conditions are chronic, and cannot be cured; they can be managed effectively using a team approach. Some recent studies suggest that the brain changes associated with such chronic pain conditions can be reversed. So how do we accomplish this?

First, we have to establish an effective model of care to address Veteran pain. A team that provides good pain care includes doctors, nurses, psychologists, social workers, physical and occupational therapists, acupuncturists and, most importantly, Veterans and their families and caregivers – indeed the whole care team all working together. VA is in the process of transforming to the PACT as the model of delivering good care to Veterans. For good pain care, VA and DoD have endorsed the Stepped Care Model (see below), which relies on self-management as its foundation and an informed and competent PACT pain team, supported by pain specialists and other specialists that can help a Veteran manage pain effectively and restore a meaningful quality of life.



APPENDIX B – Gulf War Veterans Illnesses Provider Pocket Guide



U.S. DEPARTMENT OF VETERANS AFFAIRS
ENVIRONMENTAL EXPOSURE POCKET CARD

A resource for clinical providers

★ AGENT ORANGE AND OTHER HERBICIDES ★ BURN PIT SMOKE ★

★ FUEL ★ PESTICIDES ★ IONIZING AND NON-IONIZING RADIATION ★ TCDD/DIOXIN ★ ASBESTOS ★ OIL WELL FIRES ★ NERVE AGENTS

★ HEXAVALENT CHROMIUM ★ TRICHLOROETHYLENE ★ DEPLETED URANIUM ★ TOXIC EMBEDDED FRAGMENTS ★ LEAD

★ VINYL CHLORIDE ★ ENDEMIC DISEASES ★ BENZENE ★ PARTICULATE MATTER ★ JET

A. ASK THE VETERAN ABOUT EXPOSURE CONCERNS

What...
- were you exposed to?
  Chemical (pollution, solvents, etc.), Biological (infectious disease), or Physical (radiation, heat, vibration, etc.)
- precautions were taken?
  Avoidance, PPE, Treatment, etc.

How...
- were you exposed?
  Inhaled, On Skin, Swallowed, etc.
- concerned are you about the exposure?

Where...
- were you when you were exposed?

When...
- were you exposed?

Who...
- else may have been affected?

B. BECOME INFORMED

- Find current information on military exposures
  www.publichealth.va.gov/exposures/index.asp

C. CREATE A CARE PLAN

- **Perform a broad health screen.** Exposures may affect any system of the body, but the most common sites are the skin and the nervous, respiratory, and cardiovascular systems.

- **Do not rule out current or latent effects based on routine labs.** In some cases, routine labs can indicate moderate or severe effects of an exposure. Depending on the type of hazard and the dose, however, signs and symptoms may be subtle or may not occur until years later and can be nonspecific.

- **Follow up with your patient.** Have the patient return periodically for check-ups to monitor their health. The response or lack of response to standard treatments can be an important factor to consider in Veteran patients with possible environmental exposures.

- **Encourage healthy living.** Advise your patient to incorporate healthier habits into their everyday lives. While the long-term effects of exposures may not be established, eliminating risk factors like smoking and obesity can help prevent the occurrence of significant health issues for many Veterans.

U.S. DEPARTMENT OF VETERANS AFFAIRS ENVIRONMENTAL EXPOSURE POCKET CARD

A resource for clinical providers

★ AGENT ORANGE AND OTHER HERBICIDES ★ BURN PIT SMOKE ★

★ FUEL ★ PESTICIDES ★ IONIZING AND NON-IONIZING RADIATION ★ TCDD/DIOXIN ★ ASBESTOS ★ OIL WELL FIRES ★ NERVE AGENTS

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★ VINYL CHLORIDE ★ ENDEMIC DISEASES ★ BENZENE ★ PARTICULATE MATTER ★ JET

C. DISCUSS VA SERVICES WITH THE VETERAN

VA offers specialized programs to address health issues related to deployment. Providers should encourage their patients to enroll in the VA in order to take advantage of these services as part of their overall healthcare plan.

VA Environmental Health Clinics:

- Environmental Health Clinicians provide specialized knowledge on potential environmental exposures.
- Exams are conducted for all VA Registry programs [Ionizing Radiation, Agent Orange, Gulf War (including OIF and OND), and Depleted Uranium].
- For a directory, visit: *www.publichealth.va.gov/exposures/coordinators.asp*

War Related Injury and Illness Study Center (WRIISC):

- Three locations nationwide provide telephone or inter-facility consultations:
  - -- East Orange, NJ
  - -- Palo Alto, CA
  - -- Washington, DC
- Medical evaluations and treatment plans are provided for chronic, difficult-to-diagnose conditions related to deployment.
- For additional information, visit: *www.warrelatedillness.va.gov/WARRELATEDILLNESS/index.asp*

USEFUL WEB SITES

- Exposure Fact Sheets and Newsletters for Veterans
  www.publichealth.va.gov/exposures/resources.asp
- Benefit Information
  www.publichealth.va.gov/exposures/benefits.asp
- Environmental Health Continuing Medical Education
  www.publichealth.va.gov/vethealthinitiative

U.S. Department of Veterans Affairs
Veterans Health Administration
Office of Public Health
Post-Deployment Health Strategic Healthcare Group
September 2012 (Version 5)

VA HEALTH CARE Defining EXCELLENCE in the 21st Century

PUBLIC HEALTH

IB 10-509 P96576

APPENDIX C – Research Advisory Committee on Gulf War Veterans' Illnesses (as of May 2013)

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APPENDIX F – Veterans Affairs GWVI Research

Fiscal Year	VA*	UTSW Contract**	DoD*	HHS*	FY Total
1994	$ 1,157,879	$ 0	$ 6,492,882	$ 0	$ 7,650,761
1995	$ 2,334,083	$ 0	$ 10,973,000	$ 2,514,762	$ 15,821,845
1996	$ 3,853,095	$ 0	$ 11,905,214	$ 1,616,755	$ 17,375,064
1997	$ 2,834,790	$ 0	$ 28,880,536	$ 0	$ 31,715,326
1998	$ 4,722,820	$ 0	$ 13,213,232	$ 1,634,347	$ 19,570,399
1999	$ 9,006,155	$ 0	$ 22,674,338	$ 1,640,378	$ 33,320,871
2000	$ 12,020,519	$ 0	$ 23,847,679	$ 1,567,439	$ 37,435,637
2001	$ 8,576,675	$ 0	$ 31,587,006	$ 998,870	$ 41,162,551
2002	$ 4,512,676	$ 0	$ 18,827,819	$ 799,814	$ 24,140,309
2003	$ 5,746,467	$ 0	$ 16,419,497	$ 964,105	$ 23,130,069
2004	$ 7,644,560	$ 0	$ 11,096,063	$ 466,126	$ 19,206,749
2005	$ 9,484,679	$ 0	$ 10,091,848	$ 466,481	$ 20,043,008
2006	$ 13,013,552	$ 0	$ 10,128,261	$ 455,587	$ 23,597,400
2007	$ 7,059,061	$15,000,000	$ 3,417,570	$ 441,974	$ 25,918,605
2008	$ 6,934,214	$15,000,000	$ 11,672,967	$ 433,467	$ 34,040,648
2009	$ 9,628,318	$ 6,972,481	$ 10,380,423	$ 0	$ 26,981,222
2010	$ 11,567,997	$ 2,288,755	$ 10,384,231	$ 0	$ 24,240,983
2011	$ 5,537,539	$ 31,472	$ 10,280,922	$ 0	$ 15,849,933
2012	$ 6,723,556		$ 3,676,000		$ 10,399,556
Total 1994-2012	$132,358,625	$39,292,708	$265,949,488	$14,000,105	$451,600,936

*Funds expended to support Gulf War research projects.

** Funds obligated by VA for reimbursement to the University of Texas Southwestern Medical Center at the completion of contracted work on individual task orders.

DoD total does not include CDMRP's FY2012 Gulf War funds.

APPENDIX G – Gulf War Veterans' Illnesses Task Force Members

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APPENDIX H – GWVI Web sites and Links

GWVI Web site
http://www.publichealth.va.gov/exposures/gulfwar

Caring for Gulf War Veterans
This study guide provides an overview of Gulf War experience, VA/DoD health programs available for Gulf War Veterans, and the common symptoms and diagnoses of these Veterans. Emphasis is placed on providing the most recent information from clinical and scientific studies of GWVI.
http://www.publichealth.va.gov/docs/vhi/caring-for-gulf-war-veterans-vhi.pdf

EH Clinicians and Coordinators
http://www.publichealth.va.gov/exposures/coordinators.asp

War Related Illness and Injury Study Center (WRIISC)
WRIISC is a national VA post-deployment health resource, focused on the post deployment health concerns of Veterans and their unique health care needs. The WRIISCs develop and provide post-deployment health expertise to Veterans and their health care providers through clinical programs, research, education, and risk communication.
http://www.warrelatedillness.va.gov/WARRELATEDILLNESS/index.asp

Gulf War Veterans Report: Pre 9/11
The purpose of this report is to provide comprehensive statistics on the utilization of VA benefits and health care services by Gulf War Era Veterans from the Pre-9/11 Period (August 2, 1990 to September 10, 2001).
(http://www.va.gov/vetdata/docs/SpecialReports/GW_Pre911_report.pdf)

Research Advisory Committee on Gulf War Veterans' Illnesses (RACGWVI)
The mission of the RACGWVI is to make recommendations to the Secretary on government research relating to the health consequences of military service in the Southwest Asia Theater of operations during the Persian Gulf War.
http://www.va.gov/rac-gwvi/

GWVI Research Strategic Plan
http://www.research.va.gov/resources/pubs/**Federally Sponsored Research on Gulf**

War Veterans' Illnesses
2009 Annual Report to Congress
http://www.research.va.gov/resources/pubs/pubs_individual.cfm?Category=Gulf%20War%20Reports.