Research Advisory Committee on Gulf War Veterans' Illnesses

February 28 – March 1, 2011, Committee Meeting Minutes

Department of Veterans' Affairs
Washington, DC

Research Advisory Committee on Gulf War Veterans' Illnesses
Boston University School of Public Health
715 Albany Street, T4W, Boston, MA 02118
Phone: 617-414-1392, Fax: 617-638-4857

I hereby certify the following minutes as being an accurate record of what transpired at the February 28 – March 1, 2011 meeting of the Research Advisory Committee on Gulf War Veterans' Illnesses.

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/signed/
James H. Binns
Chairman
Research Advisory Committee on Gulf War Veterans' Illnesses

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Attendance Record

Members of the Committee
James Binns, Chairman
Floyd Bloom
* Carrolee Barlow
Beatrice Golomb
Joel Graves
Anthony Hardie
Marguerite Knox
William Meggs
Jack Melling
James O'Callaghan
Lea Steele
Adam Such

Consultant to the Committee
Jack Melling

Committee Staff
Kimberly Sullivan
Sadie Richards

Designated Federal Officer
Bill Goldberg

Guest Speakers
Jeanette Akhter
Wes Ashford
Christopher (Kit) Brady
Melissa Forsythe
John Gallin
Brenda Jasper
Maxine Krengel
Gudrun Lange
Mian Li
Kelly McCoy
Louise Mahoney
Dawn Provenzale
Anna Rusiewicz
Aaron I. Schneiderman
Karen Soltes

* participated by phone

Abbreviations

ALS – Amyotrophic Lateral Sclerosis

CAM – Complementary and Alternative Medicine

CDC – Centers for Disease Control and Prevention

CDMRP – Congressionally Directed Medical Research Programs

CFS – Chronic Fatigue Syndrome

CNS – Central Nervous System

CPAP – Continuous Positive Airway Pressure

CSF – Cerebrospinal Fluid

CSP – Cooperative Studies Program

CTE – Chronic Traumatic Encephalopathy

DAV – Disabled American Veterans

DoD – Department of Defense

EPW – Enemy Prisoner of War

ERIC – Epidemiology Research and Information Center

GWIRP – Gulf War Illness Research Program

GWVs – Gulf War Veterans

HHS – Health and Human Services

HPA – Hypothalamic-Pituitary-Adrenal

IBS – Irritable Bowel Syndrome

ICU – Intensive Care Unit

IOM – Institute of Medicine

IRB – Institutional Review Board

MAVERIC – Massachusetts Veterans Epidemiology Research and Information Center

MEG - Magnetoencephalography

MRI – Magnetic Resonance Imaging

MS – Multiple Sclerosis

MVP – Million Veteran Program

NCA – National Cemetery Association

NCCAM – National Center for Complementary and Alternative Medicine

NIH – National Institutes of Health

NSF – National Science Foundation

OPHEH – Office of Public Health and Environmental Hazards

ORD – Office of Research and Development

PAC – Presidential Advisory Committee

PB – Pyridostigmine Bromide

PD – Parkinson's Disease

PET – Positron Emission Tomography

POW – Prisoner of War

PTSD – Post-Traumatic Stress Disorder

RFA – Request for Application

RFP – Request for Proposal

RSA – Respiratory Sinus Arrhythmia

rTMS – repetitive Transcranial Magnetic Stimulation

SOP – Standard Operating Procedure

TAT – Thrombin-Antithrombin Complex

TBI – Traumatic Brain Injury

TLR – Toll-Like Receptor

TPO – Thrombopoietin

UDP – Undiagnosed Diseases Program

UTSW – University of Texas Southwewstern

VA – Department of Veterans Affairs

VACO – Department of Veterans Affairs Central Office

VAMC – Veterans Affairs Medical Center

VBA – Veterans Benefits Administration

VFW – Veterans of Foreign Wars

VHA – Veterans Health Administration

VHI – Veterans Health Initiative

VSO – Veterans Service Organization

WRIISC – War-Related Injuries and Illnesses Center

Meeting of the Research Advisory Committee on Gulf War Veterans' Illnesses
February 28 – March 1, 2011

Department of Veterans Affairs, 810 Vermont Avenue, Room 230, Washington, DC

Agenda
Monday, February 28, 2011

8:00 – 8:30	**Informal gathering, coffee**	
8:30	**Call to order**	**Mr. Jim Binns, Chairman** **Res Adv Cmte Gulf War Illnesses**
8:30 – 8:55	**Veterans Service Organizations' Remarks on the 20th Anniversary of the Gulf War**	**American Legion, VFW, DAV, VMW, PVA**
8:55-9:20	**DOD/CDMRP Gulf War Illness Research Program**	**Dr. (COL-Ret.) Melissa Forsythe** **DOD Congressionally Directed Medical Research Program**
9:20-10:00	**National Survey of GW veterans**	**Dr. Aaron Schneiderman** **VA Office of Environmental Agents**
10:00-10:15	**Break**	
10:15-11:45	**VA Gulf War Research Program and panel discussion with key investigators with VA Gulf War Steering Committee participating**	**Dr. Joel Kupersmith** **Dr. Timothy O'Leary** **Dr. Dawn Provenzale** **Dr. Christopher Brady** **Dr. Maxine Krengel** **VA Office of Research and Development** **Dr. Aaron Schneiderman** **VA Office of Environmental Agents**
11:45-12:15	**Chief of Staff's Remarks on the 20th Anniversary of the Gulf War**	**Hon. John Gingrich** **Chief of Staff** **Department of Veterans Affairs**
12:15-1:00	**NIH Undiagnosed Disease Program**	**Dr. John Gallin** **Director, NIH Clinical Center** **NIH Undiagnosed Diseases Program**
1:00-2:00	**Lunch**	
2:00-2:30	**Gulf War Veterans' Perspectives on the 20th Anniversary**	**Rev. Joel Graves** **Mr. Anthony Hardie** **COL Marguerite Knox** **Res. Adv Cmte Gulf War Illnesses**
2:30-3:15	**Washington WRIISC research update**	**Dr. Mian Li** **VA Washington, DC**
3:15	**Adjourn**	

Meeting of the Research Advisory Committee on Gulf War Veterans' Illnesses
March 1, 2011

Department of Veterans Affairs

Lafayette Building, 811 Vermont Ave. NW, Room 1143, Washington, DC

Agenda
Tuesday, March 1, 2011

NOTE CHANGE IN MEETING LOCATION FOR THIS DAY.

8:00 – 8:30	**Informal gathering, coffee**	
8:30-9:15	**Palo Alto WRIISC research update**	**Dr. Wesson Ashford** **Palo Alto VAMC**
9:15-10:00	**Palo Alto WRIISC complementary and Alternative therapies for GW veterans**	**Louise Mahoney** **Palo Alto VAMC**
10:00-10:45	**New Jersey WRIISC complementary And alternative therapies for GW veterans**	**Dr. Anna Rusiewicz** **Dr. Gudrun Lange** **DVA New Jersey Healthcare System**
10:45-11:00	**Break**	
11:00-11:45	**Washington WRIISC complementary and Alternative therapies for GW veterans**	**Dr. Jeanette Akhter** **VA Washington, DC**
11:45-12:30	**Committee discussion**	**Mr. Jim Binns, Chairman** **Dr. Kimberly Sullivan** **Res. Advisory Cmte Gulf War Illnesses**
12:30-1:00	**New Research Update**	**Dr. Kimberly Sullivan** **Res. Advisory Cmte Gulf War Illnesses**
1:00-1:30	**Public Comments**	
1:30pm	**Adjourn**	

DAY 1

The February 28, 2011 meeting of the Research Advisory Committee on Gulf War Veterans' Illnesses (hereinafter referred to as the Committee) was held in Room 230 at the Department of Veterans' Affairs, 810 Vermont Avenue, NW, Washington, D.C.

Welcome, Introductions & Opening Remarks

Mr. James Binns, Committee Chairman
Dr. Kimberly Sullivan, Committee Associate Scientific Director

Chairman James Binns called the meeting to order at 8:30am. He began by announcing that the date marked the 20th anniversary of the cease fire that ended the Gulf War. A moment of reflection was then held, accompanied by a slideshow of images submitted by several Committee members who served in the war (See Appendix A – Presentation 1). Mr. Binns then welcomed representatives of several major Veterans Service Organizations (VSOs) for their comments.

Veterans Service Organizations' Remarks on the 20th Anniversary of the Gulf War

Mr. Gerald Manar, Deputy Director, National Veterans Service VFW
Mr. Joe Morgan, National President, Veterans of Modern Warfare
Mr. Adrian Atizado, Assistant National Legislative Director, Disabled American Veterans

Mr. Gerald Manar thanked the Committee and began by recalling his memories of joining a vigil in Lafayette Park at the beginning of the Gulf War and of watching the live coverage of the war in Washington DC. He recalled the fear he felt for the troops in advance of the ground assault, and remarked on the relative brevity of the ground war. He then reflected as follows:

"Some people think that a wars' end is when the guns go silent and the troops come home. Some measure the cost of war in the price of planes, tanks, ships and guns. We know better. The colonial soldier who stood guard at Valley Forge in 1778 surely suffered from the residuals of frostbite until his dying day. Many marines fighting on Okinawa, soldiers storming Omaha beach and air crews flying mission after mission over Germany and Japan were haunted by their experiences for a lifetime. Vietnam taught us many lessons, not the least of which is that the men and women who defend our nation are put at risk to injuries that may take decades to become visible. Diseases that lurk in the shadows, only to spring forth in ways and at times that are perplexing to veterans and physicians alike. It is only when these problems are examined closely, thoroughly and over time that the only apparent answer is that they seem to stem from something that happened in the military – something that happened over there. The VA is an organization that in its first 5 decades thought that connecting a disability to some obvious event in service was not just the shortest way to service connection, compensation and medical care, it was the only way. Except for former prisoners of war (POWs) no groups were singled out because of the nature or location of their service. This Committee knows what happened in the last 50 years. Atomic veterans started coming down with cancers in numbers too large to be explained away as random acts of nature. Vietnam Veterans presented with diseases that in other populations were rare. Others were diagnosed with more common conditions at earlier ages and at numbers larger than the norm. It was only with the Agent Orange Act that Congress finally created a process for looking at medical evidence in a systematic way to piece together disparate data and attempt to

determine if a problem affecting some veterans years after service was caused by something that happened during that service. Having learned its lessons the hard way, Congress acted more quickly when Gulf War veterans started getting sick. Public Law 103446 and other laws established the framework allowing the VA to begin dealing with at least some of the new disabilities stemming from the Gulf War. Subsequent legislation mandated ongoing periodic reviews of medical literature and other actions which have slowly, too slowly, identified additional disabilities which are related to service in Southeast Asia. The Veterans of Foreign Wars has supported the efforts of Gulf War Veterans (GWVs) to obtain the healthcare and compensation that they have earned through their sacrifice and service. We continue to urge Congress to craft legislation which requires VA and the Department of Defense (DoD) to identify toxic exposures as they occur, identify units and personnel involved, perform appropriate screenings and follow-up so that any problems – both acute and chronic – are identified at the earliest opportunity. We believe that these proactive actions will reduce the long term health consequences of military service, producing a cohort of healthier and more productive veterans."

Mr. Manar then thanked the Committee for the opportunity to speak, and stated that he looked forward to working with the Committee in the future.

Chairman Binns thanked Mr. Manar and then introduced Mr. Joe Morgan, the National President of Veterans of Modern Warfare.

Mr. Morgan thanked the Committee and explained that he would be speaking with a dual perspective – as the National President of Veterans of Modern Warfare, and also as a combat Veteran of the Gulf War. He then made the following comments:

"Twenty years have passed since the start of deployment and combat operations [in the Gulf War]. Since then an estimated 250,000 Veterans of the conflict have endured adverse health consequences and suffered from potentially debilitating consequences of undiagnosed multisymptom illnesses. We contend that these are distinct illnesses, and that large numbers of Veterans have been disenfranchised and underserved by the VA. To date, VA has historically failed to recognize our conditions, opting to emphasize stress or other psychiatric disorders in its research funding, clinical training materials and public statements. Other scientific research clearly indicates otherwise. We must work with due diligence in order to stop allowing the lives of Gulf War Veterans to be stolen. Last year the VA impeded and then canceled a Congressionally-mandated contract for unparalleled Gulf War research at the University of Texas Southwest (UTSW). This year VA used those funds to buy an $11 million piece of lab equipment of dubious value to Veterans. The recent announcement of the VA to fund another stress management study and portray it as somehow providing meaningful treatment to Gulf War Veterans is highly discouraging. Veterans of Modern Warfare urges the VA to reinstate the UTSW study, which we highly regarded by all GWVs as well as advancing funding towards effective treatments for Gulf War Illness. The effects of greater controversy on GWVs remain our inability to obtain and maintain disability compensation. Currently there are only three ill-defined presumptive conditions for Gulf War Veterans: chronic fatigue syndrome (CFS), fibromyalgia and irritable bowel syndrome (IBS). Written testimony clearly illustrates contorted rules GWVs must face regarding these disability claims. Veterans of Modern Warfare urges VA

to consider expanding regulations which could authorize extra scheduler gradients for GWVs suffering from undiagnosed multisymptom illnesses. Clearly defining the conditions which constitute undiagnosed illnesses as well as preventing generic labeling of conditions based on closely related symptoms must be mandated. Additionally, Veterans of Modern Warfare urges VA to grant indefinite presumptive eligibility for undiagnosed illnesses. VA should seek to remove all sunset provisions of Title 38 of United States code at sections 1117 and 1118 so that health care benefits are for the life of every Gulf War Veteran that's necessary and every surviving beneficiary. Veterans of Modern Warfare strongly endorses granting a presumptive of service connection for GWVs who deployed to the war zone and are diagnosed with autoimmune diseases such as multiple sclerosis (MS) and Parkinson's disease (PD) based on their unusual prevalence among our cohorts. We ask for establishing tiger teams within VBA composed of highly trained environmental exposure claims specialists who would expedite and enhance the myriad claims-related issues plaguing the agency. Due to significant limitations on the VA's Gulf War Veterans Information System it is extremely difficult to accurately portray the experiences of GWVs, let alone our respective disability claims or health care issues. Based on this fact it would appear that the recently completed Gulf War Veterans Illnesses Task Force Report was based solely on the perceptions of the Task Force members themselves, which unfortunately limits the credibility of the report's findings. Overcoming the VA's established culture towards GWI will not be an easy task, but under Secretary Shinseki's bold leadership and cultural transformation it can and must be accomplished now. Acknowledging the relevance of GWVs within the VA would serve to reinvigorate research and medical care. Enhancing education of benefits counselors, medical staff and various stakeholders will serve to increase the effectiveness of this transformation. Mr. Chairman, my specialty is anesthesia, and in medicine and in law there is a term, "res ipsa loquitur," the fact speaks for itself. If you come into my operating room a normal healthy person and leave brain injured or blind you don't have to prove that I did anything wrong, the fact speaks for itself. If a young, healthy 22 year old sergeant goes to war running 6 miles a day, doing hundreds of pushups, and maxing his PT test yet 2 months after returning from war he can't walk across the room the fact speaks for itself. He shouldn't have to prove that he was injured overseas. Sir, we've spent millions of dollars trying to prove that something was done to these warriors, it's time to take care of them now. Veterans of Modern Warfare thank you for this opportunity to express our views today, and we would be pleased to answer any questions you or your colleagues may have."

Chairman Binns thanked Mr. Morgan and introduced Mr. Adrian Atizado, Assistant National Legislative Director of the Disabled American Veterans (DAV).

Mr. Atizado thanked the Committee on behalf of the members of the DAV for inviting him to speak on this 20th anniversary of the cease fire which ended the Gulf War. Mr. Atizado explained that he would focus his remarks on the evolution that has happened since the Gulf War with regard to the issues Persian Gulf War Veterans face.

"Since the end of the Persian Gulf War the recognition of illnesses affecting Veterans came to be known as Persian Gulf War Syndrome. Following that was research to find the cause, and access to VA healthcare by way of a special treatment authority that was provided by Congress. The disability compensation then decided to use the term undiagnosed illness. Because of research and the work that this Committee has done, there has been a scientific consensus – much to our

amazement. This was a tremendous shift. That research for Gulf War Illness has to continue. The question about what happened is a great gulf that this Committee has to bridge, and I don't envy you for that. It is necessary work and I commend what you have done so far, but as an organization we have to look at other practical matters as we leave that charge to this Committee. And in that way, what we would like to see is a continuation of the evolution in helping Persian Gulf War Veterans. In practical terms we are looking at the same things that this Committee has recommended, including effective treatment and effective benefits. Chairman Binns mentioned earlier the data that VA uses in order to measure whether what they are doing for ill GWVs is actually working. In our organization's opinion, the new report that Mr. Gingrich has issued is a good first step. It provides information, but I don't know if the information it provides actually deals with the questions it wishes to answer. The second thing that our organization is concerned about is research funding. As members of the Committee know, the request for next fiscal year (about $72 million) is a reduction from the current fiscal year. This is for VA's overall medical and prosthetics research, some of which deals with the research for Veterans with Persian Gulf War Illness. We also have a concern about the Congressionally Directed Medical Research Programs (CDMRP) for DoD. There are signs that Congress will answer that call, but we do hope this Committee would lend its voice to that need. There is another delicate matter that deals with this agency. Historically, in some view, this agency has not kept its commitment and its rhetoric didn't meet its actions. The most recent Requests for Proposals (RFPs) seem to illustrate that, and we are happy that this Committee made comments on that. VA seems to be taking a step back when the scientific consensus says that Gulf War Illness can't be ascribed to psychiatric conditions or stress. DAV is unclear as to why that is surfacing, considering the grounds that have been gained by the work of this Committee. We are deeply concerned about that, and we anxiously await VA's next step, because they are in fact charged for caring for Persian GWVs, their families and dependents. I will cut this short, but I again want to thank the Committee for its work, and I hope that the advocates for Persian GWVs remain firm because we need you today. The administration seems to be turning back the clock. The funding for research is a concern. Congress is another concern. There is a vast majority of freshman serving in the House and Senate; 20 percent are freshman in the House and about 33 percent in the Senate. [This will require] a lot of educating. So in a sense this is also a turn back of the clock. So this is a precarious time, I think, for the population that we wish to serve, and I hope this Committee and everybody else in the audience will take up the mantle and fight for them, because they need us now. Thank you."

Chairman Binns then thanked Mr. Atizado and the other VSO representatives for their meaningful and moving remarks. He explained that later several members of the Committee would be sharing reflections about their personal experiences in the war. Chairman Binns then introduced a brief video clip of a British veteran whose commentary he believed captured the experience of many ill Gulf War Veterans. Chairman Binns remarked that it was also a sad comment as to how little media attention had been focused on this anniversary in the United States.

While the video loaded Dr. Sullivan remarked that the VA Communications Department would be taking pictures and recording video throughout the day, and that if anybody preferred not to be photographed or videotaped he or she should let the cameraman know.

After the video clip played, Chairman Binns explained that the rest of the morning would be focused on the research being done to alleviate the suffering that had been described by the veteran in the video. Chairman Binns stated that for the many GWVs who returned home in broken health – between one in four and one in three, according to the Committee and the Institute of Medicine (IOM) – there was clearly no more fitting recognition than to review and strengthen the efforts being made to restore their health.

Dr. Sullivan then remarked that the Committee often heard from Veterans in the United States who were dealing with similar health issues and have been dealing with them for quite a long time. She then provided an overview of the day's agenda, explaining that the Committee had arranged to hear from representatives from the whole federal research effort for the Gulf War, including the VA, DoD's CDMRP, as well as the National Institutes of Health (NIH). Dr. Sullivan remarked that later in the day there would be a panel discussion in which VA investigators would participate. She expressed hope that this would stimulate collaborations and potentially give rise to complementary research between agencies, which she said would be particularly helpful at this time when research funding was dwindling. Dr. Sullivan then introduced the first speaker, Dr. Melissa Forsythe.

Overview of CDMRP and the Gulf War Illness Research Program (GWIRP)

Dr. (COL-Ret.) Melissa Forsythe, DoD Congressionally Directed Medical Research Program

Dr. Forsythe began by introducing several colleagues in attendance, including LTC Jeffrey Leggit who is the Deputy Director of the Congressionally Directed Medical Research Program (CDMRP), as well as Dr. James Phillips (CDMRP grant award manager) and Mr. Brett Chaney (GWIRP Program Coordinator). Dr. Forsythe then provided a brief overview of CDMRP and GWIRP funding history and award mechanisms before reviewing the Gulf War research currently funded and recommended for funding by CDMRP (see Appendix A – Presentation 2). Dr. Forsythe explained that the CDMRP has funded civilian researchers in addition to VA investigators in accordance with its aim to grow the Gulf War Illness research community. The types of ongoing research that have been funded range from clinical treatment trials to diagnostic biomarker studies to mechanistic research using animal models. For fiscal year 2010, proposals recommended for funding include clinical trials, Gulf War Illness research consortium development, innovative treatment evaluations and novel basic and clinical research. Assuming Congress approves funds for the GWIRP in fiscal year 2011, Dr. Forsythe stated that the proposed priority areas would include several established foci (identification of effective treatments, improved diagnostic testing and improved understanding of pathobiology) in addition to a new focus on incorporating case definitions for Gulf War Illness.

After Dr. Forsythe's presentation Dr. Beatrice Golomb, a member of the Committee, remarked that she was impressed by the profile of Gulf War research projects funded by CDMRP, and remarked how important she felt it was that CDMRP was including consumers in their peer review process.

Dr. Bill Meggs, a member of the Committee, expressed his concern about the DoD protocol evaluation form and asked if CDMRP might be able to work on shortening the process by which submissions needing corrections are reviewed. He explained that many investigators trying to do

clinical trials must wait 5 months to resubmit their proposals if something is done wrong. Dr. Meggs suggested having a roundtable style review that would expedite the review process. Dr. Forsythe said that she understood Dr. Meggs' concern and that lessons had been learned. She acknowledged that his suggestion would be a much better, proactive approach.

Chairman Binns then thanked Dr. Forsythe and apologized for having to move forward with the day's agenda.

Mr. Anthony Hardie, a Gulf War Veteran member of the Committee and a consumer reviewer on the CDMRP panel, then commented that the GWIRP was one of the few programs that he believed was going right and really making significant strides in making a difference for Gulf War Veterans.

Dr. Sullivan then introduced the next speaker, Dr. Aaron Schneiderman.

National Follow-Up Survey of Gulf War and Gulf Era Veterans

Dr. Aaron Schneiderman, VA Office of Public Health and Environmental Hazards

Dr. Schneiderman presented a brief summary of the findings of previous national health surveys of Gulf War veteran studies carried out by the VA Office of Public Health and Environmental Hazards (OPHEH). He then addressed the aims, study design, questionnaire content and distribution protocol for the planned 2011-2012 follow-up study of a national cohort of 30,000 Gulf War and Gulf Era Veterans (see Appendix A – Presentation 3). In addition to carrying out the follow up survey, OPHEH plans to conduct a longitudinal study of mortality from neurological diseases as well as analyses of health care utilization in the 1995-1997 National Health Survey cohort of 30,000 Gulf War and Gulf Era Veterans.

During Dr. Schneiderman's presentation Dr. Golomb asked if the outcomes were only assessed against VA medical records. He replied that information on participants in the survey who utilize the VA system could be gathered passively, but that there would be a subsample of participants who respond to the survey for whom medical records would be pursued outside the VA (as had been done in previous surveys) to validate what individuals report with regard to why they sought healthcare.

At the conclusion of Dr. Schneiderman's presentation Chairman Binns requested that discussion be deferred until Dr. Lea Steele, a member of the Committee, had presented a summary of the Committee's comments to date regarding the 2011 follow-up survey.

2011 Follow-Up Survey of Gulf War Veterans: Highlights of Concerns and Discussion Points Raised by the Committee

Dr. Lea Steele, Research Advisory Committee on Gulf War Veterans' Illnesses

Dr. Steele explained that the Committee felt that the need for a follow-up survey was great, but that in order to characterize the current status of Gulf War Veterans' health and changes in their health over time that the currently proposed survey would require extensive revisions, including proper assessment of high priority diagnosed diseases and undiagnosed multisymptom illnesses (see Appendix A – Presentation 4). Dr. Steele specifically expressed her and the Committee's

concern that key symptoms associated with Gulf War service were not included in the proposed survey, that few of the questions addressed the chronic nature of symptoms (lacking questions regarding severity and duration), and that the survey did not include questions which would allow ascertainment of any Gulf War Illness case definition (it included questions on only 3 of the 10 symptoms the CDC identifies as characteristic of chronic multisymptom illness). Dr. Steele remarked that the proposed survey also lacked a systematic review of diagnosed diseases (compared to the 1995 survey, which asked about 31 diagnosed medical conditions in a systematic way). Dr. Steele concluded by emphasizing the importance of developing a comprehensive, coordinated program of Gulf War research at VA in a way that involves scientists with specific expertise in Gulf War Illness research over the past 20 years.

Chairman Binns then opened the floor to questions.

Dr. Meggs suggested that the ill Gulf War Veterans be teased out of the total 15,000 deployed Gulf War Veterans included in the survey, since Gulf War Illness affects only about one third of deployed Veterans. He then recommended comparing these ill Gulf War Veterans to the remaining 25,000 Veterans (deployed and non-deployed) who were not ill. Dr. Golomb added that the actual survey responses fell below the 30,000 recruitment count.

Dr. Steele concurred, remarking that the Committee had repeatedly called for sub-group analyses (by illness, exposures, and other important variables) and that this VA survey was the only one in the US which had a large enough sample to actually do that adequately.

Rev. Joel Graves, a member of the Committee who served in the Gulf War, remarked that he was concerned about the comparison of deployed to non-deployed Gulf War Veterans, and that lessons from past studies should inform future research, in this case to include at least a subgroup of forward deployed Veterans who were closer to the borders and exposures. Dr. Steele reiterated that she felt many analyses had used inappropriate subgroups, but the fact that so many consistent findings had emerged in spite of this spoke to the strength of the health problems afflicting many Gulf War Veterans.

Mr. Hardie then stated that the survey could have significant impact on benefits issues for Gulf War Veterans as well, particularly with regard to undiagnosed illnesses.

Dr. Wes Ashford, Director of the Palo Alto War Related Illness and Injury Center (WRIISC), then remarked that he was currently working with Dr. Schneiderman on another study and would love to evaluate a subset of the 2011 Gulf War survey participants at his center.

Rev. Graves asked whether TRICARE insurance could be used, as he knew that many retired Gulf War Veterans use it. He then asked whether the survey could be put on hold until the Committee's concerns were addressed. Chairman Binns commented that this was what the Committee had recommended. He expressed appreciation for Dr. Schneiderman's presence at the meeting, and his willingness to converse with Dr. Steele earlier that week to informally discuss some of the possible changes that could be made to the survey design. Chairman Binns expressed hope that the dialogue could continue after the meeting and then thanked Dr. Schneiderman for his open-mindedness. He then called for a brief break.

Chairman Binns reconvened the meeting at 10:15am to introduce the next session, an overview of the VA's Office of Research and Development (ORD) Gulf War Illnesses Research Program. He thanked Dr. Joel Kupersmith, Chief Research and Development Officer, for assembling many key investigators involved in the program, who he then welcomed to the meeting.

Before beginning the discussion, Chairman Binns remarked that on this 20th anniversary of the Gulf War, the greatest thing to offer in recognition of the Veterans' service would be to review and strengthen the efforts being made to restore their health. He commented that the charter of the Committee mandates that the standard by which Gulf War research should be judged is whether it improves the health of Gulf War Veterans. Chairman Binns then recalled that the recent IOM report confirmed that this was not a futile effort. As summarized in the IOM report's preface, "Veterans who continue to suffer from these discouraging symptoms deserve the best that modern science and medicine can offer to speed the development of effective treatments, cures, and it is hoped preventions. The [IOM] Committee suggests a path forward to accomplish these goals, and we believe that through a concerted national effort and rigorous scientific input answers can likely be found." Chairman Binns then encouraged everyone present to take a cue from the IOM and make the day's discussion at once rigorous and collaborative, in recognition of the common goal and responsibility to make this program succeed. He then introduced Dr. Kupersmith.

VA Gulf War Research Program and Panel Discussion

Dr. Joel Kupersmith, VA ORD Chief Research and Development Officer

Dr. Kupersmith began by thanking the Committee and echoing Chairman Binns' assertion that everyone present for the meeting was there for the same purpose. He remarked that many of the research efforts being pursued by the VA investigators were collaborative. Dr. Kupersmith then introduced Dr. Robert Yeager, the interim Director of Deployment Health Research, who reports to Dr. Kupersmith. He then explained that VA would also be hiring a Gulf War Research Program Manager. Dr. Kupersmith stated that the position would be posted that week. He then introduced two individuals from the Office of Research and Development who served in the Gulf War: John Borlik, who served as a public affairs specialist with the 101st Airborne Division, and Ricardo Gonzalez who was a field medic in the Air Force and now serves as the Administrative Officer in the research rehab section. Dr. Kupersmith then proceeded to introduce the attending GW research investigators, who each spoke for 5 minutes about their Gulf War research. Dr. Christopher (Kit) Brady, with the VA brain bank/biorepository and the Boston VA spoke first.

Dr. Brady stated that his group was tasked with establishing a brain and spinal cord biorepository for Veterans with Amyotrophic Lateral Sclerosis (ALS) who were referred to them from the VA National Registry of Veterans with ALS, which was run out of the Durham VA by Drs. Oddone and Kasarskis. Dr. Brady explained that over the past several years his team had been developing a national brain bank harvesting network, during which 230 Veterans with ALS had been enrolled across 47 states, and 70 harvests had been conducted in 36 states. In working out the details for this brain bank, Dr. Brady stated that his team has developed a network of VA pathology departments and contracted dieners that could be a resource to utilize in developing the national Gulf War biorepository. He added that his group had been approved for a 2 year

pilot to begin the Gulf War Veterans biorepository within the VA biorepository, which would be a national resource for Gulf War Veterans who would like to donate brain and spinal cord tissue and/or non-central nervous system (CNS) tissue to the biorepository upon their death. Dr. Brady said that his group was currently in the process of developing a network to collect the non-CNS tissue, and that the plan was undergoing Institutional Review Board (IRB) review and negotiations with individuals at VA Central Office in order to work out the final details. Dr. Brady added that more specifics could be reviewed in the handout he had circulated (See Appendix B – Document 1). He concluded by welcoming Dr. Maxine Krengel, a Boston VA researcher with experience with Gulf War Veterans Illness research, to the biorepository group.

Dr. Kupersmith then asked if this program was related to the other biorepository efforts happening in Boston. Dr. Brady replied that this project would be run out of the VA Boston Healthcare System, which serves as the coordinating center for the ALS brain bank as well as a part of the Massachusetts Veterans Epidemiology Research and Information Center (MAVERIC), which also had a fair number of ongoing biorepository activities. Dr. Kupersmith remarked that this was also of great interest to the National Football League. Dr. Brady commented that Dr. Anne McKee, who was directing that effort to study chronic traumatic encephalopathy (CTE) in athletes, was also conducting all of the diagnostic neuropathology for the Boston VA biorepository. Dr. Kupersmith then thanked Dr. Brady and introduced Dr. Dawn Provenzale.

Dr. Provenzale, the Director of the Epidemiology Research and Information Center (ERIC) at the Durham VA, spoke about the Gulf War era cohort and biorepository project that she was working on. She explained that the goal of this project was to develop a cohort of deployed and non-deployed Gulf War Veterans from which survey data and blood specimens would be obtained for use in future research in order to enhance understanding of the concerns of Gulf War Veterans and to identify ways to improve their health care. Dr. Provenzale stated that this would be a large scale study to create a partnership with Gulf War Veterans in order to develop over a period of years a research database that would integrate epidemiologic data, clinical data from medical records, survey data, and environmental exposure data. She added that blood samples would be collected to establish a biorepository to enable a deeper level of research. The project would start with an initial 2 year pilot study to determine the best methods for creating and managing a cohort and biorepository of Gulf War Veterans. The pilot study would assess the feasibility and efficacy of recruiting, consenting and collecting the blood specimens from these Veterans. She said that the technical and administrative aspects could also be tested during the pilot study. After the pilot study, Dr. Provenzale's group hoped to employ a 5-7 year full scale project utilizing the infrastructure developed in the pilot phase. Dr. Provenzale said that the study would not be conducted in VA hospitals, and that it would be open to users and non-users of the VA healthcare system. Veterans would be identified through national databases (VA, DoD). A mailed survey would be distributed from a central call center, accompanied by consent forms and an informational letter inviting Veterans to participate. Dr. Provenzale explained that Veterans could either give their blood specimen in their home or at a convenient location (not necessarily a VA hospital). Dr. Provenzale then concluded by outlining what would be involved for the participants of the study (see Appendix B – Document 2).

Dr. Kupersmith then explained that the approach described by Dr. Provenzale was part of the Million Veteran Program (MVP), and asked if Dr. Schneiderman had any comments about it. Dr. Schneiderman remarked that Environmental Epidemiology Services collaborating on the Cooperative Studies Program was an opportunity to utilize the cohort which had been developed over the past 15-20 years in order to further understand the population. Dr. Bill Goldberg, the Committee's Designated Federal Officer from ORD, stated that he was hoping all participants in Dr. Schneiderman's study would also participate in Dr. Provenzale's study but that the scope would also be broader, noting that it would be the largest cohort of Gulf War era Veterans ever assembled. Dr. Kupersmith then introduced Dr. Stephen Hunt.

Dr. Hunt briefly described his past clinical work with Gulf War Veterans, then outlined the randomized controlled pilot study of a mindfulness-based intervention for symptom management among ill Gulf War Veterans which he and his colleague, Dr. David Kearney, were undertaking (see Appendix B – Document 3).

At the conclusion of Dr. Hunt's presentation, Dr. Kupersmith asked whether use of mindfulness-based therapy implied in any way that the Veterans' symptoms were "in their heads." Dr. Hunt replied that this was not the case. Dr. Kupersmith then remarked on this important distinction before calling on Dr. Michael Weiner.

Dr. Weiner explained that his group at the San Francisco VA aimed to use neuroimaging to identify the changes in the brain responsible for symptoms, disabilities or impairments related to service in the Gulf War. Dr. Weiner summarized the findings of his previous research of Gulf War Veterans, including a recent unpublished study of his that replicated others' findings that the extent of sarin exposure (based on DoD data) was significantly correlated with changes in gray and white matter volumes in the brain. He also expressed his concern about the potential for Gulf War Veterans exposed to sarin to become more susceptible to degenerative diseases in the long-term. As a result, Dr. Weiner suggested that a study utilizing amyloid imaging be done in the aging population of Gulf War Veterans. Dr. Kupersmith thanked Dr. Weiner and stated that it might still be too early to correlate the anatomical changes with symptoms. He then introduced Dr. Mohammad Amin, who was a winner of the research career development award.

Dr. Amin discussed the findings from his pilot study of treating Gulf War Veterans experiencing sleep disordered breathing with continuous positive airway pressure (CPAP) (see Appendix B – Document 4). Dr. Kupersmith thanked Dr. Weiner and then introduced Dr. Ron Bach.

Dr. Bach provided an overview of the pilot study that he conducted which identified several biomarkers in peripheral blood that differed between asymptomatic Gulf War Veterans compared to GW Veterans with multiple symptoms (see Appendix B – Document 5). He explained that identifying biomarkers of Gulf War Illness would be a path towards objective diagnostics and targeted therapeutics. Dr. Bach noted that the four factors his study had identified were all implicated in inflammation and the innate immune system. He explained that the innate immune system was amplified by the cross-talk between cell-signaling, coagulation and complementary systems and that these pathways were the source of the biomarkers his group had identified. His conclusion from this pilot study was that chronic inflammation is a part of the

underlying pathophysiologic mechanism of Gulf War Illness and a potential target for intervention.

Dr. Kupersmith then asked for Dr. Bach's comments regarding biomarkers that might indicate causality. Dr. Bach replied that his group was looking at the effects rather than the causes, and as such he could not say where the biomarkers were coming from in the body. He explained that his group was sampling peripheral blood looking for differences between asymptomatic Gulf War Veterans compared to GW Veterans with multiple symptoms. Dr. Bach added that he was surprised to find that all of the factors identified in his pilot study related to inflammation. Dr. Kupersmith then clarified that his main question was whether Dr. Bach's study had identified any indicators that could be used to determine who was suffering from Gulf War Illness and who wasn't. Dr. Bach replied that he did not know if the factors identified by his pilot study would be useful diagnostically, but that his group was working toward that. Dr. Kupersmith then introduced Dr. Ashok Tuteja.

Dr. Tuteja, a physician at the VA Medical Center in Salt Lake City, discussed his research of predominant IBS in Gulf War Veterans, including a pilot study of the quantitative and qualitative differences in the gut flora of deployed and non-deployed Gulf War Veterans (see Appendix B – Document 6). Dr. Tuteja mentioned his ongoing treatment study, as well as another study involving probiotics which was awaiting approval. Dr. Kupersmith then asked about Dr. Tuteja's study involving rifaxamine. Dr. Tuteja replied that patients were still being enrolled and that the follow-up would hopefully be complete in 6 months, barring further holdup from the IRB. Dr. Kupersmith then introduced Dr. Julia Golier.

Dr. Golier, a psychiatrist at the Bronx VA in New York, discussed several of her studies of alterations in the hypothalamic-pituitary-adrenal (HPA) axis in ill Gulf War Veterans (see Appendix B – Document 7). She explained that she first became interested in looking at HPA axis biomarkers in Gulf War Veterans after many ill GWVs with memory, sleep and concentration problems were referred to her VA clinic in the 1990s for Post-Traumatic Stress Disorder (PTSD), which rarely turned out to actually be PTSD upon examination. After Dr. Golier's presentation, Dr. Kupersmith introduced Dr. Fiona Crawford.

Dr. Crawford spoke about her research at the Roskamp Institute Gulf War Illness Research Program that is attempting to identify novel molecular targets and biomarkers for Gulf War Illness (see Appendix B – Document 8). She described a mouse model that her research group had developed which exhibited delayed cognitive impairment resulting from pyridostigmine bromide (PB) and permethrin exposure. Dr. Crawford then discussed her plans for other studies involving animal models and extrapolating information on human Gulf War exposures from them. Dr. Kupersmith then introduced Dr. Scott Panter.

Dr. Panter, from the San Francisco VA Medical Center, discussed his research utilizing intranasal administration of neuroprotective compounds for stroke, his study of intranasal delivery of DEET and permethrin in rats, as well as his research modeling traumatic brain injury (TBI) in pigs (see Appendix B – Document 9). At the conclusion of his presentation, Dr. Kupersmith introduced Dr. Dane Cook.

Dr. Cook spoke about his research into the psychobiological mechanisms of pain and fatigue in Gulf War Veterans (see Appendix B – Document 10). Dr. Cook explained that his research had found that ill Gulf War Veterans exhibited impaired pain regulatory mechanisms and impaired white matter tracts along these pathways compared to healthy Gulf War veterans.

Dr. Kupersmith thanked Dr. Cook and mentioned that the Gulf War Steering Committee (hereinafter referred to as the Steering Committee), three members of which also sit on the Research Advisory Committee, had held two meetings. He then introduced another member of the Steering Committee, Dr. Loren Kohler. Dr. Kupersmith stated that the Steering Committee had discussed a number of the endeavors just reviewed at the Committee meeting (including the cohort and creation of a centralized database). He noted that currently all of the VA's clinical Gulf War projects discussed at the Committee meeting could be found on the NIH ClinicalTrials.gov website, and that soon a SharePoint site would be created in order to make the details of these current projects accessible for outside examination. Dr. Kupersmith added that the Steering Committee would meet again in about a month. He then opened the floor to questions and discussion.

Dr. Goldberg asked all of the VA investigators who had spoken as part of the panel to raise a hand if their project involved additional non-VA collaborators. Nearly all of the investigators raised their hands.

Chairman Binns commented that he was pleased to have VA ORD investigators as well as non-ORD investigators such as Dr. Schneiderman (who is VA but not ORD) and Dr. Forsythe (from CDMRP), which meant that the entire Federal Gulf War Illness research effort was present, which he felt might set a precedent in the history of Gulf War Illness research.

Dr. Golomb then asked how the trial design for the mindfulness study would protect against participants reporting what they thought the medical investigators wanted to hear (using the example of a woman, Denise Grady writing for the New York Times, who stated that she told her doctor that allergy shots were helpful in alleviating her symptoms even when they weren't, simply because the doctors were nice). She recommended using both subjective and objective measurements for outcomes which could be assessed in both ways (namely, psoriasis). Dr. Golomb also commented on Dr. Weiner's findings, which she said attested to the importance of research conducted by Drs. Sullivan and White. She emphasized the importance of the findings in and of themselves, regardless of whether elevated levels of PD or AD were found in Gulf War Veterans.

Dr. Hunt agreed with Dr. Golomb's concern about the objective measurement of self-reported symptom-based outcomes. He said that he would discuss this concern with Dr. Kearney.

Dr. Weiner then commented that an increased risk of AD or PD had not been established in Gulf War Veterans, but that it would be advantageous to identify any elevated risk in this population as early as possible. Dr. Kupersmith remarked that he felt this was clearly something that could be important to the future of these Veterans and to their caretakers. He then brought up the issue of how far research must go to connect dots in order to draw conclusions – not necessarily with

regard to increased risk of PD or AD in this population – but in the general path of evaluating treatments and investigating other aspects of Gulf War Illness.

Dr. Meggs then asked which four markers of innate immunity were elevated in Dr. Bach's studies. Dr. Bach replied that these included a chemokine known as CCL3, a surrogate marker of thrombin generation (thrombin-antithrombin complex or TAT), a complement-related protein (complement C3), and another cell-signaling molecule – a hematopoietic cytokine involved in coagulation known as thrombopoietin.

Rev. Graves then expressed concern with Dr. Cook's exercise treatment approach, given that some previous studies had shown that neurotoxic exposures to organophosphates and other agents could inhibit the ability of muscles to repair properly. Rev. Graves remarked that, as such, some ill Gulf War Veterans might be vulnerable to prolonged periods of fatigue following exercise trials. Dr. Cook acknowledged Rev. Graves' concern, clarifying that he was interested in chronic exercise training rather than acute exercise, and remarked that the literature supported his assertion that individuals suffering from chronic musculoskeletal pain and fatigue could benefit from chronic exercise training. He reassured Rev. Graves that his team was comprised of trained exercise scientists who would take a very cautious approach, utilize gradual progression and use an individualized yet structured regimen to empirically assess the effects of exercise training for different individuals (and not assume that it would necessarily be beneficial for all).

Dr. Meggs then asked about Dr. Ashok Shetty's studies of pesticides and pyridostigmine bromide in animal models, specifically whether a time scale existed by which findings from tests in rodent models could be correlated to symptoms in ill Gulf War Veterans, for instance, 20 years post-exposure. Dr. Shetty replied that thus far he had examined the effects of DEET, permethrin and PB for three months after exposure (see Appendix B – Document 11), but that to simulate a 20-year human post-exposure period in rats would involve 1 year of follow-up. Dr. Kupersmith asked Dr. Shetty if this meant that 1 rat year was equivalent to 1 human year in this case. Dr. Shetty replied that it was very difficult to estimate, but that he would suggest that 6-12 months after exposure in a rat would be similar to 20 years following human exposure. Dr. Meggs said that such studies would be efficacious now that 20 years had passed since the end of the Gulf War.

Dr. Sullivan remarked that she believed Dr. Shetty had already conducted such tests, and that those results would be highly relevant. She added that she had found similar findings in Gulf War Veterans as Dr. Shetty had in these rodent models, and that she would be presenting these findings at a future meeting.

Dr. Kupersmith then commented that the VA was conducting a host of pain studies which he felt would be relevant to the Gulf War community. He then mentioned some spinal regeneration research that was currently underway at the VA involving mice which exhibited some recovery in just one year, as well as other promising research in primates unrelated to Gulf War Illness.

Dr. Sullivan then asked several questions of Dr. Schneiderman. First she asked about neurological diagnoses, emphasizing the need for more survey questions on diseases such as multiple sclerosis (MS), Parkinson's disease (PD) and brain cancer, as well as the need for

information on who was living with these illnesses (not just neurological mortality rates). Dr. Schneiderman replied that he had recently spoken with Dr. Steele, who had articulated similar specific concerns. He agreed that questions about MS should be included, apologizing that they had been left off of the draft survey. Dr. Schneiderman said that he could not make promises about what changes would be made to the survey, but that previous surveys had included a self-report field beneath the box for cancer, and that perhaps a line about brain cancer could be inserted. He explained that the diseases in the list of illnesses on the survey were originally in the survey to help serve as exclusions for CFS-like illness. He said that he appreciated the Committee's interest in ensuring that the list of diseases was appropriately broad, and stated that he looked forward to further discussions with Dr. Steele about the content of the survey. Dr. Sullivan replied that the idea of excluding certain diseases was one thing, but that there was currently no good way to capture the incidence of certain disorders associated with Gulf War Illness, and that this survey presented the best opportunity to do so. She supported his idea of doing a web-based survey which she thought would increase the response rate, which she believed had dwindled from the first to second iterations of the survey. Dr. Schneiderman confirmed that the first survey had yielded a 70% response rate, whereas the second survey only had a 35% response rate. He added that over 50% of the responses were via the web, and that the Veteran response rate for surveys he has been involved with resembled that of the general populace. Dr. Sullivan remarked that she had learned a lot from Veterans' responses to open-ended questions added to the end of the surveys she had used in the past, and thus she recommended that the upcoming survey include such questions.

Dr. Sullivan then asked Dr. Provenzale if the OPHEH survey would be distributed to the Veterans she would be contacting as well. Dr. Provenzale replied that the two teams' efforts were meant to be complementary, so that when the survey was sent she would have recruitment access to the respondents as well as access to data gathered through the survey. Dr. Sullivan then asked Dr. Brady if the same sort of collaboration would be taking place for the brain bank and tissue biorepository, stating that she felt it would be advantageous to ask for survey responses from individuals who agreed to donate tissue to the biorepository. Dr. Goldberg replied that solicitation would be problematic to the IRB. He said that one solution would be to initiate a massive public relations campaign urging interested donors to contact the biorepository call center. Dr. Sullivan expressed confusion as to why the genomics study would be able to solicit Veterans but not the brain bank. Dr. Goldberg replied that the genomics study was being conducted through the VA and only involved VA individuals, and that IRB delays would result from VA-initiated contact of Veterans (as opposed to making the existence of the study public and letting interested Veterans approach the investigators).

Dr. Weiner then remarked that he had, without much difficulty, obtained permission from the University of California San Francisco IRB and the DoD IRB to initiate contact with Gulf War Veterans. He said that he was able to get Veterans' contact information as well as information about where they were deployed from the DoD.

Mr. Hardie then expressed his concern about the prevalence of emerging illnesses and diseases to Dr. Kupersmith. He noted the distress among Gulf War Veterans regarding ALS and the federal government's delayed reaction to its prevalence among Gulf War Veterans. Mr. Hardie stated that the Gulf War Veteran community was currently concerned about MS, cancers, neurological

diseases and immunological diseases, and that they expected answers from the VA, regardless of what tools were used. Mr. Hardie then addressed the other Veterans in the room, stating that he was a fan of mindfulness and that he had participated in mindfulness treatment at University of Wisconsin hospital. He said that while it did not fix everything, he had found that it helped reduce his worst pain symptoms, and that he would support anything that would help. Mr. Hardie told Dr. Weiner that he and other members of the Committee would be interested in collaborating to help correlate symptoms with his findings, if at all possible. Mr. Hardie then expressed his appreciation for Dr. Cook's exercise study, recognizing that he was looking at exercise in a way that was very different from the original DoD study that was of great concern to Gulf War Veterans. Lastly, Mr. Hardie asked Drs. Provenzale and Brady how soon interested Veterans without ALS could get involved in their collection efforts, noting that he was very interested in ensuring that his doctors and next of kin knew that he wants his body donated.

Dr. Brady replied that his study was currently in IRB review, after which staff would need to be hired and trained. He therefore hoped that the biorepository would be up and running within half a year. Dr. Provenzale then stated that her study would not exclude any veterans, and that she was currently in the process of submitting the proposal to the IRB. She further stated that after that was complete, contracts for the call center would be issued. As such, she expressed hope that the first mailings would go out later in the fiscal year. Meanwhile, Dr. Provenzale expressed her desire to maintain dialogue regarding this progress with Veterans such as Mr. Hardie.

Mr. Hardie then thanked each of the investigators present, remarking that in doing their science they also brought hope to Veterans. Dr. Kupersmith thanked Mr. Hardie. He then remarked that his office would continue to collaborate with OPHEH, adding that one of the things he wanted to get out of the Million Veteran Project in general, and specifically the Gulf War cohort, were continuing signals of difficulties. Dr. Kupersmith recognized that VA and DoD could be criticized for not picking up signals early enough, and that they were trying to correct this.

Chairman Binns expressed hope that this conversation could be continued after Chief of Staff John Gingrich's presentation, but in case Dr. Kupersmith had to leave he wanted to comment on a few things. First, he stated that he felt the day's presentations had been a wonderful illustration of the individual efforts that were going on, not only within the VA but elsewhere, to try to solve this problem. He expressed his deep appreciation for the work being done and the creativity being demonstrated. Chairman Binns then remarked that the question the Committee always wrestled with was, how could the process be improved? He stated that the need the Committee had stressed for many years was for a comprehensive overall plan that would allow for these types of individual initiatives to come forward but would also ensure the close coordination and information sharing that was demonstrated in the previous presentations. Chairman Binns said that he was pleased to hear that the position creating a leader for Gulf War Illness research was going forward to identify someone who could devote themselves full-time to this endeavor to try to bring everyone together more frequently (not necessarily in person).

Chairman Binns then encouraged a much more expanded use of the Steering Committee. He explained that the Research Advisory Committee only meets three times per year and as such could not address all of the important issues that may need to be discussed in a timely manner. Chairman Binns expressed concern that since its creation the Steering Committee had actually

met less often than the Research Advisory Committee, and that these meetings had been so preliminary that the Steering Committee had not yet done any steering. He stressed that the Steering Committee must keep ahead of the game in order for it to serve the purpose for which it was created.

Chairman Binns also encouraged the type of informal discussion that had come up during the day's meeting, by which communication between the leaders of individual VA research efforts and Committee members or staff might be facilitated. Dr. Kupersmith then remarked that the Chief of Staff had arrived, and that he would like to address the issues Chairman Binns had brought up. Dr. Kupersmith acknowledged that the Steering Committee had not met frequently, but stated that the VA had acted on its recommendations, including setting up a database to look at Gulf War research and had also considered recommendations the Steering Committee had made regarding a cohort. He apologized that he had not kept the Steering Committee better informed about those actions, and promised to do so in the future. Dr. Kupersmith then remarked on the importance of true research collaboration – including that between VA and non-VA investigators. He expressed concern about stifling creativity by implementing too many top-down instructions regarding research collaboration.

Chairman Binns thanked Dr. Kupersmith and welcomed the Chief of Staff of the VA, Mr. John Gingrich.

Chief of Staff's Remarks on the 20th Anniversary of the Gulf War

Mr. John Gingrich, VA Chief of Staff

Mr. Gingrich began his presentation by thanking Dr. Kupersmith, Chairman Binns and the members of the Committee. He stated that their work strengthens the VA's promise to the Veterans and their families. Mr. Gingrich said that as an officer who commanded troops during the Gulf War, he took what the Committee was doing personally. He said that it troubled him to see so many Veterans struggling against ailments that for far too long had not been understood. Mr. Gingrich acknowledged the great strides made in medicine and research capabilities over the past 20 years. He also commended the many partnerships that were being developed across colleges, industries and government. Mr. Gingrich said that some progress had been made in understanding chronic multisymptom illnesses associated with the Gulf War, but not enough. He called for current focus on effective treatments, not just causality. Mr. Gingrich said that he would be talking all year about how to address this and change the VA process for care for all Veterans, including those who served in the Gulf War.

He remarked that in the past 2 decades VA had changed dramatically, with the advent of electronic health records, collaboration with the DoD, community based clinics and mobile clinics, telehealth, enhanced and advanced mental health services, and expanded women's health services. Mr. Gingrich emphasized that these changes were being implemented for the sake of improving care for Veterans and their families. He added that the VA processes 83 million outpatient visits, over 200 million lab tests, and over 500,000 inpatients each year. Mr. Gingrich emphasized that the VA was making an effort to realign VA's culture to make care more Veteran-centric, results-driven and forward looking. He said that the VA had delivered improved services and benefits and was building strong flexible management systems. Mr. Gingrich called

the Committee itself a testament to change, with a mandate that empowers it to make recommendations on a growing body of research into ailments that not long ago were derided as just imaginary. He explained that the VA was trying to realign its relationship with the Veterans, making customer-centric service its hallmark. He did not claim that the VA had completed this mission, but he said progress was being made. He said that in the past five years VA's website had introduced an "eBenefits" section to enable electronic benefits claims to be filed. Mr. Gingrich also discussed progress that he felt the VA had made in facilitating interactions with Veterans that denote a positive, proactive, productive relationship. These included the introduction of the largest student aid package since the original one in 1944 (encompassing 442,000 Veterans and their family members who were currently enrolled in college under the GI bill), the inclusion of nine new diseases with service connection for Gulf War, Blue Button electronic medical record retrieval, increased spending on mental health, advances in TBI and treatment of head injuries. Mr. Gingrich also called for the aggressive pursuit of collaborations, alliances and partnerships. He expressed support for innovative approaches, novel methodologies, and new and better ideas.

Mr. Gingrich said that he spoke for the Secretary, the Deputy Secretary and the leadership of VHA, VBA and NCA when he said that he was grateful for the Committee's commitment to the cause of the Gulf War Veteran. He stated that the Committee's work, collaboration and recommendations directly influence VA's decisions – more importantly, the results the VA achieves. He then announced that in an effort to be transparent he was distributing a 6-page report from the Gulf War Veterans' Illnesses Task Force (titled "Task Force Action Item Update") regarding progress they had made (see Appendix B – Document 12). He also acknowledged that more work needed to be done with the Steering Committee. He then asked the Committee for questions.

Chairman Binns thanked Mr. Gingrich and asked the Committee members if they had any questions.

LTC Marguerite Knox, a Committee member and Gulf War Veteran, commended Mr. Gingrich for his caring attitude toward Gulf War Veterans. Mr. Gingrich replied that he and Secretary Shinseki were Veterans themselves, which he felt imbued their beliefs and actions with a sense of urgency.

Dr. Sullivan said that she appreciated Mr. Gingrich's comments about collaborations, alliances and partnerships, noting that investigators from the VA, DoD and NIH were all present. She remarked that the Committee was very interested in discussing routes for collaboration, particularly with research funding dwindling more and more. Mr. Gingrich replied that he felt the 2012 budget for VA research funding was fairly kind. Dr. Sullivan said that she thought having multiple government agencies working together would be a fantastic idea. Mr. Gingrich said he agreed 100 percent.

Mr. Hardie thanked Mr. Gingrich for remembering his comments about treatments and said that he had hit the nail on the head when he said that Veterans cared most about results. He expressed appreciation for Mr. Gingrich's comments about the Steering Committee, and said that despite the fact that things hadn't worked out perfectly yet, he was confident that the leadership at all

levels of the VA were committed to making it happen, and that he was honored to serve on the Steering Committee. Mr. Hardie also thanked Mr. Gingrich for the 6-page transparency report that he had just circulated, and encouraged Mr. Gingrich to continue blogging. He said that his post about the 20th anniversary of the Gulf War had been very candid and that some people would take issue regardless of what he said, but that should not stop him from posting.

Mr. Gingrich responded by acknowledging the service of Gulf War Veterans, whose dedication was the reason he felt compelled to write that blog post. He commented that every single Veteran made the commitment that they were willing to pay the ultimate sacrifice. He remarked that it was not a matter of duration, but a matter of commitment – of putting one's life on the line for one's country, regardless of whether it was 500 hours, 100 hours, or 10 or 15 years. He remarked that the number of combat deaths may have been low, but the number of casualties was higher than could be calculated.

Mr. Hardie and Dr. Golomb then thanked Mr. Gingrich. Chairman Binns asked if Mr. Gingrich would like to take any questions outside of the Committee. Mr. Gingrich said he would.

Maj-Ret. Denise Nichols, a Gulf War Veteran in the audience, thanked Mr. Gingrich for his blog post. She then asked Mr. Gingrich to remember the many Gulf War Veterans who had died, and to recognize that the needs of their surviving family members were not all being met. In response, Mr. Gingrich requested that one of his staff members who was present add that request to his list of tasks to attend to.

Chairman Binns then asked Mr. Gingrich where he and the Committee staff could direct Veterans contacting the Committee with concerns and inquiries about benefits and health care issues now that the other Gulf War Advisory Committee which used to handle those issues was no longer in existence. Mr. Gingrich referred Chairman Binns to his staff member, COL Jeff Peters.

Joe Morgan then remarked that he was happy to hear that sarin was being considered as one of the toxicants to which the Gulf War Veterans could have been exposed. He asked Mr. Gingrich to consider reopening the presumptive conditions considered for Gulf War Illness. Mr. Gingrich said that if a link was found he would do so.

Ed Bryan, a Gulf War Veteran in the audience, asked if VA public relations could make an effort to reach out to the news media to elicit more coverage of the 20th anniversary of the end of the Gulf War. Mr. Gingrich said that was hard but that he would try again.

Chairman Binns thanked Mr. Gingrich, who then departed. Dr. Kupersmith then briefly remarked that he had witnessed the development of a Gulf War research program in VA over the past several years, a process which came about through the encouragement of investigators to enter the field (in part through funding from VA, CDMRP and NIH). He then explained that he wanted to acknowledge the work of all of the investigators who were present, which was met with applause. Chairman Binns remarked that he was also excited to see all of the investigators gathered together. He acknowledged that they all had to work in their separate labs, and he expressed the desire to see ways developed in which they could be brought together with each

other and with the members of the Committee other than formal occasions like the current meeting.

Dr. Sullivan then introduced Dr. John Gallin from the National Institutes of Health (NIH) Undiagnosed Diseases Program and the NIH Clinical Center.

NIH Undiagnosed Diseases Program

Dr. John Gallin, Director, NIH Clinical Center

Dr. Gallin provided an overview of the Undiagnosed Diseases Program (UDP) at the NIH Clinical Center (see Appendix A – Presentation 5). Though most of his presentation discussed the program's work in general, Dr. Gallin concluded by addressing the potential opportunities for Gulf War Illness research within the program. Specifically, he stated that in order for an investigator to get involved he or she must first have a specific question regarding Gulf War Illness, and he or she must find a partner at NIH who would be interested in studying the issue and applying for a bench-to-bedside research award in order to pursue that research. He said that his long-term goal (for which no process yet existed) would be to allow outside investigators with specific questions to use the NIH facilities to get at the answers without needing an NIH co-investigator. Dr. Gallin also commented on the current partnerships with the DoD and the Walter Reed Medical Center and said that he hoped these types of partnerships would expand in the future to include the VA and others.

Dr. Golomb then commented on Dr. Gallin's assertion that patients were collaborators in the program's research and asked if Dr. Gallin could clarify what form this partnership took. Dr. Gallin replied that patients elect to come to NIH (often at great cost and disruption to family life) and once they arrive the clinicians go to great efforts to educate them about their disease and clinical research. He added that every bed in the clinic had a computer with internet access that could be utilized as a portal for education. Dr. Gallin said that he had also created a patient advisory group that involved quarterly meetings between him and patients from each of the institutes who provide feedback and input that shape program implementation. He added that portals were being created so that patients could access their medical records in real-time. Dr. Gallin said that one third of his patients came to the center via self-referral facilitated by the internet.

Dr. Golomb remarked that this tied in nicely with her second question, which regarded three of her current patients which she thought might benefit from the program, two of which she suspected might have neurodegenerative problems. She asked if they should go to the program website or access the program a different way. Dr. Gallin replied that the website clinicaltrials.gov lists all the protocols supported by NIH. Dr. Golomb clarified that she was asking about patients with undiagnosed problems. Dr. Gallin replied that symptoms could be entered into this search engine. He also said that a call could be made to the NIH to speak with a nurse who could triage the patient, or a direct appeal could be made to the NIH UDP.

Dr. Sullivan then said that originally she had been hoping to ask whether Gulf War Veterans could be referred to the UDP, but she was delighted to hear that there might be the possibility for

research as well. Dr. Gallin remarked that he thought that served a much broader potential for the population of ill Gulf War Veterans. He said that, for instance, he would love to have Gulf War Veterans studied in his 7 Tesla Magnetic Resonance Imaging (MRI) machine and to provide some of the approaches he has for studying inflammatory mediators. Dr. Sullivan said that some time had been spent at previous meetings discussing neuroinflammation, Toll-Like Receptor (TLR) pathways and other mechanisms just beginning to be understood. She expressed her support for the UDP and stated that she would love to help build partnerships.

Dr. Sullivan also asked Dr. Gallin to comment on potential approaches to finding or developing treatments for conditions currently lacking therapies or pharmaceutical interest. Dr. Gallin remarked that as patients and diseases were identified, realizations were often made about the magnitude and manifestations of formerly unrecognized conditions. He also expressed confidence in the ability of drugs to be found to treat many of these conditions. Dr. Sullivan also remarked on the UDP's use of symptom-based treatments for conditions for which no permanent treatments existed yet. Dr. Gallin said that 15 years ago he never would have thought that acupuncture or complementary medicine would be offered at his hospital, but that it currently was.

Dr. Steele then asked if Dr. Gallin was aware of any groups who had looked at problems similar to those from which many ill Gulf War Veterans suffer, such as cases of chronic unexplained illness following certain chemical exposures. Dr. Gallin said that he couldn't recall off the top of his head, but that those types of issues were of rapidly emerging interest to the NIH. He called this realm of interaction between genes and substances in the environment the next frontier.

Chairman Binns then apologized for having to move ahead with the agenda, then thanked Dr. Gallin for his presentation prior to calling for a lunch break.

After lunch, Chairman Binns asked if any Committee members had questions they would like to discuss with the VA investigators. Dr. Jack Melling, consultant to the Committee, remarked that he was appreciative of and impressed by the day's presentations. He then remarked that there were still people who did not believe that Gulf War Illness existed (who instead believe that it is all in the mind), and as such he advised that care be taken regarding the way in which certain treatments were presented. Dr. Melling specifically mentioned cognitive behavioral therapy and exercise therapy, noting that the fact that certain treatments were beneficial did not say anything about the cause of the original condition. Dr. Sullivan agreed with Dr. Melling, and reiterated the point that treating symptoms of something did not mean the symptoms being treated were the basis or cause of the illness.

Dr. Goldberg then announced that copies of the 6-page Gulf War Task Force Action Item Update distributed to the Committee by Mr. Gingrich could be found on the table at the rear of the room.

Dr. Golier then remarked that a lot of effort had been made to ensure that investigators used a standardized approach in clinical diagnosis, but she felt that some of the investigators who were not part of the larger epidemiological studies could use some assistance in selecting the best instruments to measure deployment exposures. She specifically asked if the Committee could issue recommended ways of assessing exposure going forward.

Dr. Steele replied that this was a very important question, and remarked that appropriately assessing symptoms and utilizing an appropriate standard case definition for Gulf War Illness were also important. She said that she wished she did have a single protocol to recommend, but that no standardized approach existed, and that there were several out there which she had used. Dr. Steele said she could speak from her own experience about which methods she had found most useful, noting that she and Dr. Sullivan used different approaches. Dr. Steele then expressed hope that the VA, DoD and the Gulf War investigators involved would be able to come together in some form to standardize how symptoms and exposures associated with Gulf War service were assessed, in order to give rise to more rigorous research and ease of comparison between different investigators' findings. Dr. Sullivan said that she would also be happy to share anything she had used in the past, noting that the only objective, non-self report information would be that from the Khamisiyah and oil well fire exposed group. She said that this information was available through the DoD. Having reviewed hundreds of epidemiologic studies in the area, Dr. Steele added that it was not sufficient to only ask whether someone was exposed to a given agent or not. Rather, she explained, it was important to try to get some metric on the degree of exposure to the agent of interest.

Chairman Binns then asked Dr. Goldberg if he knew whether the people examined by the imaging arm of Dr. Weiner's program would be the same people put through other batteries of tests, so that they could be cross-referenced as would have been the case at the University of Texas Southwestern (UTSW). Dr. Goldberg said he would hazard to speak on behalf of Dr. Weiner, who was not present in the room. He said that Dr. Weiner was currently independently recruiting for his imaging studies. Dr. Goldberg remarked that it was his hope that anyone enrolled in that research would be encouraged to enroll and participate in the new cohort study once it was launched. He explained that part of the consent form for the cohort study would grant permission to contact the Veteran participants about other studies, and that an effort would be made to ensure that all of Dr. Weiner's study participants were made aware of other research opportunities open to them. However, Dr. Goldberg said he could not guarantee that every individual enrolled in Dr. Weiner's study would also be enrolled in other Gulf War Illness studies.

Chairman Binns then asked if the case definition for Gulf War Illness would be standardized so that a person considered ill in, for instance, Dr. Weiner's imaging study in San Francisco would also be considered ill in some other type of study in another location. Dr. Goldberg replied that this was a good question but that he was not sure if that standardization currently existed. Chairman Binns said that he had recently re-read the 7 pages of Committee recommendations made to the UTSW program and that this and other issues had come from those concerns. He said that this type of issue was why he saw the need for informal interaction between investigators and members of the Committee, as well as the need to bring the Steering Committee up to date. Dr. Goldberg said that he thought this would also be a matter for CDMRP managers and others outside the VA to come together to standardize criteria and assessment tools across the board. He said that perhaps a meeting would have to be held in order to do this, and mentioned the case of the NIH taking a decade to standardize an approach for PD research.

Rev. Graves then asked what it would take to get everyone together to make that happen, given that two decades had already passed. Dr. Goldberg replied that there were currently multiple definitions being used by investigators, making it very difficult for studies to be cross-compared. Thus he agreed that a conversation between investigators and managers was needed. Dr. Golomb commented that perhaps the minimum recommendation should be to collect the information relevant to the most popular definitions so that it could be ascertained which subsets met the Kansas case definition, for example.

Chairman Binns then remarked that another relevant recommendation issued by the Committee to the UTSW Gulf War research program involved creating a clinical translation arm that would be involved from the beginning so that each of the other research arms were connected by the common goal of developing treatments. He asked if there was any thought about such a clinical arm within the VA's Gulf War research program. Dr. Goldberg replied that the VA liked to think that was an integral part of the peer review process when any project was screened. He explained that projects which might be great science but have little relevance for improving the health of Gulf War Veterans would not receive funding through VA, though they might get deferred to National Science Foundation (NSF) or NIH.

Dr. Steele commented that she was happy to hear that VA reviewers were considering the clinical applications of the research they reviewed, but then expressed her concern about the importance of a cohesive plan that outlined which research questions needed to be answered and how the different researchers involved in answering them would be coordinated. Dr. Steele reiterated something she recalled hearing Dr. White describe, namely the need for a team which ensured that the question of how research would translate into clinical applications, and ultimately treatments, was threaded through every part of a comprehensive research plan. Dr. Steele said she had come to the day's meeting expecting to hear what that comprehensive plan was. Dr. Goldberg said that he could fill in some of Dr. Steele's question. He said that the ALS brain bank and the cohort study were service-directed projects initiated by Drs. Kupersmith and O'Leary, and that all 5 of the soon-to-be released Gulf War Requests for Applications (RFAs) were also service-directed. He went on to describe the 2 new pilot project RFAs (one of which would be biomedical, the other clinical). Dr. Sullivan asked if these RFAs would be in addition to the regular VA Gulf War RFAs, and inquired when they would be released. Dr. Goldberg confirmed that this was the case, and that they had been delayed since he had not finished his review of the last set of proposals. He said that once that review was complete he would be able to release the new round of RFAs.

Chairman Binns then asked if there was a senior document that describes the VA's Gulf War research plan as a whole. Dr. Goldberg replied that there was currently no such document, but that assisting with such a plan was the reason the Steering Committee was created. He said that the next step for the Steering Committee would be to meet with some people from the CDMRP and some VA investigators. Dr. Goldberg expressed hope that the conversation would involve discussion about why investigators chose to apply to one funding mechanism over another and to identify barriers and solutions to getting around them. He expressed his confidence that the 2 programs themselves were not badly coordinated. Dr. Goldberg said that he was normally invited to the vision-setting meetings, so there would be some coordination at that level, either to prevent or sometimes to provide duplication. He said that with small clinical trials it was nice to

have two running simultaneously or close on the heels of each other so that real findings could be identified. Dr. Goldberg explained that any duplicated findings in small studies would be grounds for scaling up, which was why the Cooperative Studies Program (CSP) existed. He added that a number of CSP projects had been initiated by service-direction.

Rev. Graves then said that if the Steering Committee were to be injected into the process in order to coordinate the Gulf War research efforts he felt that it would need a head czar to do so. Dr. Goldberg then re-introduced Dr. Yeager, the acting Director of Deployment Health Research, and said that he hoped the announcement would be released for the Gulf War position that week. Upon filling those 2 positions he stated that there would be senior management focused full-time on deployment health and Gulf War exposure-related research. Dr. Goldberg expressed his belief that the organization and management the Committee was looking for would come about once this senior management was in place and the Steering Committee had been brought up to speed.

Mr. Hardie then commented that if it would fall to the Steering Committee to develop the strategic plan for Gulf War Illness research he felt it would require a 1 to 2 week meeting (rather than the day-long meetings that the Steering Committee had attended thus far). Mr. Hardie said that he had looked at the agenda for the upcoming Steering Committee meeting and questioned the need for meeting with CDMRP, since 3 of the Steering Committee members already sat on the CDMRP panel and were therefore well informed of the relevant DoD activities. Mr. Hardie then made a plea for the creation of a strategic plan. He said that it was great to have a new full-time Gulf War staff person coming on board, but that he was disappointed and frustrated by the content on Afghanistan and Iraq in the Gulf War Task Force Action Item Update.

Dr. Sullivan then asked Dr. Goldberg if the biorepository and another pilot study had been funded by the CSP yet. Dr. Goldberg said that both projects had been approved and funded, but that they were in final budget negotiations regarding staffing levels and pending IRB changes. He assured Dr. Sullivan that these projects would be funded at appropriate levels. Dr. Sullivan emphasized the importance of ensuring proper staffing and funding for a project such as the biorepository. She asked if the Committee could get the list of CSP funding as well. Dr. Goldberg confirmed that the Committee would receive informational sheets on the funding of the CSP projects as part of the funded project list.

Dr. Sullivan then asked Dr. Brady if the plan for recruitment for the biorepository donation program would basically involve mass advertising. Dr. Brady replied that the biorepository was a 2 year pilot project in which Veterans would be able to self-refer themselves to the program. He explained that the point of the 2-year pilot would be to determine the degree to which Veterans would sign up. He said that initial recruitment would be solicited through advertisements in the Gulf War Review and possibly through a website. He said that he was in the process of working out final details regarding what type of consent documents would be needed. Dr. Sullivan then asked what information would be needed from each Veteran interested in signing up. Dr. Brady replied that in the short-term he would accept anybody who wished to donate to the registry, but that details still needed to be worked out regarding the information to be gathered. He commented that the questionnaires to be used were still being developed. Dr. Brady said that he had been in communication with Dr. Provenzale regarding coordinating their efforts and collecting information relevant to case definition. Dr. Sullivan asked if the biorepository would

be contacting the Veterans or their families more than just the single time to sign them up. Dr. Brady replied that this would depend on what the IRB allowed them to do, as well as the staff resources that would be available. Dr. Brady emphasized the fact that the success of the brain bank so far had been based on maintaining personal contact.

Dr. Steele asked who would have access to the tissues in the biorepository, and what research would be conducted with them. Dr. Brady replied that it was his understanding that all VA researchers, and perhaps those beyond VA, would have access. He added that VA Central Office (VACO) would have the ultimate authority over that decision. Dr. Goldberg remarked that the biorepository would be run very much like the ALS brain bank was currently being run. He stated that requests from VA and non-VA investigators had been received, and that a review committee would need to be set up to review the requests. Dr. Goldberg stated that Dr. Brady's team would not be doing the research but that they were simply running the biorepository as a research resource.

Dr. O'Callaghan asked if there would be CNS tissue samples available for biochemistry in addition to fixed tissue. Dr. Brady replied that brain tissues would be available fixed in formalin and frozen. Dr. O'Callaghan asked if there would be an attempt to dissect areas of the brain reliably or if the entire brains (or half-brains) would be preserved. Dr. Brady replied that the plan for each brain, as he understood it, would follow a specific protocol that would involve freezing coronal sections of one hemisphere and formalin fixation of the other half. He added that both halves would be stored in Tucson, Arizona.

Dr. Sullivan asked if Dr. Brady's team would consider preserving tissue in ways that would enable markers of neuroinflammation to be studied. She recommended that Dr. Brady or members of his team speak with Dr. O'Callaghan about those details.

Chairman Binns then asked if Dr. Goldberg knew what size samples were being planned for blood collection under Dr. Provenzale's study. Dr. Goldberg said that he did not know off-hand. Chairman Binns suggested that Dr. Provenzale talk to Dr. Carrolee Barlow about that issue, adding that when the Committee had made recommendations to UTSW they had advised that 10,000 blood samples be collected.

Dr. Steele asked if Dr. Provenzale's cohort (CSP 585) involved only collection of blood samples and survey data, without any evaluative component. Dr. Goldberg replied that the current plan was for a pilot study looking at the process for doing surveys and remote blood collection infrastructure. He said that this would be followed by a much larger proposal to do the full cohort study.

Dr. Steele then asked whether Dr. Robert Haley's UTSW study had not also been collecting blood samples from Gulf War Veterans all over the country. Dr. Goldberg replied that he was not sure. Dr. Steele said that she thought he had been collecting samples from his entire national sample, and suggested that for this new study rather than redo the work that Dr. Haley had done perhaps investigators could simply talk to Dr. Haley to see if his approach worked. Dr. Goldberg replied that it was more than just blood collection that was being piloted, and that the pilot study needed to assess whether the resources were sufficient for scaling up the entire study. Dr. Steele

then asked if the ultimate goal of the full cohort was to have a biorepository of blood samples that would then be available to researchers at the VA and perhaps other investigators. Dr. Goldberg confirmed that this was the aim, and that the end result would be a repository of blood samples, survey data and medical records (clinical data) all in one place serving as a resource "hub" for investigators interested in pursuing a wide spectrum of studies (which would form the research "spokes" extending from that hub).

Dr. Steele then asked if the national follow-up survey from OPHEH was going to be the primary data collection instrument for CSP 585. She remarked that if this were the case, she and the rest of the Committee felt strongly that it must first be strengthened. Dr. Goldberg stated that the intent was to use the same instrument as Dr. Schneiderman because he had a permanent 30,000 member cohort. As such, he said he would be coordinating with Dr. Schneiderman's team so that if the survey was delayed so would the CSP 585 pilot study. Dr. Goldberg then remarked that Dr. Provenzale would be using both Dr. Schneiderman's survey and a short survey that the Million Veteran Program would be using but which it had not yet made public. He emphasized that these programs were currently and would remain coordinated. Dr. Steele asked whether, since this would be a CSP project under the purview of ORD, there had been any attempt for ORD to review that short survey instrument. Dr. Goldberg replied that ORD did not have the authority to tell OPHEH what they could or couldn't do. Dr. Steele clarified that she was inquiring about ORD's review of the use of the MVP's survey for the ORD-funded project. Dr. Goldberg replied that the goal was not to put out a whole slough of different surveys that would effectively curtail the ability to recruit participants from Dr. Schneiderman's survey study. Dr. Goldberg stated that he was sure that Dr. Schneiderman and Dr. Provenzale would be in contact to ensure that all the necessary data would be collected.

Mr. Hardie commented that this was not what he heard Dr. Schneiderman saying earlier in the day. He expressed his belief that this demonstrated the need for a strategic plan, and a postponement of the release of the survey until such a plan was created and the survey corrected.

Chairman Binns then asked Dr. Goldberg to clarify the content of the biorepository "hub" that Dr. Goldberg had described. Dr. Goldberg replied that this hub would encompass the survey and blood collection in the form of a large cohort and resource to investigators working on a broad spectrum of clinical studies (ranging from studies looking for biomarkers to those focused on clinical trials).

Dr. Crawford then remarked that it would be important for the hub to collect the samples in a way that the spokes could make use of them. For example, as a researcher involved in proteomics, Dr. Crawford hoped to be one of the spokes in the future, and as such she would require that samples be collected in a very stringent manner according to strict standard operating procedures (SOPs). She asked if this issue was being factored into the hub's plan. Dr. Goldberg replied that he could not say what the SOP for the blood collection was but that there would be an SOP that would be followed.

Dr. Steele asked whether the person formulating the hub at the center for blood collection would be talking with Dr. Crawford and other investigators in order to find out what requirements would be needed. Dr. Goldberg replied that all CSPs had planning committees, and that there

was a group which had met to discuss how to collect and store blood to ensure that it would be useful. Dr. Steele acknowledged that she was aware of the process but asked Dr. Goldberg to comment specifically on whether the process would involve the types of investigators that would hope to use the samples. Dr. Goldberg replied that although he could not recall the protocol that had been derived, he knew that there were currently people involved who understood the needs of different types of research, including proteomics and genomics.

Dr. Sullivan then suggested that Dr. Goldberg might want to consider collecting and storing cerebrospinal fluid (CSF) at the biorepository as well. She then confirmed with Dr. Crawford that this would be of interest to her (and likely other researchers).

Chairman Binns then thanked everyone for participating in the day's discussion. Dr. Goldberg remarked that he would send all of the feedback discussed during the afternoon's session to the investigators who had been gathered earlier in the day but had needed to depart early. Chairman Binns then seconded Mr. Hardie's final comment, agreeing that the worst thing that could happen would be a hurried approach that missed the chance to get everything as right as could possibly be.

Dr. Sullivan then introduced the next speaker, Dr. Mian Li.

Dr. Li's presentation was interrupted part-way through due to the meeting space being needed by another group. For this reason his presentation will not be included in these minutes, with the hope that he can return to a future meeting to present his research in full as originally planned.

DAY 2

The March 1, 2011 meeting of the Committee was held in Room 1143 of the Lafayette Building located at 811 Vermont Avenue, NW, Washington, D.C.

Welcome, Introductions & Opening Remarks

Mr. James Binns, Committee Chairman
Dr. Kimberly Sullivan, Committee Associate Scientific Director

Chairman James Binns called the meeting to order at 8:31am. He began the meeting by welcoming representatives from all three of the War-Related Injuries and Illnesses Centers (WRIISCs). Dr. Sullivan then introduced the first speaker of the day, Dr. Wesson Ashford.

Palo Alto WRIISC Research Update

Dr. Wesson Ashford, Palo Alto WRIISC

Dr. Ashford explained that he first got involved in Gulf War research in the 1990s with several cases of Gulf War Veterans who were experiencing memory problems and other symptoms now known to be common in ill Veterans who served in the Gulf War. Dr. Ashford's presentation focused on a few cases of ill Gulf War Veterans who he had seen at the Palo Alto WRIISC, including symptoms, neuroimaging findings and symptom-based treatments that could be tried

(see Appendix A – Presentation 6). In his presentation, Dr. Ashford remarked that about half of the national referrals seen at the Palo Alto WRIISC to date were Gulf War Veterans. Dr. Ashford also discussed the difficulty of identifying potential causal mechanisms of Gulf War Illness. He then discussed his proposed treatment trial using repetitive transcranial magnetic stimulation (rTMS) to treat chronic pain in Gulf War Veterans which was currently under VA review.

At the conclusion of Dr. Ashford's presentation, Dr. Sullivan encouraged Dr. Ashford to resubmit his imaging papers (which he had mentioned were previously rejected from several journals). She then asked if Dr. Ashford was still doing neuroimaging (specifically positron emission tomography scanning) in Gulf War Veterans. Dr. Ashford confirmed that he was doing positron emission tomography (PET) scans but that most were being read as normal. He said that he believed the problem might lie in the need for more refined computer analysis concepts.

Dr. Sullivan then expressed interest in rTMS treatment, and asked if Dr. Ashford had piloted it in any Gulf War Veterans. She explained that she was asking because of her awareness that it could either be inhibitory or excitatory, depending on how it was used. Dr. Ashford replied that he had been using it on a rare basis for the past 6 or 7 years. He explained that the concept for it was originated by Dr. Mark George, and that the big push recently had been for its use treating depression. Dr. Ashford said that he was currently trying to determine what the most effective placements of the magnet were for alleviating depression, and that this same research would likely need to be done for treatment of chronic pain in ill Gulf War Veterans.

Dr. Golomb remarked that she would be cautious about assuming that treating people with low doses of PB wouldn't cause any problems. Dr. Ashford and Dr. Golomb proceeded to have a discussion about the effects (and potential side effects) of PB on patients being treated for Myasthenia Gravis.

Dr. Sullivan commented that in her study of pesticide applicators she had found that individuals exposed to both PB and organophosphate pesticides performed significantly worse on tests of certain cognitive functions and that changes could be observed on neuroimaging as well. Dr. Ashford replied that his opinion was that the underlying mechanisms resembled those of a pharmaceutical combination of carbidopa and levodopa used to treat PD known as Sinemet. He explained that the latter drug was used to get the former drug into the brain, and that without levodopa to let it in carbidopa couldn't exert its actions in the brain. Dr. Ashford then described how PB and similar drugs (such as galantamine) could cause a reflexive increase in production of acetylcholinesterase molecules, though he did not know if that had been measured (peripherally or centrally) in Gulf War Veterans.

Chairman Binns then announced that the next speaker needed to be introduced in order to stay on schedule, and he thanked Dr. Ashford for his presentation. Dr. Sullivan then acknowledged Dr. Ashford's call for symptom-based treatments, noting that the rest of the day's presentations would be focused on those approaches. She then introduced Ms. Louise Mahoney.

Palo Alto WRIISC: Complementary and Alternative Therapies for Gulf War Veterans

Ms. Louise Mahoney, Palo Alto WRIISC

Ms. Mahoney, the Education Director at the Palo Alto WRIISC, began her presentation by leading a brief participatory chair yoga exercise for the Committee and audience in attendance, followed by an anecdotal story of an ill Gulf War Veteran who had experienced some relief of her symptoms after Ms. Mahoney had conducted a similar session of chair yoga with her. Ms. Mahoney then provided an overview of non-western treatment modalities commonly known as Complementary and Alternative Medicine (CAM), followed by a discussion of yoga (one CAM treatment modality), including research on its beneficial effects and potential mechanisms of action (see Appendix A – Presentation 7). Ms. Mahoney then described the yoga program at the Palo Alto WRIISC, which had seen 5 Gulf War Veterans since its inception in January 2010. Ms. Mahoney also discussed the results of a small pilot study conducted among 12 Veterans who had participated in a yoga class at the Palo Alto WRIISC, which found that patients experienced increased energy and decreased sensitivity to pain following the yoga session. Ms. Mahoney then concluded by briefly describing a 12-week randomized control trial of yoga therapy for which she was hoping to recruit 100 Veterans to assess pain, functional disability, sleep, depression, anxiety, memory and possibly genetic factors.

Dr. Sullivan thanked Ms. Mahoney and expressed her support for an approach like chair yoga, which might be more accessible to formerly active Veterans who were experiencing difficulties with physical exertion. Dr. Sullivan asked if the Gulf War Veterans who had participated thus far were more interested in the chair yoga compared to the mat yoga class. Ms. Mahoney replied that the Gulf War Veterans typically came to the therapeutic mat class, where props were also available. She added that the proposed research study would involve specific poses in order to measure effects.

Chairman Binns then called for a brief break. He reconvened the meeting at 10:15am with the request for comments on the previous day's program from any Committee member having to leave before the end of the current day's meeting.

Dr. Golomb remarked that she was disappointed with the VA's efforts. She stated that she felt that many of the projects they were funding that were meritorious were projects that had already been funded by DoD. She said that she felt the money might be better spent by transferring it to DoD CDMRP, who had (in her opinion) been doing a better job allocating funds toward meritorious research that was making real progress in helping further the understanding and eventual mitigation of Gulf War Illness.

Chairman Binns then remarked that later in the afternoon there would be a session which had been postponed from the previous day's meeting during which the Gulf War Veterans on the Committee would speak about their personal experiences. He remarked that he hoped Mr. Hardie would be able to attend, but he acknowledged that because of his health issues Mr. Hardie was rarely able to attend the second day of Committee meetings. Chairman Binns then reiterated Mr. Hardie's comments from the previous day about it being time to hit the pause button on the projects which had not begun (namely the survey and the two CSP projects on blood collection and the brain bank). Chairman Binns stated that Mr. Hardie had remarked that the cart was

before the horse in that there was supposed to first be a plan formulated by the Steering Committee under the leadership of a Gulf War Research Director.

Chairman Binns then offered a brief remark on behalf of Dr. O'Callaghan, who had needed to leave earlier but had provided his comment to Chairman Binns before he did. Chairman Binns said that Dr. O'Callaghan thought that Mr. Hardie's remarks were on the right track.

Dr. Melling then remarked that he agreed with Mr. Hardie and Dr. O'Callaghan, adding that he felt there needed to be appropriate input from investigators to be sure that when they apply for grant funding the resource that would be supporting them would be of a quality that the grant funding agency would accept.

Chairman Binns said that Dr. Melling's comments reminded him that he had corresponded with Dr. Barlow after providing her with the previous day's handout on the genomics program. He said that she had remarked that the details were absent in the genomic genetic work on obtaining blood samples. She cautioned that if the blood samples and consent were not obtained correctly up-front that it would be difficult to go back and get consent after the fact. Dr. Barlow advised that it would be wise to hold the program before starting, until a real plan was in place.

Chairman Binns then said that the discussion of the previous day's proceedings would be continued later that afternoon. Dr. Sullivan then introduced the next speakers, Dr. Gudrun Lange and Dr. Anna Rusiewicz.

New Jersey WRIISC: Complementary and Alternative Therapies for Gulf War Veterans

Dr. Gudrun Lange, New Jersey WRIISC Director

Dr. Lange, Director of the New Jersey WRIISC, began her presentation by giving a background on the WRIISC program, noting that 80 percent of the 1300 Veterans who had come to the New Jersey WRIISC for complex clinical evaluations fulfilled Gulf War criteria. She explained that about a year ago the three WRIISC sites made the decision to implement a CAM workgroup consisting of clinicians and scientists at all three sites working to come up with a rigorous clinical and research CAM program. Dr. Lange's presentation focused on the prevalence of CAM therapies in the general population and Veteran population, as well as the regulatory aspects of offering CAM therapies at the WRIISCs (see Appendix A – Presentation 8).

At the conclusion of Dr. Lange's presentation Dr. Golomb remarked that, given the commitment to first doing no harm, it might be worth evaluating whether credentialing had any relationship to patient outcomes. She recommended also comparing the potential for harm from CAM treatments to that associated with other non-CAM treatments, since there were no treatments that had no potential for risk. Dr. Lange acknowledged this fact, but remarked that in order to make that case the potential for harm from the CAM modalities had to first be assessed.

New Jersey WRIISC: Evidence-based Integrative Medicine

Dr. Anna Rusiewicz, Palo Alto WRIISC

Dr. Rusiewicz spoke about the terminology commonly used to describe non-western medical practices (complementary and alternative), and she then made the case for transitioning to a less often used concept called "integrative" medicine (see Appendix A – Presentation 9). Dr. Rusiewicz also discussed the VA standard for evidence-based medicine, and some of the forms of integrative medicine being offered at the VA. She ended her presentation with a description of a pilot study currently under review in which she proposed comparing Qigong exercise to standard graded aerobic exercise.

Dr. Melling remarked that he saw the need for objective and impartial evaluation of the CAM treatments which had been discussed.

In response to Dr. Melling's comments Dr. Floyd Bloom, a member of the Committee, remarked that when he first came to the Salk Institute he was extremely skeptical that any of the alternative or complementary medical approaches had a scientific basis, but that over time he bore witness to various studies that proved the validity of various CAM approaches. He said that years ago one of his laboratory technicians at Salk helped design a randomized, controlled, double blinded study demonstrating that a certain Kundalini yoga practice elicited respiratory activities which benefitted individuals withdrawing from drug addiction. Dr. Bloom said that this man, Dr. David Shannahoff-Khalsa, had recently been funded for studying the therapeutic use of CAM approaches. He went on to describe research that crossed his desk when he was editor of Brain Research which demonstrated the capability of acupuncture to reduce pain thresholds in animals, as judged by very standardized tests of sensitivity. Dr. Bloom then noted that the patterns of breathing which perform the therapeutic effects were very similar, despite having evolved over hundreds of years in various parts of the world. He remarked that the military sniper's manual even contained instructions for deep breathing to steady one's nerves before taking shots. Dr. Bloom concluded his remarks by stating that there was a science there that was not understood, but that the effects were quite supportable scientifically. As such, Dr. Bloom said that he agreed with Dr. Melling's approach (requiring the same kind of evidence from clinical trials as would be necessary when testing medication therapies), but he said that he also had the feeling that failing to pursue these CAM modalities would result in missed opportunities for discovering treatments that could provide relief to Veterans, even though the mechanisms might not be understood. Dr. Bloom drew a parallel to many medications used in psychiatry which were not understood upon development (some of which were still not understood).

Dr. Sullivan thanked Dr. Melling and Dr. Bloom for their comments and remarked that it sounded like the VA planned to be as rigorous as possible in the evaluation of CAM modalities.

Dr. Steele remarked that when she was on a consulting panel to NIH, in the early years when the National Center for CAM (NCCAM) was called the Office of Alternative Medicine, there was mutual suspicion between the conventional and alternative practitioners about the ability to test versus prove the effectiveness of the CAM modalities. Dr. Steele then expressed her belief that by taking a very pragmatic approach NIH had proven that these modalities could be studied

using conventional methods as long as the outcomes were appropriately applied, and that evidence in support of the effectiveness for some of these modalities had been produced.

Dr. Sullivan then suggested that Committee members interested in these issues take a look at two papers included in their binders. She explained that one of these papers had been authored by a team of researchers at Tufts who had studied the effects of Tai Chi on fibromyalgia, and the other (out of Massachusetts General Hospital) used neuroimaging to look at mindfulness and regional brain matter changes. Dr. Sullivan expressed her hope that those authors might be able to come speak at a future Committee meeting in Boston.

LTC Knox then commented on her visit to the New Jersey WRIISC, during which she was shown results demonstrating the differences made by the CAM modalities (namely the exercise program) used in their program. LTC Knox expressed desire to see these programs made available at other VA clinics. Dr. Sullivan said that she hoped to see such treatments spread throughout the VA clinics as well, but understood that the WRIISCs first wanted to establish consistent measures of the modalities being used as well as consistent training of practitioners to facilitate the scaling up of treatments that were found to be effective.

Dr. Meggs then remarked that herbal medicine was really pharmaceutical therapy, since plants contain pharmaceutically active substances which could be identified and isolated. He stated that a disadvantage of herbal medicine relative to conventional medicine was that doses could vary from plant to plant and batch to batch. Furthermore, he commented that by taking an herbal medicine one was exposing oneself to a complex mixture of drugs, from which reactions could easily occur (to the active or inactive agents therein).

Dr. Sullivan then introduced the team of individuals from the Washington, DC WRIISC, including Dr. Jeanette Akhter, Ms. Brenda Jasper, Dr. Kelly McCoy and Ms. Karen Soltes.

Washington WRIISC: Complementary and Alternative Therapies for Gulf War Veterans

Dr. Jeanette Akhter, Washington DC WRIISC
Dr. Kelly McCoy, Washington DC WRIISC
Ms. Karen Soltes, Washington DC WRIISC
Ms. Brenda Jasper, Washington DC WRIISC

Dr. Akhter first thanked the Committee and introduced Dr. Matthew Reinhard, the Director of the Washington DC WRIISC, before asking Dr. McCoy to begin the presentation. Dr. McCoy commented that the DC WRIISC was moving toward integrative care. She described the justifications for using CAM modalities and provided an overview of several VA studies investigating the effectiveness of several CAM modalities in treating the symptoms experienced by ill Gulf War Veterans (see Appendix A – Presentation 10). After outlining the three CAM modalities offered at the DC WRIISC (acupuncture, yoga nidra and the labyrinth), Dr. McCoy played a short video clip featuring several testimonials from Veterans who had received acupuncture at the DC WRIISC. Dr. Akhter then spoke about acupuncture, the options for acupuncture treatment available at the DC WRIISC, feedback from Veterans treated at the WRIISC, and research currently underway at the DC WRIISC. Ms. Soltes then spoke about "iRest" yoga nidra, which was used at the DC WRIISC. She touched on the satisfaction data

from Veterans seen at the DC WRIISC, discussed the current yoga research going on at the DC WRIISC, and played a video of testimonials as well as a segment discussing yoga nidra's capacity to facilitate integrative restoration. Ms. Jasper then discussed walking meditative labyrinths, including patient satisfaction survey results, current research underway at the DC WRIISC, and a list of labyrinths at other VA clinics across the country. Dr. McCoy concluded the presentation by first reviewing a list of factors that should be considered for all treatment planning and then giving an overview of integrative health care elements currently found in the VA system.

Dr. Meggs asked if yoga nidra had particular advantages or disadvantages over other meditative techniques such as transcendental meditation. Ms. Soltes stated that she had experience with several of these techniques, and that of the ones she was familiar with, the way she taught yoga nidra was more focused on mindfulness (like Buddhist meditation) and less of a concentration-based practice (like transcendental meditation). She added that it was also all guided and did not leave people "alone with themselves" for long periods of time. Ms. Soltes said she would also like to study who does best with what kinds of meditation practices.

Dr. Steele then asked if the Veterans with multisymptom illnesses benefitted more from the personalized acupuncture approach versus the group in-ear acupuncture treatments being offered at the WRIISC. Dr. Akhter said that if she had her preference she would offer them both. She said that the group ear acupuncture had been developed for detoxification purposes but that it was very applicable to other conditions. Dr. Akhter added that the ear acupuncture provided a "blanket groundedness," but that it was most effective when combined with individualized treatment sessions. Dr. McCoy added that, in terms of the satisfaction data, an extensive matrix of responses related to specific symptoms existed which could be analyzed with Dr. Steele's question in mind.

Dr. Steele admired this dataset that had been created and said that it could be a very good preliminary idea to launch a trial from. She also remarked that the group of 240 Gulf War Veterans being treated with iRest yoga was probably the largest single treatment clinical case series that she had heard of.

Dr. Steele then remarked that there had been seven or so studies of autonomic nervous system function in Gulf War Veterans with multisymptom illnesses, which overall seemed to find blunted parasympathetic function of some kind (though she admitted this was an oversimplification). Dr. Steele then asked whether research had demonstrated that CAM modalities could affect autonomic nervous system function and parasympathetic tone, or whether this was just a belief or speculation that people had. Dr. Akhter replied that she thought it pointed to the need for more basic science, though acknowledged that there had been studies looking at use of acupuncture and gross measures of heart rate which did suggest that parasympathetic effects were real (such as slowing the heart rate, decreasing blood pressure and lowering respiratory rate). Ms. Mahoney then mentioned a study of breathing from India measuring heart rate variability and the Valsalva maneuver which found that the controls (not doing breathing exercises) exhibited no autonomic nervous system effects while those participating in the breathing exercises did. Dr. Rusiewicz remarked that there was an extensive body of literature on autonomic function in the Indian Journal of Psychophysiology, as well as numerous studies from

China on Qigong and tai chi. She also said that there were not many randomized control trials but that there was a considerable empirical evidence base of autonomic changes in all of the mind-body practices that her group had described. Dr. Steele asked if there was a general theme in the results. Dr. Rusiewicz replied that respiratory sinus arrhythmia (RSA) and baroreceptor sensitivity were critical outcomes that had shown improvements.

Dr. Ashford commented that there had been a lot of interesting discussion about the nervous system and parsing the somatic from the autonomic, and from there distinguishing the parasympathetic system from the sympathetic system. He suggested that there was a problem of oversimplification with this type of classification, because in fact there were many types of nerve fibers that interacted in complex ways.

Chairman Binns asked whether any of the observed effects of CAM therapies could be considered lasting, or if the benefits required maintenance treatments. Dr. Akhter replied that the treatments were very different from "Western" medical treatments, which tend to focus on very specific, targeted issues. She explained that in acupuncture the goal was to assist the patient in achieving balance and often heightened awareness and mindfulness in their lives. Dr. McCoy added that in the satisfaction data yet to be analyzed, patients were asked how often they were going to treatment, whether they had immediate, delayed or no benefits from treatment, and how long any benefits lasted. Dr. Rusiewicz commented that the longest follow-up studies she was aware of extended only 6 months from treatment. She said that there wasn't definitive data on long-term benefits from yoga, tai chi or Qigong but that the data did suggest high correlates for maintenance of experienced benefits with continued practice (adherence).

Dr. Ashford remarked that there was a need for carefully designed "Western-style" scientific studies to support the CAM work being done. He remarked that one of the big obstacles in the field was the challenge of creating effective sham conditions for acupuncture. Dr. Ashford said that he and Dr. Mahoney were also trying to develop sham yoga practices, though that was proving to be difficult. Dr. Sullivan commented that there were some researchers in Boston who might have some advice for them.

Dr. Sullivan then commented on how impressed she was with the size of the groups of Gulf War Veterans participating in the yoga and acupuncture studies. She encouraged the group to write up their study and/or recruit those participants for future follow-up studies.

LTC Knox then asked how billing was handled and expressed hope that VACO would eventually scale up the availability of CAM therapies at other VA clinics. Dr. Akhter replied that she was supported by a 2-year fellowship through the Office of Academic Affairs which would be completed at the end of July. Ms. Soltes remarked that she was not a full time employee, so she was paid as a consultant. Dr. Reinhard said that all of the DC WRIISC staff members were supported in different ways and that he was committed to continuing their support. He added that he planned to increase the CAM program staff and space. LTC Knox commended Dr. Reinhard for his efforts and requested that he share his innovative methods with some of the other VA clinics.

Dr. Lange then remarked that as far as she knew, fee-for-service for CAM modalities was only available for acupuncture and yoga if one was an MD or chiropractor. She said that the Planetree funding program that was in place at the East Orange, NJ WRIISC was not a VA entity. Dr. Lange added that the New Jersey WRIISC funded a lot of the initiatives itself using funds coming down from OPHEH. She said that part of their mission involved disseminating their approach to other VA clinics. Dr. Akhter stated that the DC WRIISC held several meetings each year outside of Washington DC targeted at VA primary care providers. She said that at one of these meetings the previous year in Orlando there had been several CAM sessions, one of which focused on how to institute CAM practices within one's own VA. She stated that a webinar had also been developed recently which had recently been presented nation-wide.

Chairman Binns then thanked the WRIISC groups for their presentations and encouraged them to accumulate and publish their data. He then called for a 5 minute break.

Committee Discussion

The meeting reconvened at 12:30pm, with Chairman Binns' request to hear Dr. Bloom's comments on the previous day's proceedings since he needed to depart shortly. Dr. Bloom remarked that one thing that stood out to him was that if there had been a person in charge of the Gulf War Veterans' Illness research all of the researchers wouldn't have met each other for just the first time at this Committee meeting. He expressed his belief that some promising threads existed, but that – as the Committee said in Texas – there needed to be a plan to develop a program with the limited amount of time and money available. Dr. Bloom remarked that the individuals gathered at this Committee meeting were doing good work, but that their efforts needed to be coordinated. He stated that the plans in existence were good, but that they should have been implemented 6 months earlier. Dr. Bloom then remarked that the treatment approaches presented that morning offered potential routes for providing immediate relief to a lot of people. He said that even if the mechanistic reasons underlying the effectiveness of such treatments might not be well understood, figuring out this "why" component could come later.

Dr. Sullivan remarked that the struggle with developing treatments would probably best be addressed by utilizing symptom-based treatments immediately, followed by mechanism-based treatments as they became known.

Chairman Binns commented that he felt there was remarkable work being done in the field by individual VA investigators, and that he was impressed by the collective body of work presented at the Committee meeting over the past 2 days. Chairman Binns specifically praised the CDMRP program for all it had accomplished, including funding VA investigators who had not been funded by VA. He stated that he felt this illustrated what the IOM recommended in their last report, where it was suggested that a comprehensive integrated federal plan involving both VA and DoD was needed.

Dr. Sullivan then led a short discussion about the VA Gulf War Comprehensive Program, other federal research programs and updates regarding responses to several of the Committee's previous recommendations (see Appendix A – Presentation 11). She began by asking if any of

the Committee members had official recommendations to make regarding the Cooperative Studies Program initiatives, the national survey or other individual VA research projects.

Chairman Binns remarked that the Committee and the IOM had previously recommended genomics studies. He then read the following excerpt from the IOM's most recent report on Gulf War Illness: "the overall goal would be to provide a centrally coordinated but facile organization capable of creating an adequately powered dataset aimed at understanding the basis of unexplained symptoms in Gulf War Veterans and developing effective treatments in order to alleviate their suffering as rapidly and as completely as possible." Chairman Binns said that the IOM (and Dr. Hauser in particular) saw the genomic avenue as the key to understanding the science behind Gulf War Illness, much like it did for the work done on MS. He then remarked that he was astounded that the blood collection program (CSP 585) would take 7 to 9 years just to collect blood. Chairman Binns criticized this added delay, to which Dr. Goldberg responded that he did not want to rush to collect blood samples from a population yet to be recruited.

Dr. Goldberg stated that he was proceeding as quickly, expeditiously and completely as possible, and that he did not know how to move forward any faster. He remarked that the Committee had taken issue with some of the survey instruments, and that the study could not proceed until those items were worked out. Dr. Goldberg said that favorable conditions could allow for blood collection to be completed within just 2 years, but that the timeline could not be predicted. Chairman Binns replied that he was not advocating starting immediately, but that he would advise delaying the program until an aggressive plan was developed, so that end results and relief for the Veterans could be achieved sooner. Dr. Goldberg remarked that the purpose of the pilot study was to ensure that the process would move as quickly as possible. He explained that it wasn't known if some new procedures would work, but that the program would proceed as quickly as possible. Dr. Goldberg stated that he could not promise anything on behalf of his director, Dr. Timothy O'Leary, who had approved the study's timeframe, but said he would take the Committee's concerns about the timeframe forward to Dr. O'Leary.

Dr. Goldberg said that he would certainly have to hold off starting the project because he agreed that there were some survey instrument issues that needed to be cleared up. He added that the pilot study was necessary, however, since he couldn't just suddenly fund a $12 million cohort study without knowing what was going to work.

Dr. Steele responded that no one was suggesting that the $12 million program should be rushed. She stated that the concern was over the proposed implementation of a 2 year pilot study followed by a 5 to 7 year blood collection period, given the fact that Dr. Haley had just collected 2000 blood samples within a 2 year period. Dr. Goldberg replied that Dr. Haley's research was different from this VA effort to establish and maintain a resource for all investigators, and that the pilot study would be a maximum of 2 years, hopefully much shorter. He explained that the additional time was included because of the need to build up infrastructure, not just collect samples.

Chairman Binns remarked that the proposal stated otherwise, quoting, "after the pilot study, a full-scale project is planned that will last 5-7 years…to enroll a larger cohort." Dr. Goldberg replied that this did not mean the study would take 7 to 9 years to complete, and that he felt

Chairman Binns was misinterpreting the wording of the one page summary, which was not the full text proposal. Chairman Binns expressed his desire to have been provided with the program summaries prior to the day of the meeting, remarking that the funding for the CSP 585 study had been approved on January 6, 2011, which meant that the VA had been in possession of the study proposal for almost 2 months yet had not shared anything with the Committee.

Chairman Binns then expressed his concerns regarding the biorepository study (CSP 501). He said that the Committee had been given a chance to interact with the people working on the biorepository project, but he expressed concern that the 2-year pilot study for the project had been approved by VA a week prior to the current Committee meeting – before the Committee could publicly review and advise on it. Chairman Binns added that the original brain bank created several years ago in response to needs voiced by the Committee and Gulf War Veterans had turned out to serve ALS, not all Gulf War Veterans. He saw this, coupled with the recent scaling back of the biorepository CSP 501 to pilot study status, as a sign that the VA was lacking the sense of urgency called for by the IOM. Chairman Binns stated that he supported Mr. Hardie's call for a step backward in order to put the two CSP projects on hold.

Dr. Goldberg then remarked that he spoke on behalf of his director when he said that the Committee was an advisory Committee which could provide advice to the VA but not make funding decisions. He added that the pilot studies were a way of producing data to present to the Committee.

LTC Knox remarked that this hit on a point that she would be bringing up in her comments later in the day. She remarked that she had given her time to committees for 12 years in an effort to help her fellow Veterans, and that during that time she had found that committees were given responsibility but not any authority. LTC Knox expressed her concern that this was a major cause for the lack of treatment or known etiology for the cluster of illnesses affecting Gulf War Veterans. She explained that her fellow Veterans looked to her and the other Veterans sitting on the Committee for answers, yet she and her fellow Committee members were given no power.

Dr. Steele then expressed her concern with the lack of a plan and VA's approval of 2-year pilot studies for the two major CSP initiatives followed by longer time spans during which the studies would actually be carried out. She said that it had been the Committee's impression that the VA has felt obligated to spend about $15 million per year on Gulf War-related research because of the ending of the UTSW contract. Dr. Goldberg remarked that he completely disagreed, and remarked that the UTSW contract had nothing to do with any funding decisions or amount that VA had projected to spend. He stated that the $15 million came from appropriation language which suggested that amount as a target for Gulf War research.

Dr. Steele then asked if money would be available to fund the longer-term studies once the pilot studies were complete. Dr. Goldberg replied that it was VA's long-term intention to continue funding at that level. He added that VA ORD didn't have pay lines, and that ORD aimed to solicit research on topics that were important, timely and which would improve Veterans' healthcare. He said the goal was to fund as much high quality research as was ready to go, including Gulf War research. Dr. Goldberg said that the goal for Gulf War funding was $15 million and that this was written in the Task Force Report.

Dr. Steele then reiterated that she found a 9-year timeline for the biorepository study to be unacceptable and not scientifically required. Dr. Goldberg replied that the target was to have the biorepository up and running within 6 months. He said there would then be a period of resource utilization assessment and adjustment that would allow for progression to a full-scale funding decision. He explained that the point of the pilot was to determine how much funding would be needed to establish and maintain the full-scale resource. Dr. Goldberg reiterated that these pilots were both service-directed projects, rather than investigator-initiated programs, and as such he envisioned them expanding into full scale programs rather than having to be started again from the bottom up upon completion of the pilot phase.

Chairman Binns then asked if the following excerpt from page 4 of the 6-page Task Force Action Item Update referred to the proposals that had been announced the previous summer: "From the previous RFAs: 2 new clinical trials and a new animal study to identify therapeutic targets will begin funding in FY 2011." Dr. Goldberg replied that this was the case, and that it had taken them that long to get through IRB.

Chairman Binns then asked Dr. Goldberg to elaborate on another bullet at the bottom of that page: "VA ORD continues in its support for state-of-the-art neuroimaging studies." Dr. Goldberg replied that he was hoping to get some additional protocols from Dr. Weiner. He added that a portion (but not all) of the cost for the new magnets that were installed at San Francisco was counted as Gulf War funding. He stated that the imaging projects were not limited to Dr. Weiner. He mentioned that Dr. Apostolos Georgopoulos was conducting a pilot study in Minneapolis with magnetoencephalography (MEG), and that once ORD received the results of that study they expected a full proposal. Chairman Binns then asked if additional funding was going to be given to Dr. Weiner for other projects. Dr. Goldberg replied that the magnets (the bulk of the cost) had been installed but ORD would be reviewing research projects to make use of that imaging resource.

Dr. Steele then asked if the money was given to Dr. Weiner for the 7 Tesla MRI equipment without any protocols being provided to justify the use of Gulf War funds for the equipment. Dr. Goldberg replied that Dr. Weiner had existing funds to conduct Gulf War research on his 4 Tesla MRI system and that the goal of VA funding the 7 Tesla system was to provide an additional resource that would enable higher resolution imaging and expansion of his studies. Dr. Goldberg then stated that ORD had not yet received or reviewed protocols for Dr. Weiner's use of the 7 Tesla MRI system, and that the funding Dr. Weiner had received went towards the purchase of the magnet. Dr. Steele expressed her disappointment regarding the expenditure of a vast sum of money on an unstructured program. Dr. Goldberg remarked that this was now the only 7 Tesla magnet in the entire VA system, adding that he hoped there would be collaboration between Dr. Weiner's center and the 7 Tesla site at Stanford in Palo Alto.

Chairman Binns asked if Dr. Goldberg considered the site at Stanford to be accessible and equally usable by the VA in Palo Alto. Dr. Goldberg replied that it would be up to the Palo Alto investigators. He said ORD had never received a 7 Tesla MRI study on the VA side. Chairman Binns said he was making that point because there was a 7 Tesla unit at the University of California, San Francisco Hospital. Dr. Goldberg remarked that the unit Chairman Binns was

referring to was for clinical use, not research use. Dr. Goldberg added that one of the greatest challenges to doing MRI research was getting time on clinical MRI units. He added that ORD had participated in some strong discussion with the San Francisco VA stating that this new 7 Tesla unit was for research purposes, not clinical use. Dr. Goldberg commented that he had no doubt that the magnet would be used by Dr. Weiner to conduct Gulf War research in the very near future.

Chairman Binns then mentioned the discussion of partnerships in the Task Force Action Update and asked who was currently on the Deployment Health Working Group for DoD. Dr. Goldberg apologized that Dr. Yeager had needed to leave, stating that he was the most active member who had been attending all the meetings. Dr. Goldberg then said that as far as he knew Dr. Kelley Brix was functioning as Chair on the DoD side, though he did not know for sure who was "Chairing" for DoD.

Chairman Binns then asked if there was coordination of research plans through the Deployment Health Working Group and ORD. Dr. Goldberg replied that there was a Research subcommittee of the Deployment Health Working Group. He said that this subcommittee was the group responsible for the annual reports to Congress. Dr. Goldberg said that he was the VA lead for that particular group and that they had a hand in the writing, editing and proofing – making sure everything was covered. He said the group depended on the DoD side to provide all information on new and ongoing DoD projects. Dr. Goldberg explained that this subgroup dealt with research and discussed the marriage between DoD and VA healthcare record systems, and dealt with a lot of interactive issues. He added that the Centers for Disease Control and Prevention (CDC) Department of Health and Human Services (HHS) used to be a participant in that group but that they were no longer formally part of the working group.

Chairman Binns then asked if there was any further discussion to be had about the genomics study or the brain bank. Hearing none, Chairman Binns asked if anyone had thoughts on the national survey. He asked if the Committee agreed with the evaluation presented by Dr. Steele the previous day and the Committee members said that they did.

Chairman Binns then asked for comments on any of the individual research projects. Dr. Steele asked if the current discussion was being held in order to make recommendations. Chairman Binns said that was an option, and Dr. Sullivan confirmed that was the purpose of the discussion session. Dr. Steele then remarked that without a clear and comprehensive plan, individual research projects may have merit but that it had not been clear from the previous day's presentations which projects were VA initiatives, so if the Committee was to advise on VA research she would like to see some kind of comprehensive plan. She also expressed desire to see a strong leader of that plan. She also expressed desire to have seen the plan and leader come before the individual research projects, and stated that she would like to see some funding held for some individuals not yet in the plan. Dr. Steele also expressed her concern about the overall lack of rigor in methodology, including some definitions of Gulf War Illness that had been included. She explained that if cases weren't categorized in a strong way the results would be muddled from the start, which could undermine everything. Dr. Steele remarked that the systematic methodological improvements which were needed would probably be facilitated by standards that would be required by an organized plan.

Dr. Sullivan remarked that the summaries of each of the individual research projects had been very helpful, and that she would appreciate receiving them for future projects as well.

Dr. Sullivan then encouraged comments on collaboration between other government agencies.

Dr. Steele then asked Dr. Goldberg if there was any avenue by which VA could send Gulf War Veterans to NIH's Undiagnosed Diseases clinical center en masse, without fee to the Veterans. Dr. Goldberg replied that he believed NIH had said that if Veterans were referred to their program they would take them, which would require VA physicians to refer individuals to the NIH clinic. Dr. Sullivan added that clinically there was an Undiagnosed Diseases Program that physicians could refer patients to, and that the NIH would then decide which cases they could take on. She remarked that she thought Dr. Gallin's mentioning of research possibilities was an incredible opportunity. Dr. Goldberg remarked that the best avenue for that would be to talk to the WRIISC directors (particularly the Washington DC WRIISC), since they were seeing a lot of patients with unexplained illnesses.

Dr. Steele replied that her concern was not finding a cohort of ill Gulf War Veterans but how to pay for their treatment. She asked Dr. Goldberg if the VA could subcontract out to NIH. Dr. Goldberg replied that such actions would involve misappropriation of federal funds and that VA could not contract with another agency. Dr. Goldberg explained that VA had a long-standing issue with NIH such that when VA investigators received NIH funding through a university or a non-profit organization NIH would not pay any overhead because they couldn't support another federal agency. He added that NIH had granting authority, so they could provide money to a university, but the internal NIH program funds had to remain within the agency. Dr. Goldberg stated that the VA had similar appropriation language such that money could not go directly to a university.

Dr. Steele asked if there were precedents for VA collaborating with DoD, for instance, on a research project that both were doing together so that funds could be mixed in that way. Dr. Goldberg replied that funds could not be mingled. Historically, collaborations of that nature were carried out with DoD funding a DoD piece (at a DoD facility, by a DoD investigator) and VA funding an equivalent VA piece.

Dr. Sullivan then remarked on two longstanding Committee recommendations, noting that a new GWVIS report had been released and updates to the Veterans' Health Initiative (VHI) Gulf War training guide had recently been made. She stated that both of these groups could be invited to the November Committee meeting to provide updates. Dr. Sullivan then asked if there was any discussion about that.

Chairman Binns then asked for any further comments on the program before summarizing the themes he saw in the remarks made. First he stated that work on the biorepository, blood collection program and longitudinal survey should be put on hold pending the establishment of a comprehensive plan. Then he remarked on the importance of the recommendations made by the IOM, including the recommendation that the program combine the resources of the VA and DoD in whatever fashion was legal. Chairman Binns also called for a renewed sense of urgency in line

with the Committee's and the IOM's recommendations regarding the aim of developing effective treatments as rapidly and completely as possible. He stated that if documents were written where the real intent was to do something different he would rather they set goals that were too high than goals that were too long and then expect people to work within them. Chairman Binns stated that it was his experience that people did not achieve goals rapidly if they were not asked to do so. Chairman Binns then asked for any comments regarding additional themes to include in the Committee's recommendation.

Dr. Steele asked whether the Committee should discuss who would make the comprehensive plan. Chairman Binns remarked that the Steering Committee should be on the VA side, and if the effort was to be a joint plan perhaps they should somehow consult with CDMRP. Dr. Steele said that she felt trying to coordinate everything with DoD would make the process too long. She called for a comprehensive plan from VA which she hoped would not overlap too greatly with DoD's. Dr. Steele called for the people needed to make a good plan to be convened in the short term (1 week to a month). Chairman Binns agreed.

Chairman Binns then remarked that the task of creating the plan appeared to fall to the Steering Committee. Dr. Steele suggested that individual investigators, Veterans and other stakeholders should be involved. Chairman Binns reiterated what Mr. Hardie had said the previous day, that although the issues at hand were urgent it was most important to get things right rather than have them done too hurriedly. He added that one concern was that the Steering Committee would be meeting soon, and that they would be presented with a lot of information and asked to approve things that they were not ready to do.

Dr. Steele said that it was encouraging in a sense that so much of the planned program was from ORD, but that it was hard to see who was planning what was to come from ORD. She said she liked seeing that things could come from the top down, even though Dr. Kupersmith didn't seem to generally like that approach. Dr. Steele stated that her concern was about what was being planned and directed from VACO as it was the Committee's experience that the people making the plan needed to have specific expertise in the research.

Chairman Binns added that another point to be made was that individual VA researchers had demonstrated an interest and creativity for this issue. Rev. Graves remarked that this was a tidal change in itself, and Dr. Sullivan concurred. Chairman Binns said that he felt the field would respond if the right central program was presented. He then told Dr. Goldberg that he knew that he had done his best to include the Committee's recommendations in the ORD RFAs. Chairman Binns then stated that the whole step of using the Steering Committee and getting a good plan together before rushing ahead was a (hopefully correctable) fundamental problem.

Dr. Goldberg said he would be glad to relay the Committee's recommendation to defund both of the projects and hold them until the Committee was ready to proceed. Dr. Steele, Dr. Sullivan and Chairman Binns objected to Dr. Goldberg's interpretation of the Committee's recommendation. Chairman Binns stated that he felt things had to be fundamentally restructured. He remarked that if ORD wanted to answer that call by defunding the two projects that was their choice, not the Committee's. Dr. Steele stated that she felt the choice to fund or not fund should come from the plan. Chairman Binns agreed, stating that the plan as it currently was framed

should not be pursued. Dr. Steele said that she was concerned that if ORD defunded the studies they might not fund anything in their place. Dr. Goldberg said that defunding meant that the funding letter would be rescinded and the studies be redesigned. Chairman Binns expressed his support for this type of approach. Dr. Meggs then remarked that it shouldn't take long to fix the survey. Chairman Binns and Dr. Steele agreed. Dr. Sullivan remarked that, form her understanding, the biorepository could be up and running pretty easily as well, without too much more work.

Rev. Graves then raised the question of whether the projects should be paused or restarted altogether. Chairman Binns stated that he thought the subject matter should be kept, and Rev. Graves agreed. Chairman Binns then said that the Committee did not recommend that the program, as defined, proceed without being---Rev. Graves then interjected with the remark that, funding or not, there was a fundamental problem with the way it was set up, and that there had to be an objective. Chairman Binns agreed.

LTC Adam Such, a member of the Committee, stated that the quality of the sampling must be ensured, and that by doing so it would give the researchers some flexibility while working on the plan. He said that he definitely saw some issues that needed to get brought in relative to the survey questions and how it was done. That said, LTC Such stated that he felt it was premature to defund any of the studies. Chairman Binns remarked that the central problem with the current plan was that this resource, according to what it said in the one page summary, would not be available for at least 7 years and as many as 9 years to begin starting future studies. Chairman Binns added that perhaps what was stated in the summary was not the actual plan, but remarked that if that were the case he didn't think it was one worth doing if it would take 7 to 9 years. He said that it was a cruel hoax on Gulf War Veterans to tell them that there was a plan to get treatments to make them feel better if that was not even designed to produce---Rev. Graves then interjected with a comment about how all of the Gulf War Veterans would be dead by then.

Dr. Goldberg commented that there was a huge difference between the scientific protocol for a project and a one page description of it. Chairman Binns asked whose responsibility it was that the Committee had only been provided with a one page summary. Dr. Goldberg replied that VA was not asking the Committee to review the proposal and fund it, rather the summary was presented for informational purposes. He added that he appreciated the Committee's feedback and that he was going to take all of it back to his director. Dr. Goldberg said he would be having discussions with Dr. Brady and Dr. Provenzale about the issues raised and whether they were covered in the proposals or not, and if not how the proposals could be modified. Dr. Goldberg remarked that he wasn't saying nothing could be changed. He commented that Dr. Provenzale's proposal couldn't go forward because of the issues with the survey instrument, which had to be examined.

Chairman Binns remarked that the Committee needed to be clear in their recommendation that it was not recommending that VA make changes to the survey simply in response to the verbal comments that happened at the meeting. Chairman Binns stated that the Committee was first of all asking that the Steering Committee be trained, given adequate amounts of time and preparation so that they could make a good comprehensive plan with the assistance of VA. He said this would involve taking advantage of the time to look ahead and talk to some of the people

who planned to use the biorepository or the blood data so that the respective plans would reflect the needs of the ultimate researchers. Chairman Binns remarked that the element that should be kept was the idea that there should be a blood collection resource and a biorepository, but the plan for them should flow from the overall plan and reflect the urgency that was needed. Chairman Binns then stated that the Committee did not have all of the answers, but that a process had been set up with a Steering Committee and the idea of a comprehensive plan was what the Committee wanted to see.

Dr. Steele added that Dr. Kupersmith had announced that this would be the process and had committed to it a long time ago.

Chairman Binns said that he would draft a recommendation document to send to all of the Committee members. He welcomed Dr. Goldberg to convey the general gist of the Committee's thoughts but said that he would try to get the written version to him as soon as possible.

Dr. Ashford then commented that it might be something he didn't understand but that OPHEH – which was what the WRIISC was out of – was a totally different mechanism. He remarked that, to his knowledge, all of the programs presented that day had not been interfaced with ORD. He added that he believed Dr. Schneiderman's survey was also out of OPHEH, not ORD. Dr. Ashford stated that he and the others at the WRIISCs were very interested in the health of Gulf War Veterans but that he had not seen anyone from OPHEH at the table, and that something should perhaps be done to draw in that department.

Chairman Binns remarked that he found that to be a very interesting idea. He asked if Dr. Goldberg thought OPHEH would be willing to send someone. Dr. Goldberg said that in general federal advisory committees did not contain VA employees, to which Chairman Binns and Dr. Sullivan explained that was not something they were suggesting. In terms of having someone from OPHEH in attendance, Dr. Goldberg said there was no reason not to make sure that someone from OPHEH was in attendance at future meetings. Chairman Binns remarked that a little bit of what had been done the previous day (a lot of which he acknowledged had been Dr. Kupersmith's initiative) related to having CDMRP, OPHEH (Dr. Schneiderman) and ORD all represented to replicate what the Committee would consider to be a logical, ideal world of how research in this area should be conducted, where those are not separate silos. Chairman Binns stated that Dr. Ashford's idea was logical, and something the Committee had never thought to ask. Dr. Steele remarked that it also raised the point that any comprehensive VA Gulf War research plan would absolutely have to include OPHEH. Chairman Binns agreed and asked for any other thoughts. Hearing none, he then introduced the Committee's Gulf War Veterans, LTC Marguerite Knox and Rev. Joel Graves, for their reflections on their service on this 20th anniversary of the Gulf War, and he acknowledged the contributions of Mr. Anthony Hardie, whose health prevented him from being present on the second day of the meeting.

Gulf War Veterans Perspectives on the 20th Anniversary

Rev. Joel Graves, Research Advisory Committee on Gulf War Veterans' Illnesses
LTC Marguerite Knox, Research Advisory Committee on Gulf War Veterans' Illnesses

Rev. Graves remarked that his comments might be a little anticlimactic, and that he wished he'd been able to speak a little sooner. Nevertheless, he continued, "I was in the Gulf War. Although I was an adjutant in the 67th Armored Battalion, I was responsible for the left flank security in the attack to Kuwait City, the medical assets, maintenance assets and the EPWs or POWs. It was kind of ironic because I am an Armor officer (a captain) and I was in a Humvee behind the last tank I thought, they're in 36 inches of armor and we've kicked the windshields out of our Humvees so that we can see the landmines. So it was kind of funny, we felt very vulnerable. In once sense we're celebrating the end of the Desert Storm conflict after 20 years. In another sense we're lamenting the ongoing and pervasive destruction of low dose exposures to chemical agents that have hurt and continue to hurt our Veterans. I've heard two different people in the last few days talk about the fact that the exposure to chemical agents was dubious. One of them was Jack [Melling], and I was hoping he would be here. I've heard other people talk about Khamisiyah, not really sure about the overall exposure and level of exposure – maybe people just nearby were exposed but all of these other people downwind probably weren't affected, and that the numbers from that might not be very high at all. And so they're thinking there's no real hard evidence of low dose exposure. In fact, some people think that the March 10th 1991 Khamisiyah exposure was mostly hypothetical and didn't really have a downwind effect on people. I have talked about this several times with the Committee but I thought it was important to raise it one more time. Khamisiyah – the big exposure – took place on March 10th. But as we heard yesterday there was a period of about 5 or 6 days from the 3rd to the 8th where they were blowing up that munitions dump. But on March 13th, 5 days later, 2 weeks from now, my unit – the 1st of the 67th Armor Regiment 1st Tiger Brigade of the 2nd Armored Division – was sitting in northern Kuwait City where we stopped at the end of the war. The 1st Marine Division took the airfield the 2nd Marine Division took the middle of the city and we were an independent task force that took the northern part of the city next to the road to Basra, where everybody was dead on CNN. After the evening meal on the 15th everybody got sick, including me. I had vertigo and was nauseous, some people were physically sick, and some people were so sick that they had to go to bed and stay there for 2 days. The north wind was ferocious, and the only redeeming quality was that it kept the flies out of our food and out of our mouths while we were eating. The next morning I went to the Brigade headquarters and saw Col. Sullivan. I told him that chemical alarms had gone off around us and we were wondering what was going on. He and I stood there looking to the north and said, 'Saddam Hussein dropped chemical agents on the Shiite uprising in Basra yesterday afternoon and last night, and it blew down on us.' That's [the information] that he got from Riyadh. In my previous briefings I showed how the oil well fires blew down from Iraq and Kuwait down on top of us, went right over the top of Kuwait City and then turned and went west. That's the path that these chemicals had. If you plot the units that were in there – 2nd Armored Division, 2nd Marines, Big Red One [1st Infantry Division] – we estimate that there were about 120,000 troops on the ground, about 15 percent of those deployed, who were exposed to nerve agent and got sick, some violently sick. These exposures were documented, not some hypothetical downwind model from the U.S. Government Accountability Office (GAO). I know people who are sick now from that exposure and they have been told they might have lupus – they don't know what's wrong. I just

learned this a few weeks ago from somebody I know who was in Big Red One. So my unit departed Kuwait a month later, in April, and a month after that I departed Fort Hood, Texas to attend the Armor Officer Advanced Course at Fort Knox, Kentucky. On the way there my hair started falling out in big clumps. When I got to Fort Knox I went to the hospital and they said it was nothing. Before the class started I started having trouble making decisions and thinking through things, and I asked about that but they said nothing was going on. My next assignment was in Fort Riley, Kansas, and my condition was getting steadily worse. Basically my short term memory failed. I've told that story twice before [at Committee meetings] where I went into a store to buy a filter for my truck and I took the book on the chain to look up the filter, stepped to the right and couldn't remember. I opened the book again and read the filter number aloud, stepped to the right and still couldn't remember what it was. I ripped the book off the chain and stepped to the right, and by looking back and forth I was finally able to get my filter for my truck. That's how bad it was. I was the S3 and S4 during that time period, and I was going to resign my commission, but my grandmother had me start taking some vitamin supplements which really helped. Plus I had trained my staff, kept no secrets and shared everything with them so that I wouldn't get into trouble by making mistakes and missing meetings. That worked pretty well for awhile but finally bit me and ended my career. When I retired at Fort Lewis, Washington in 1997 I entered the VA medical system at American Lake, which is across the street from Fort Riley. I received a disability rating of 80 percent due to injuries, being in armor for 10 years, for arthritis and for asthma. Five years later I began to serve on this Committee and learned that some of my problems – the memory loss, chronic pain, chronic fatigue – might be due to nerve agent exposure. When I voiced this concern to my caregivers at American Lake VA someone rewrote my disability rating to show that my primary problem was PTSD, which had never been on there before. It is still that way. So in time I stopped going to the VA, and I pay to be a part of the TRICARE program at the Madigan Army Medical Center at Fort Lewis. Why did General Patton get in trouble for slapping a soldier who was in a hospital bed suffering from combat shock and trauma? Because there were no visible wounds, and the General quickly judged him as a slacker and a coward. I wish I had been shot like that guy in the video yesterday from England. If I hobbled into the VA on one leg they would look at the stump of my leg and say we know just how to treat you. But the VA has treated me and many other Veterans with disdain, disrespect and dishonor. When we needed empathy the walking wounded were given diagnoses of mental instability, which I see as a slap in the face. Someone once wrote that a Veteran is someone who at one point wrote a blank check made payable to the United States of America for an amount of up to and including their life. That is honor. After 20 years, on behalf of the thousands of wounded combat Veterans of the Desert Storm conflict, I am begging for an increase in federal funding for Gulf War Illness – back up to $30 million, where it was. We may not get a cure, it is certainly too late for some – I know some who have died, I know some who are about to die because they are so sick – but we will know that you haven't given up on us and that you are still trying, and in this way you honor our sacrifice and bring healing to our disenfranchised souls. Thank you."

Chairman Binns asked Rev. Graves if he would remind repeating his concluding statements for the VA video recording, from the point where he spoke about General Patton. Rev. Graves was overcome with emotion and did not repeat his words. Dr. Sullivan then thanked Rev. Graves. LTC Knox then introduced herself and reflected as follows:

"I am Marguerite Knox, I live in Columbia, South Carolina, and I am currently a Occupational Health Nurse with the South Carolina Army National Guard and Occupational Health. I was deployed in January of 1990 and served at King Khalid Military City for five months. Lea [Steele], I just want to say that I am grateful for your calming attitude. I got angry and I apologize. You can tell Joel [Graves] is a minister, he has special gifts. My father joined the Navy at age 17 and actually served as a Gunner aboard the U.S.S. Battleship Missouri during World Word II. On September 2nd 1945 he witnessed one of the most historical events ever. He actually was present during the signing of the surrender of the Empire of Japan, lead by the Supreme Allied Commander, General Douglas MacArthur. We actually have pictures of that. From 1950 to 1952 he served in the Korean War, on his final tour in the United States Navy. In 1953 he realized that he and my mother had been married for 6 years but they really had only spent 2 of those years together. It was a joint decision they made, and he switched to the active duty Air Force, where he served as an air traffic controller until he retired in 1971. He did 32 years of active duty service. I share this with you because he's really the reason that I serve today. I am a child of a Veteran and I am a Veteran myself. On May 4, 1989 I was commissioned as a Registered Nurse, a First Lieutenant in the South Carolina Army National Guard. My husband, Raymond, and I had been married for 9 years and we had one child, a girl, Bethany, who was 2 years old. In February of 1988, I actually completed my Officer Basic Course in San Antonio, and then our second child, Erin, was born October 22, 1990, just as the situation in Kuwait was beginning to brew. Because I was an Air Force brat, I wasn't naïve about my service in the Military. My husband and I had really discussed it at length. But I will tell you that I was very taken aback when the Chief Nurse called me and at 5 weeks post partum and asked me to go and get my 6-weeks checkup letter, a release from my physician, because I was a critical care nurse and those skills would be needed, and I would be deployed. So although 5 months seemed like 5 years, I completed my tour of duty on May 8, 1991 and then I returned home. My infant was 7 months old and was unaware that this stranger was her mom. My four year old told me how much she had missed me, and that her dad didn't do hair or nails as good as her mom. If that story tugs at your heart, know that we have thousands of Veterans today that we serve that have been deployed numerous times, and their stories are just as devastating as well. It's very difficult. Following Operations Desert Shield and Desert Storm I was appointed to the Presidential Advisory Committee (PAC) for Gulf War Veterans Illnesses under William Jefferson Clinton. I served on the [Presidential Advisory] Committee from May of 1995 through November of 1997. In addition of course I have served on this Committee since 2002. It has been 12 years that we have devoted our time and efforts to trying to solve this problem, so I am very passionate, and it is easy to get frustrated when you can't get something done. Jim [Binns] had asked me to share some of the things I had learned about serving on an advisory committee and the presidential advisory committee as well. Dr. Ashford, I want to tell you why some of the Gulf War Veterans feel like there is a conspiracy – that is because it took five years for the Department of Defense to even admit that there was any exposure whatsoever to low-level chemicals. I sat several meetings in front of the Secretary of Defense, William Perry, and the Assistant Secretary of Health, Dr. Stephen Joseph, and I listened to them emphatically deny and tell us that there was no information – classified or unclassified – that indicated there were chemical or biological weapons used during the Gulf War. Time has shown that not to be the case.

Secondly, I think that making a difference comes at a very high price, and you heard that from Joel [Graves]. I remember a particular day – as a member of the PAC we had Veterans that came

and actually presented their story, much like Joel. It was difficult to listen to their stories because you knew how badly they were affected. Doing these reports – the PAC meets in the afternoon and you're looking at the conclusions that you're going to come to, and that particular day as we were making our suggestions we were looking at previous research done and research we wanted to implement or recommend for the future. I wanted to be sure that the fact or potential cause of Gulf War Illness was the synergistic effects of PB along with low-level chemical exposure. I couldn't get anyone on the PAC to support me in that effort, and that was a very emotional day. I remember Dr. Joyce Lashof, who was the Chair of the PAC, telling me as I fixed my salad that night, that I would have to write a minority report, because that was not going to be what the report said. However, I think that when that information went back to President Clinton that was not the case, and it was actually put into the report.

Thirdly, as Committee members, as I said before, we have a great responsibility without much authority. It's much like being a juror – you're given the information that the lawyer presents to you, but you're not doing the research, you don't often have the expertise to know the difference, yet you're tasked with the decision to come to a conclusion and make a decision and it affects individuals' lives.

The fourth thing is that the federal government is often like a dysfunctional parent who tells their child, 'do as I say to do not as I do.' We all know that the Occupational Safety and Health Administration requires that employers be responsible for providing a safe and healthful workplace for their employees. We don't even perform medical surveillance on our Veterans to include basic toxicology lab work such as lead. The government – sometimes we talk out of both sides of our mouth, it just doesn't make sense to me.

Lastly, Winston Churchill said it best, 'never in the face of human conflict has so much been owed, by so many, to so few.' There are approximately 3 million servicemen who continue to pay the ultimate sacrifice for their country, yet this is just less than 1 percent of the total population in the United States. Indeed, many owe so very much so very few. I think it's our solemn responsibility to make sure that that debt is paid. Thank you."

Chairman Binns then thanked both Rev. Graves and LTC Knox for their remarks. Chairman Binns then called for statements from members of the audience.

Public Comments

Maj-Ret. Denise Nichols then introduced herself and provided a reflection of her experience: "I'm Denise Nichols, retired Major, Master of Science degree in Nursing. I started my career with the military in 1973. I was married, going for my Master's, and I was recruited by the Air Force Institute of Technology. I was interested in joining the Air Force; my brother had served Air Force, my other brother had been a Marine, we had family members in the military all the way back. My ex-husband was military – an aerospace engineer – but we had gotten a divorce and I met and married a pilot. He comes from a military family; his father was military all his career. So we have and live military in our family. I went in and I was a fast charger. I was a recruiting tool for the Air Force also, and that was OK. I made my decision – I wanted to be a nurse in the military. I finished up my Master's as my first assignment and went to Wilford Hall

Medical Center and served there with critical care nursing, the intensive care unit, open heart (because I had trained in Houston and Dallas with leaders in the field). I left after about five years and went reserve in order to do flight nursing, teach nursing and combine a lot of loves I was developing. [I was part of] a very active flight nursing unit with the group level at Kelly Air Force base. There were 2 groups, the 32nd and 37th Aeromedical Evacuation Group. We ended up scattered – we had people that remained at home unit, helping activate and send people, people that were sent to Andrews Air Force Base, people overseas in Europe, and our medical service corps and radio operators at SimCom level working with the advance army medical units. From SimCom, back in Riyadh, they would get the messages regarding the need for retrograde aircraft. We would use 130s – the tactical 4 engine cargo – where we had the forward Mobile Aeromedical Staging Facilities that received the patients. Ours received patients from 3 army hospitals. We were up at Log Base Charlie, right on Tapline Road. We had mainly med techs, some radio operators and four nurses initially. We were the forward area that would receive these patients from the Army, Navy and Marines from all the way across the border. The next hub was either King Fahad Medical City or King Khalid Medical City, where there was a marriage between the strategic and tactical forces. From there patients either stayed in theater or ended up being brought to Europe and eventually back home. I was up forward with an aeromedical staging facility close to the engineers that blew up Khamisiyah. Sometimes our alarms would go off and they would tell us it was a false alarm. Those of us who were thinking were thinking that didn't seem quite right. We also saw things that didn't make a lot of sense. There were klutzy accidents, [despite the fact that] everyone was trained not to mess with explosives [or other questionable finds]. We were getting reports of people being hurt and damaged because they were out there picking up stuff that they shouldn't have been picking up. I started seeing strange behaviors from the time we hit Riyadh. The alarms were going off when we arrived in the middle of the night. We did not put together the vague symptomatology that we were seeing that those of us who were [medically] trained have thought about for years now and talked about, but it was real. When I came home and spoke up I got adopted in by Vietnam Veterans, and when I got on the internet I found a group of Veterans out of Texas that was networking everybody. As a nurse I helped conduct phone interviews to collect health information [from Gulf War Veterans]. It was amazing, the symptoms were all the same. What's a Nurse Officer supposed to do? I stood up from that time and I have stood up since.

We've been talking about undiagnosed illnesses, but we seem to forget that if we don't pay attention to diagnosed [illnesses] and get them to do the research and get us the data we're not giving our Veterans the help they need, because they will not get presumption of service connection. They will get no help. With that lead in, I would like to close by reading a message I got. I will protect the identity of the individual.

Maj-Ret. Nichols then read a letter she had received from the daughter of a Marine who had served in the Gulf War and recently passed away after a 10-year battle with colon, stomach, liver and pancreatic cancer. In the letter, the individual explained that her father's health had begun to decline shortly after his return from the Gulf War, but that when he tried to file for benefits he always had trouble getting in touch with the right person. This individual was writing to ask for help getting in touch with someone at the VA who could help her determine whether her mother would be eligible for benefits. She said in the 2 years since trying to get assistance from the VA,

she had not been able to acquire any useful documents or information to assist her mother in getting financial support.

Maj-Ret. Nichols then stated that not until the diagnosed diseases had been documented along with the undiagnosed illnesses would the total picture needed to look at what's truly going on be revealed. She requested acknowledgement of the Veterans' suffering first and foremost. Maj-Ret. Nichols also called for neuroimaging scans to prove that Gulf War Illness was real. She said that until that was done, all of the other things could wait.

Chairman Binns thanked Maj-Ret. Nichols for her remarks and for attending virtually every meeting that the Committee had held, at her own expense, and for contributing to the other Veterans in the many ways she did.

Chairman Binns asked if the Committee had any other comments, which they did not. He then thanked everyone and called the meeting to a close.

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