

Research Advisory Committee on Gulf War Veterans' Illnesses

November 17, 2008, Committee Meeting Minutes

Department of Veterans Affairs
Washington, DC

DEPARTMENT of VETERANS AFFAIRS



Research Advisory Committee on Gulf War Veterans' Illnesses
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I hereby certify the following minutes as being an accurate record of what transpired at the November 17, 2008 meeting of the Research Advisory Committee on Gulf War Veterans' Illnesses.

/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
Roberta White, Scientific Director
Carollee Barlow
Floyd Bloom
Joel Graves
Anthony Hardie
Marguerite Knox
William Meggs
Mary Nettleman
James O'Callaghan
Steve Smithson
Lea Steele
Adam Such

Committee Staff

Kimberly Sullivan
Sadie Richards

Secretary of Veterans Affairs

James Peake

Designated Federal Officer

William Goldberg

Guest Speakers

Maxine Kregel

Other Invited Guests

Lord Alf Morris, British House of Lords

Representative from the University of Texas Southwestern

Robert Haley

Abbreviations

AChE – Acetylcholinesterase
AHS – Agricultural Health Study
ALS – Amyotrophic Lateral Sclerosis
AV – Audio Visual
BUSPH – Boston University School of Public Health
C – Carbamate
CARC – Chemical Agent Resistant Coating
CDMRP – Congressionally Directed Medical Research Programs
CMI – Chronic Multisymptom Illness
CNS – Central Nervous System
DoD – Department of Defense
DU – Depleted Uranium
EC – Emulsifiable Concentrate
EER – Environmental Exposure Report - Pesticides
EPA – Environmental Protection Agency
EPW – Enemy Prisoners of War
FDA – Food and Drug Administration
GW – Gulf War
GWI – Gulf War Illness
GWISG – Gulf War Illness Study Group
HPA – Hypothalamic-Pituitary Adrenal
HRA – Health Risk Assessment
ICD-9 – International Statistics Classification of Diseases and Related Health Problems
IOM – Institute of Medicine
IRB – Institutional Review Board
MOS – Military Occupational Specialty
NGWRC – National Gulf War Resource Center
NK – Natural Killer (cells)
OEF – Operation Enduring Freedom
OIF – Operation Iraqi Freedom
OP – Organophosphate
OR – Odds Ratio
PB – Pyridostigmine Bromide
PCI – Pest Control Interviewees
PON1 – Paraoxonase 1 (a protein-coding gene involved in breaking down organophosphates and nerve gases)
POPC – Pesticides of Potential Concern
PTSD – Post-Traumatic Stress Disorder
RAC – Research Advisory Committee (on Gulf War Veterans Illnesses)
RAND – Research AND Development Corporation
VA - Veterans Affairs
VACO – Veterans Administration Central Office
ULV – Ultra Low Volume

Meeting of the Research Advisory Committee on Gulf War Veterans' Illnesses
November 17, 2008
Department of Veterans Affairs, 810 Vermont Avenue, NW, Room 230,
Washington, D.C.

Agenda
Monday, November 17, 2008

- | | | |
|----------------------|---|---|
| 8:30 – 9:00 | Informal gathering, coffee | |
| 9:00 – 9:05 | Introductory remarks | Mr. Jim Binns, Chairman
Res Adv Cmte Gulf War Illnesses |
| 9:05 – 9:45 | The pesticide cognition study in Gulf War veterans | Dr. Maxine Krengel
VA Boston Healthcare System
Dr. Kimberly Sullivan
Res Adv Cmte Gulf War Illnesses |
| 9:45 – 10:30 | RAC Scientific Staff update | Dr. Roberta White
Res Adv Cmte Gulf War Illnesses |
| 10:30 – 11:00 | Break | |
| 11:00 – 11:05 | 2008 Report: a veteran's perspective | Mr. Anthony Hardie
Res Adv Cmte Gulf War Illnesses |
| 11:05 – 11:25 | 2008 Report summary | Dr. Lea Steele
Res Adv Cmte Gulf War Illnesses |
| 11:25 – 11:35 | 2008 Report presentation to the Secretary | Mr. Jim Binns, Chairman
Res Adv Cmte Gulf War Illnesses |
| 11:35 - 11:50 | Secretary's remarks | Hon. James B. Peake
Secretary of Veterans Affairs |
| 11:50 – 12:00 | Discussion | |
| 12:00 | Adjourn | |

Day 1

The November 17, 2008 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

James Binns, Committee Chairman
Dr. Roberta White, Scientific Director

Chairman Binns commenced the meeting at 9:00am.

Dr. White then introduced the speakers and co-investigators, Dr. Maxine Kregel and Dr. Kimberly Sullivan.

The Pesticide Cognition Study in Gulf War Veterans

Dr. Maxine Kregel, VA Boston Healthcare System
Dr. Kimberly Sullivan, Boston University School of Public Health

Dr. Sullivan began by presenting an overview of their collaborative research, involving neuropsychological functioning in military pesticide applicators from the Gulf War (See [Appendix A – Presentation 1](#)). Dr. Sullivan presented an overview of short and long-term effects of pesticide overexposure citing several recent studies in agricultural workers. She also gave an overview of types and amounts of pesticide usage during the GW stating that Gulf War veterans were exposed to pesticides where they worked, slept and ate. She stated that on any given day during their deployment, GW veterans could have been exposed to 15 different pesticides of concern with at least 12 different active ingredients. Many of these pesticides inhibit the acetylcholinergic neurotransmitter system and are called acetylcholinesterase (AChE) inhibitors. Dr. Kregel then presented the methods and results from the Pesticide Cognition Study which assessed neuropsychological functioning in Gulf War veterans with documented exposures to pesticides as part of their military occupation. The study focused on analyses of low-level chemical exposures in Gulf War veterans who were preventative medicine personnel and were interviewed by the Department of Defense (DoD) as part of the Environmental Exposure Report-pesticides. Analyses for the study compared neuropsychological functioning and health symptom reporting among high and low pesticide and pyridostigmine bromide (PB) exposed groups. Combined pesticide and PB exposures were found to be associated with reduced performance in mean reaction times, and increased reporting of mood and health symptoms including those meeting criteria for Chronic Multisymptom Illness (CMI). Drs. Sullivan and Kregel's findings correlate with studies of professional pesticide applicators, greenhouse workers, and sheep dipping farmers suggesting similar subtle effects on cognition and mood with chronic low-level pesticide exposures. Their results are consistent with the conclusion of the DoD Environmental Exposure Report-pesticides and the RAND report which suggested that the AChE inhibiting pesticides could be among the factors contributing to some of the undiagnosed illnesses in GW veterans.

Dr. Meggs, a member of the Committee, asked whether the study controlled for sarin exposure. Dr. Sullivan responded that they did control for sarin exposure, and that the Khamisiyah exposure was not significantly associated with the outcomes found in their study. Pesticides were found to be the driving force in their analyses.

Dr. Bloom, a member of the Committee, then asked how many Khamisiyah exposed veterans were included in their study. Dr. Sullivan replied that their study included 53 Khamisiyah exposed veterans.

Dr. Steele, the Committee's former Scientific Director and current member, noted that this was the first study looking at the impact of concurrent pesticide *and* PB exposure and thanked Drs. Sullivan and Krengel for their interesting presentation.

Dr. Nettleman, a member of the Committee, asked whether any of the pesticides identified as significant in their study are currently being used by the DoD. Dr. Sullivan replied that yes, one of the fly bait products that is still being used by the DoD for current deployments was found to be significantly associated with mood functioning in their analyses.

Chairman Binns then asked what health symptoms the pesticide and PB-exposed subjects in their study exhibited. Dr. Krengel replied that GW veterans exposed to higher levels of PB and pesticides performed worse on psychomotor functioning tasks, reported significantly higher rates of diarrhea, irregular heart rate, weakness, muscle pain, sleep problems, body tingling, anxiety and rapid heart rate, and were more likely to meet criteria for CMI than GW veterans with low exposures of PB and pesticides.

Dr. Barlow, a member of the Committee, then asked if post-traumatic stress disorder (PTSD) was associated with the exposures to PB and pesticides. Dr. Krengel responded that they did not find an interaction effect of stress and exposures in their analyses. Dr. Sullivan added that the health symptom and mood related analyses were performed by controlling for PTSD.

Chairman Binns then called on Dr. White to present on the activities and future plans for the Committee.

RAC Scientific Staff Update

Dr. Roberta White, Scientific Director

Dr. White provided an update of the Committee staff duties and activities being undertaken in Boston (See [Appendix A – Presentation 2](#)). Her presentation included an overview of the Boston University School of Public Health (BUSPH) GWI Study Group (GWISG). Dr. White concluded by asking for thoughts/experiences from the Committee members, and asked if anyone had suggestions for topics the BUSPH GWISG should focus on in future meetings.

Dr. O'Callaghan, a member of the Committee, asked Dr. White to comment on neuroethics issues relevant to the Committee's activities. Dr. White agreed that the Committee should

consider important neuroethics and genetics issues, including genetic susceptibilities and other ethical considerations (for example, the Huntington's gene issue). She suggested including ethical presentations in future BUSPH GWISG meetings.

Dr. Bloom then suggested that the BUSPH GWISG hold a "brainstorming treatments" session. Dr. White agreed that this would be a good idea, and the following topics were brought up as possible future activities/topics of discussion: symptom-based treatments; canvassing veterans to find out what they are currently doing to manage their illnesses; networking with pharmacology experts regarding treatment; potential role for biofeedback.

Chairman Binns then suggested investigating what role dietary influence might have played in the self-reported health improvements of some veterans. He also commented that a rational scientific discussion of case studies/possibilities was needed.

At 10:15am Chairman Binns thanked the presenters and called for a 45 minute break at 10:15am.

2008 Report: A Veteran's Perspective

Anthony Hardie, Committee member & Executive Assistant of the Wisconsin VA

Chairman Binns called the meeting to order again at 11:05am. He then introduced Mr. Anthony Hardie.

Mr. Hardie, a Gulf War veteran and member of the Committee, thanked Chairman Jim Binns, Dr. Lea Steele, and the other scientists and Gulf War veterans and veterans' advocates for their work on, and in collaboration with, the Committee. Mr. Hardie then noted that tens of thousands of Gulf War veterans who were exposed to the "toxic soup" of hazardous substances during their service still remain ill as a result of their service. He stated that the causes of their illness are now known in scientific terms, and that the path to treatment is charted out. He thanked the Committee for the opportunity to serve as a member, thanked Secretary Peake for ensuring that the Committee was moving forward, and thanked Congress for chartering the Committee and continuing to support its work.

Chairman Binns then introduced Dr. Lea Steele, the past Scientific Director of the Committee during the preparation of the Committee's 2008 report titled "Gulf War Illness and the Health of Gulf War Veterans: Scientific Findings and Recommendations," henceforth referred to as the 2008 Report.

2008 Report Summary

Dr. Lea Steele, Committee member and former Scientific Director

Dr. Steele gave an overview of the 2008 Report (See [Appendix A – Presentation 3](#)). She noted, that this report was the first time that extensive evidence has been considered in aggregate and synthesized, to determine what is known about basic questions related to Gulf War Illness. These

questions include what the most prominent causes and biological nature of Gulf War Illness (GWI) are. She began by noting that the Committee's purpose (as laid out in the charter) is to review and assess all of the research regarding Gulf War Illness, with the understanding that the purpose of the research is to improve the health of ill Gulf War veterans. Dr. Steele then provided some background information on the Gulf War prior to outlining the symptoms and Gulf War-related exposures of potential concern. Dr. Steele then summarized the scientific findings, noting that studies consistently identify an excess of 26-32% of Gulf War veterans with multisymptom illness, over and above rates in non-deployed era veterans. Dr. Steele summarized that, according to existing evidence, only two exposures - pesticides and PB - are consistently and causally related to GWI. She stated that an association cannot currently be ruled out for low-level nerve agents, sustained oil well smoke, the cumulative effect of multiple vaccines and combinations of exposures. She also noted that evidence consistently shows no association between GWI and psychological stressors during deployment. Dr. Steele also stated that current evidence suggests that all other exposures during deployment (including depleted uranium, particulates, anthrax vaccine alone, fuels, solvents and others) are unlikely to have caused GWI for the majority of affected veterans. Dr Steele then summarized the diverse biological differences that have been found between symptomatic Gulf War veterans and healthy controls. These known differences most prominently relate to neurological functioning, though other diseases and health issues (e.g. ALS and certain types of cancer) have also been associated with Gulf War service. Dr. Steele then commented on the need for further research in this domain. She then reviewed the Committee's findings regarding federal research on Gulf War veterans' health. Dr. Steele concluded that the extensive body of scientific evidence now available leaves no doubt that GWI is real, that it is the result of neurotoxic exposures during the war, and that few veterans have recovered or substantially improved with time.

Chairman Binns thanked Dr. Steele, then welcomed Secretary Peake, and called Lieutenant Colonel (Lt. Col.) Marguerite Knox and Rev. Joel Graves to the podium for the presentation of the Committee's 2008 Report.

2008 Report Presentation to the Secretary

James Binns, Chairman of the Committee
Marguerite Knox, Gulf War veteran and Committee member
Joel Graves, Gulf War veteran and Committee member

Lt. Col. Marguerite Knox and Rev. Joel Graves, both Gulf War veterans, presented Secretary Peake with the 2008 Report.

Secretary's Remarks

James Peake, Secretary of Veterans Affairs

Secretary Peake then spoke, stating that he believed scientific research to be an important aspect to understanding illnesses in Gulf War veterans. He acknowledged that the Committee was the first forum to look at the complex issue of GWI, and mentioned that the VA is in the process of revising the Guide to Gulf War Veterans' Health to incorporate the kinds of issues raised by the

Committee. Secretary Peake also thanked the Committee for its early advocacy of the new Committee – the Advisory Committee on Gulf War Veterans – chartered by the VA in April 2008. Secretary Peake mentioned that, just prior to arriving at the meeting, he had met with the presidential transition team and discussed the importance of continuing the process of inquiry and research into Gulf War illnesses. He then thanked Chairman Binns and all the members of the Committee for their leadership and participation in the Committee.

Chairman Binns then called on Mr. Steve Smithson (member of the Committee and Deputy Director of the American Legion) to present a brief response to the 2008 Report on behalf of U.S. veterans.

2008 Report: A Veteran's Perspective

Steve Smithson, Gulf War veteran & Committee member

Mr. Smithson began by thanking all past and present Committee members. In addition to acknowledging the role that the Committee and the 2008 Report has played in improving the health and quality of life of ill Gulf War veterans. Mr. Smithson noted that the activities of the Committee (e.g. the scientific research it reviews) directly impact the process by which ill Gulf War veterans receive compensation for their service-related disabilities. Mr. Smithson noted that the Committee's 2008 Report makes recommendations for addressing the Institute of Medicine (IOM) report process, to make sure it adheres to Congress' original intent. Since the Secretary of Veterans Affairs uses the IOM reports to determine veterans' compensation eligibility criteria, Mr. Smithson expressed confidence that if the recommendations made in the 2008 Report are heeded, more compensation and acknowledgement of Gulf War veterans' service-related illnesses by the IOM and VA will result. Mr. Smithson concluded by thanking the Committee for their work on this particular component of the report.

Chairman Binns then thanked Mr. Smithson and called on Lord Morris to speak on behalf of British Gulf War veterans.

2008 Report: Comments from the U.K.

Lord Alfred Morris

Lord Morris, who served on the Congressional Committee of Inquiry from whose work the appointment of the Research Advisory Committee ensued, congratulated the Committee on their exhaustively researched and powerfully argued report. Lord Morris remarked on the historic importance of the release of the 2008 Report for British veterans, noting that U.S. spending into research of Gulf War illnesses exceeds \$400 million, compared to \$13 million in the U.K. Lord Morris also noted that the Report's findings have potentially profound implications for civilians who have suffered exposures to the same pesticides that were used in the Gulf War.

Chairman Binns thanked Lord Morris then read quotes from two military leaders from the time of the Gulf War (See [Appendix A – Presentation 4](#)). Chairman Binns then expressed his own opinion – that the troops' exposures were a serious but honest mistake. But the government's

failure to acknowledge the extent of their illnesses and work toward seeking treatment for these ill veterans has been unconscionable. Chairman Binns then called for public comments and discussion.

Public Comments

Mr. Daniel Sagal, a reporter from News Hour with Jim Lehrer, asked the Committee what was unconscionable about the way the U.S. government acted with respect to the treatment of Gulf War veterans. Chairman Binns responded that the government has been slow to admit what their own research shows. Although 25-30% of Gulf War veterans are ill, the government refers to the problem as small and the IOM reports minimize the severity of the illnesses as well. Chairman Binns later added that the VA had also minimized the illnesses in letters to Congress by saying that the veterans' illnesses were typical of any war veterans their age. Rev. Joel Graves, an ill Gulf War veteran and Committee member, added that originally after veterans returned from the war and began reporting illness, their symptoms were dismissed as being simply stress-related.

Mr. Mark Anderson, a reporter with the American Free Press, asked about the role of Depleted Uranium (DU) as a potential causative agent of GWI. Dr. Steele remarked that some animal studies suggest a possible role for DU in causing non-symptomatic illnesses (e.g. genetic or cancer-causing effects), but that it is highly unlikely that DU caused the constellation of symptoms identified as GWI.

Ms. Jenny Marder, a reporter from News Hour with Jim Lehrer, asked how long the Gulf War veterans were taking the PB pills. Dr. Steele replied that it varied, with some veterans taking them for only a day or week, while others took them for over a month. Several studies have shown that lower usage of PB pills appears to be less of a problem/predictor of GWI than more sustained usage. Rev. Graves, Committee member and Gulf War veteran, then asked how PB causes GWI. Dr. Steele replied that, while the exact effects are not fully known, PB, and many chemicals in pesticides and nerve agents, inhibits the functioning of AChE (an enzyme that breaks down the neurotransmitter acetylcholine). PB thereby impacts the brain and the central nervous system as well as the autonomic nervous system.

Ms. Julie Mock, President of Veterans of Modern Warfare, then asked if the Committee plans to track other neurological illnesses besides Amyotrophic Lateral Sclerosis (ALS). Dr. Steele replied that the Committee reviews research and makes associated recommendations, but that it does not perform the research itself. She said that it has made recommendations regarding the need for research into other neurological conditions, including MS.

Mr. Jim Bunker, a Gulf War veteran and president of the National Gulf War Resource Center (NGWRC), asked whether GWI would soon be recognized as a diagnosable condition. Dr. Steele replied that the Committee had no sweeping policy recommendation covering all future studies, but that veterans of the Gulf War should still qualify for studies based on their individual symptoms.

Ms. Marder then asked about studies looking at differences in the brain structure of Gulf War veterans. Dr. Steele responded that studies have used different methodologies to look at different parts of the brain, and that all but one have demonstrated structural differences. She added that some studies have demonstrated functional differences in different brain regions as well, though findings have varied. Dr. Steele noted that overall volume of white matter appears to be reduced (as shown in a study by Dr. White), and that areas of the brainstem and the basal ganglia appear to be affected as well (results from Dr. Haley). She also noted that alterations in the hippocampus have been shown as well.

Mr. Steve Robbins, a Gulf War veteran, asked what the 2008 Report reveals about the process for approving new drugs and protective measures for future troops. Dr. Steele replied that the greatest and most obvious message would be to immediately revisit and revise policies and procedures. Dr. Steele also noted that the health impacts of PB were unanticipated and unintentional, and that greater efforts must be made to look for these types of consequences. She remarked that troops must be monitored, and that the military is aware of this need.

Rev. Graves then asked if it would be possible to write a case definition that says AChE inhibitors have played an impact in GWI. Dr. Steele replied that while outlining a case definition is an important step in diagnosing patients, the Committee has not been able to come to an agreement on a case definition.

Ms. Marder then asked about the FDA waiver of PB, which was given in order to allow troops to take the otherwise non-approved substance to prevent nerve agent poisoning. Dr. Steele replied that there are many other good reports on that issue, but that essentially how that waiver came to pass involved discussion between people in the military, the public health field and the FDA, all of whom were aware of Saddam Hussein's possession of nerve gas. Dr. Steele stated that, from current evidence, more knowledge was needed about the long-term effects of the drug before such a decision should have been made. PB has since been approved for protective use against one nerve agent called soman. Soman is not the nerve agent that troops in the Gulf War would possibly have been exposed to.

Mr. Sagal then asked what will be the practical impact on treatment of soldiers' health. He asked whether an ICD-9 code would be created for GW Illness if a veteran with certain symptoms showed up at a VA clinic. Dr. Steele replied that one of the major immediate practical impacts would be for veterans with symptoms of GW Illness to be recognized by VA doctors as having more than psychiatric illness. Dr. Steele added that she and the rest of the Committee hoped that one of the longer-term impacts would be more precise and better research arising from a better understanding of the causes of GW Illness.

An audience participant then asked if the pesticides and PB pills identified in the Report are still being used in the current conflict. Dr. Steele replied that, according to manuals and reports, the amounts and types of pesticides being used have been changed. She added that although PB pills are still approved for use, there has been no widespread use of them in the current conflict. The audience member then noted that the GWVIS Report shows many current troops with high rates of cancers and immunological problems. Dr. Steele replied that, though certain diseases may afflict current troops (or any veteran population) at disproportionate levels, this does not mean

that they have GW Illness. She also added that it is not known whether GW veterans have elevated rates of cancers, other than brain cancer.

Mr. Anderson then asked why it took 17 years to reach a definitive conclusion of what causes GW Illness. Dr Steele responded that lack of initial evidence, lack of correct studies such as those not focused on stress, and most recently, an overabundance of varied studies have all contributed to the time delay. Chairman Binns drew a parallel to the delay in identifying Agent Orange, and added that recognizing indirect injuries caused by war or battlefield exposures needs to be internalized into the system.

Another audience member then asked what could or should have been done to prevent against this. Chairman Binns responded that the true nature of GW Illness could have been recognized by the government earlier.

Mr. Bunker then asked if the ongoing biomarker and brain imaging research is tracking where in the Gulf War theater each veteran was. Chairman Binns replied that he believed the answer to be yes.

Maj. Denise Nichols asked for clarification as to whether the Committee was completely closing the door to additional information such as DU, the anthrax vaccine and other similar exposures. Chairman Binns replied that although funds for GW research are limited, and should, in his opinion, be focused on the areas identified in the 2008 Report, all new research (including findings on DU) continues to be monitored.

Rev. Graves then asked what would be involved in creating an ICD-9 code for GW Illness. Dr. Steele replied that the process is difficult for poorly defined diseases such as GW Illness.

Dr. Meggs then noted that the problem of organophosphate insecticides is much broader than GW Illnesses. They are the class of insecticides that has been most extensively used in indoor environments including homes, schools and offices. He continued that they have caused a lot of suffering which has not been properly appreciated. Many of these pesticides were phased out by the Environmental Protection Agency (EPA) beginning in 2000. He continued that many individuals have chronic problems with memory, concentration, and pain symptoms after exposures to these pesticides and that millions of people were exposed to these new agents without knowledge of the potential consequences.

Lt. Col. Knox commented that, in 1996, the Secretary of Defense denied that there was any exposure to nerve gas during the war. However, as Dr. Steele pointed out, it is now known that as many as 100,000 troops may have been exposed to low levels of nerve agents, though the actual level of exposure is not known.

Chairman Binns then remarked that although no effective treatments are currently known, anecdotal evidence suggests that avoiding further exposure to chemicals, including household chemicals and pesticides, may help GW veterans from having their symptoms worsen.

Ms. Alishia Mason, a veteran of Operation Iraqi Freedom (OIF), asked if Chairman Binns was suggesting that veterans should avoid pumping fuel into their cars. Chairman Binns confirmed that if this exposure made her feel worse, then she should avoid those exposures. Ms. Mason followed up, asking how she and other veterans with chemical sensitivity are supposed to live in society. Chairman Binns acknowledged that this illness is a major health problem.

Ms. Marder asked if PB pills are still being used in any circumstances, and how that is not a problem. Dr. Steele replied that the 2008 Report was the first written recommendation regarding the health risks associated with PB. Ms. Marder then asked if the Committee recommends banning PB altogether. Dr. Steele replied that better research needed to be done as to if and when PB should be used. She also stated that the Committee does not get involved in DoD policy making. Ms. Marder asked whether stress magnifies the effects of PB, and Dr. Steele replied that animal studies do not suggest a role of stress in the effects of PB.

Mr. Bunker asked if the Committee could make a recommendation regarding chemical avoidance and use at the VA. Dr. Steele replied that further research is needed, and that Dr. Meggs was currently conducting some relevant research on that topic. Maj. Nichols then asked where Dr. Meggs' study was being conducted. Dr. Meggs replied that the Institutional Review Board (IRB) approval for this study was still pending. Maj. Nichols then asked whether there was a need for follow-up with the government regarding IRB procedures. Dr. Steele replied that the Committee supports the use of IRBs because they serve to protect veterans and other research subjects.

Mr. Bunker then thanked the members of the Committee for all their hard work.

Chairman Binns then adjourned the meeting.