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# GULF WAR SYNDROME: TO EXAMINE NEW STUDIES SUGGESTING LINKS BETWEEN GULF SERVICE AND HIGHER RATES OF ILLNESSES

## HEARING

BEFORE THE

## COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

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# GULF WAR SYNDROME TO EXAMINE NEW STUDIES SUGGESTING LINKS BETWEEN GULF SERVICE AND HIGHER RATES OF ILLNESSES

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**TUESDAY, JANUARY 21, 1997**

HOUSE OF REPRESENTATIVES,
COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT,
*Washington, DC.*

The committee met, pursuant to notice, at 10 a.m., in room 2154, Rayburn House Office Building, Hon. Christopher Shays (chairman of the Subcommittee on Human Resources and Intergovernmental Relations) presiding.

Present: Representatives Gilman, Shays, Ros-Lehtinen, Horn, Sessions, Pappas, Snowbarger, Towns, and Sanders.

Staff present: Lawrence J. Halloran, subcommittee staff director/counsel; Robert A. Newman, subcommittee professional staff member; Jared Carpenter, subcommittee clerk; Teresa Austin, committee staff assistant; Cherri Branson, minority professional staff; Phil Barnett, minority chief counsel; and Jean Gosa, minority staff assistant.

Mr. SHAYS. I would like to call this hearing to order and to welcome our witnesses and our guests. In the last Congress, we convened six hearings to examine the Department of Veterans' Affairs, the VA, handling of the health complaints of Gulf war veterans. We did so because veterans consistently told us their evidence of toxic exposures was being minimized or ignored.

Over the course of those hearings, the Department of Defense (DOD) belatedly acknowledged more than 21,000 United States troops were exposed to some level of chemical weapons agents after destruction of the ammunition depot at Khamisiyah in Iraq. The Central Intelligence Agency (CIA) admitted their weather modeling would never prove their earlier conclusion that no United States troops had been exposed to toxic vapor plumes after coalition bombing of known Iraqi chemical weapons stores. And the VA conceded that vital research into the health effect of low-level chemical exposures had been given a low priority out of unwarranted deference to the Pentagon's now-discredited conclusions.

So we are making progress.

The DOD has expanded its investigation team in an effort to make up for the previous, superficial Pentagon inquiries into toxic exposures. The Presidential Advisory Committee on Gulf War Veterans' Illnesses will continue to oversee that effort. Both the DOD

and VA will undertake more research into the chronic health effects of low levels of toxins.

Recently, the VA reviewed the health records of more than 2,000 of the 21,000 troops stationed within a 50 kilometer radius of the Khamisiyah bunkers. It appears those closest to the chemical detonations are sicker than other veterans who have sought special treatment in the VA's Gulf War Health Registry. We will hear testimony from the VA on this new data.

We will also hear about published results that help distinguish and clarify the roles of toxic exposures and stress in causing subtle neurological damage and delayed, chronic health effects.

Our purpose today, and in the months ahead, is thorough, constructive, and fair oversight of the VA and other departments and agencies charged to find answers for Gulf war veterans. Our mission is to ensure that motion is never mistaken for progress, that conclusions don't become evidence, and that military doctrine does not blind the research agenda or dictate the medical standard of care.

Thanks to Chairman Dan Burton, and the committee's ranking Democrat, Representative Henry Waxman, we are able to convene this hearing today prior to the formal organization of subcommittees and the adoption of rules for the 105th Congress governing the subcommittees. Their willingness to go forward today demonstrates the bipartisan commitment to the accurate diagnosis, effective treatment, and fair compensation of Gulf war veterans.

[The information referred to follows:]

ONE HUNDRED FIFTH CONGRESS

**Congress of the United States**

**House of Representatives**

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

January 16, 1997

The Hon. Christopher Shays
1502 Longworth Building
Washington, D.C. 20515

Dear Chris:

Pursuant to my agreement with the Ranking Member, you are authorized to conduct two hearings prior to the adoption of Committee Rules. Specific topics for the hearings are set out in my January 7 letter to Rep. Waxman memorializing our agreement. (copy attached)

I understand you will convene the first hearing on January 21 on Persian Gulf War veterans' illnesses, with the second hearing, on the Food and Drug Administration's safety standards regarding transmissible spongiform encephalopathies, to be held on January 29.

Pursuant to the Rule XI, clause 2(m)(1) of the Rules of the House, you are hereby designated to administer oaths to witnesses at the hearings.

In the absence of Committee Rules, it is understood the hearings will be conducted in accordance with the Rules of the House, and to the extent practicable, under the Committee Rules adopted for the 104th Congress.

Sincerely,

Dan Burton
Chairman

cc: Rep. Henry Waxman
Rep. Chris Cox

Mr. SHAYS. We welcome all our witnesses, particularly the veterans who will testify in our third panel. It is to them we owe continued vigilance in pursuit of the causes and cures of Gulf war veterans' illnesses.

At this time, I would ask the former ranking member and maybe the present ranking member, Mr. Towns, if he has a statement to read.

Mr. TOWNS. Thank you, Mr. Chairman.

Mr. SHAYS. I just want to know, should I take it personally that you choose not to sit in this seat?

Mr. TOWNS. No, no, it doesn't have to do with anything, Mr. Chairman. I guess the only thing was I was looking forward to having your seat. That is the only thing.

Let me also thank you, Mr. Chairman, for holding this hearing. Since our first hearing on this matter in the 104th Congress, I have steadfastly maintained several core beliefs. I believe that illnesses of the Persian Gulf war veterans should be examined and treated. Current research should be continued to determine the existence of a specific illness or syndrome. Compensation should be provided for those individuals whose Persian Gulf service has rendered them disabled or suffering from chronic illnesses, and research on these causes of potential treatment for those illnesses should be expanded.

I am encouraged to discover that earlier this month the President asked VA Secretary Brown to examine the possibility of extending benefits to soldiers who suffered from undiagnosed illnesses; that $27 million in funding is available for new research efforts; that the Department of Defense has initiated a 110 member task force to investigate claims of chemical exposure; and that the term of the Presidential Advisory Commission on Persian Gulf War Illnesses has been extended. I am very pleased about that. These are all encouraging developments in an area that often only carries bad news.

I hope that these developments mean that all concerned have reached an agreement to listen to our veterans and share information from Federal agencies with Congress and with the American public. I believe that the failure to reach such an agreement would undermine trust and confidence in government, cast doubt upon any of the few research findings, and waste the investigational and medical resources of Federal agencies. This Nation cannot afford such a result.

Again, Mr. Chairman, I would like to thank you for calling this hearing today and staying with this issue. I agree with you; I think it is too important not to examine it and make certain that we find the cause of this illness. It is very clear to me that where there is smoke, there must be fire. Thank you.

Mr. SHAYS. I thank the gentleman, and while you don't sit at this seat, I consider you an equal partner in this effort. And thank you for your past and present work on this.

[The prepared statement of Hon. Edolphus Towns follows:]

Draft Opening Statement of Rep. Edolphus Towns

Ranking Democratic Member of the Subcommittee on

Human Resources and Intergovernmental Relations

Hearing on Persian Gulf War Illness

January 21, 1997

I want to thank Chairman Burton and Subcommittee Chairman Shays for holding today's hearing on Persian Gulf War Illness. The Subcommittee on Human Resources has held several hearings on this issue. I believe that our work on this matter has led to significant findings and policies in this area.

Since our first hearing on this matter in the 104th Congress, I have steadfastly maintained several core beliefs. I have believed that illnesses of the Persian Gulf War Veterans should be examined and treated; current research should be continued to determine the existence of a specific illness or "syndrome";

compensation should be provided to those individuals whose Persian Gulf service has rendered them disabled or suffering from chronic illnesses and research on the causes and potential treatments for those illnesses should be expanded. I am encouraged to discover that earlier this month, the President asked VA Secretary Brown to examine the possibility of extending benefits to soldiers who suffer from "undiagnosed illnesses"; that $27 million in funding is available for new research efforts; that the Department of Defense has initiated a 110 member task force to investigate claims of chemical exposure; and that the term of the Presidential Advisory Commission on Persian Gulf War Illnesses has been extended. These are all encouraging developments in an area which often carries only bad news.

I hope that these developments mean that all concerned have reached an agreement to listen to our veterans and share information between federal agencies, with Congress and with the

American public. I believe that the failure to reach such an agreement would undermine trust and confidence in government, cast doubt upon any future research findings and waste the investigational and medical resources of federal agencies. This nation cannot afford such a result.

Again, I want to thank the Chairman for calling today's hearing and look forward to hearing from the witnesses.

Mr. SHAYS. In the order of the Members who came here, I am going to invite a new Member, Mr. Sessions from Texas, if he has any opening statement.

It is good to have you here.

Mr. SESSIONS. Thank you, sir. My comments are related to the people who are here before us. It is people who recognize the problem that is evident in America.

Men and women who went across the globe to represent America have come back with terrible symptoms, and I believe the public is unsure of the cause. I hope to be an active part of this committee to listen to expert testimony and witnesses who are in the medical field who can shed light on this and to offer my background and experience to get to the bottom of this.

I appreciate you allowing me to be here. Thank you.

Mr. SHAYS. Thank you. We are eager and happy to have you participate, and I would thank and recognize Mr. Sanders, who has been at these hearings, all six of them, and have appreciated his contribution.

Mr. SANDERS. Thank you very much, Mr. Chairman, and congratulations on your excellent work and congratulations on the panels you have assembled today.

Mr. Chairman, to my mind, one of the issues that we have not gotten into as thoroughly as we might, and I think we are going to make a major step forward today, is the impact of the synergistic effect of a variety of chemical exposures on the men and women who served in the Persian Gulf. I think it is important that we finally have recognized that thousands of our soldiers have been exposed to chemical war agents, but there were many other chemical exposures there, as you know.

According to the American Medical Association, "Evidence now exists linking military service during the Persian Gulf war to a variety of ailments, including neurological injuries potentially caused by exposure to chemical weapons, government-issued insect repellent, and possibly by a drug taken to prevent poisoning from nerve gas." But what we must always keep in mind is that the Persian Gulf theater was a chemical cesspool, and that our soldiers there were exposed not only to chemical agents, war chemical agents, but to many, many other chemical agents as well.

Although some doctors have had some success treating sick veterans for chemical exposure, to the best of my knowledge, the VA, the DOD, and HHS have not offered veterans a treatment specifically geared to overexposure to toxicity. I understand that we are in a catch-22. Since we do not yet have a clear diagnosis, it is very hard to treat the problem. I understand that we need to take our time with some treatment protocol, such as those offered by Drs. Nicholson and Hyman who treat Gulf war syndrome with antibiotics because there is a risk of negative side effects. I am pleased that money has apparently been appropriated to take a closer look at these treatment protocols. That is an important step forward.

In the meantime, there are treatment programs that have no negative side effects which are making veterans feel better. And we should implement this no-risk, win-win treatment immediately.

Mr. Chairman, I will later submit to the record a document entitled, "A Biopsychosocial Therapeutic Approach for the Treatment of

Multiple Chemical Sensitivity Syndrome in Veterans of Desert Storm." It is a treatment protocol. It was written by Dr. Myra Shayevitz, who was a physician with the Veterans Administration at the North Hampton, MA, hospital, dated May 5, 1995.

Dr. Shayevitz is of the belief, and treated patients on the basis, that they were suffering from multiple chemical sensitivity. She had good success. And in talking with Dr. Shayevitz, who is no longer at the VA, her concern was that she was—how should we phrase it?—not getting the kind of support that she wanted from the medical people on top.

I should tell you, Mr. Chairman, that last week I had a very good meeting with Secretary Brown and some of the VA physicians, urging them to take a more complete look at treatment protocols involving detoxification of our veterans, and I hope very much that we will go forward in that area.

In 1993, Dr. Shayevitz treated over 100 Gulf war veterans for chemical exposure, and improved the health of most of them. So, in other words, there is a treatment protocol out there.

The problem is as I understand and you understand that when we talk about multiple chemical sensitivity, we are talking about a controversial area. Not every physician in America agrees with this. The chemical industry does not agree with this.

On the other hand, as somebody who has been involved in this issue for a number of years, I can tell you that there are hundreds of thousands, if not millions, of Americans in civilian life—forget the Persian Gulf—who have been affected by overdoses of chemicals.

There are medical organizations now who are treating tens of thousands of people overdosed with chemicals. And it seems foolhardy to me to be conservative now and not look at all of the medical options that are out there when we have so many people who are suffering, and, most importantly, when this treatment protocol is a safe treatment protocol. Detoxification is not a dangerous drug. It will not have any dangerous side effects.

We have people, for example, Dr. William Rea of the Environmental Health Center in Dallas, TX, who has on his own, mostly on a pro bono basis, treated over 60 veterans. Dr. Rea is well-known throughout the country as being one of the pioneers in the whole area of the multiple chemical sensitivity.

Dr. Charles Ensure in Kansas has also treated patients.

So I would suggest, Mr. Chairman, what this meeting is about is to open up the door to different treatments. The present diagnosis and treatment from VA and DOD is not working.

I would conclude by simply thanking Dr. Rostker, if I am pronouncing your name right. We met last time informally on a television program. You were on the East Coast and I was here, or whatever, so it is nice to see you in person. If you allow me to quote from the letter that you sent me.

Dr. Rostker says he knows that I met with Secretary Brown and so forth and he says, I understand you met this week with Secretary Brown and his staff at the Department of Energy to discuss multiple chemical sensitivity research efforts, and that additional research proposals on chemical sensitivities among Gulf war veterans will be considered for future funding. I support such additional

research. And he is shaking his head for the record, up and down the right way.

Regardless of the current uncertainties and understanding of the complex issues surrounding MCS and the many other potential causes of illness, we will continue to try to understand and explain why so many of those suffer with the Gulf war syndrome. I think that is a step forward and we will pursue that later.

Thank you, Mr. Chairman.

Mr. SHAYS. I appreciate the gentleman.

[The information referred to follows:]

# A BIOPSYCHOSOCIAL THERAPEUTIC APPROACH FOR THE TREATMENT of MULTIPLE CHEMICAL SENSITIVITY SYNDROME IN VETERANS OF DESERT STORM

## TREATMENT PROTOCOL

**Submitted by,**

**Myra B. Shayevitz, M.D.,FCCP,FACP**

**Environmental Physician**

**May 5, 1995**

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## Background

Experience at Northampton VAMC has led us to believe that the unexplained health problems of some Persian Gulf veterans may relate to the combination of chemical, physical and psychological stressors unique to the Desert Storm operation (Miller, 1994). Veterans seen at our facility and elsewhere have complained repeatedly of multi-system symptomatology, including problems with overriding fatigue, memory loss, joint pain, loss of concentrating ability, depression, headache, rash, cough, and abdominal pain (Kang).

This symptomatology is remarkably similar to the syndrome which has been labeled Multiple Chemical Sensitivity syndrome (MCS). MCS is a disorder in which multiple symptoms occur in multiple systems or organs of the body as a result of exposure to chemicals. The symptoms may involve any system of the body or several systems simultaneously, most commonly the central nervous system, including problems with fatigue, mood, memory and concentration. Differing symptoms and severity of symptoms occur in individuals, even among those who have experienced a similar exposure. Induction of the syndrome is by a wide range of environmental chemicals, usually pesticides and petrochemicals, and there is subsequent triggering by much lower levels of exposure than those involved in the initial induction of the illness. The sensitivity spreads to other, often chemically dissimilar, substances. Concomitant food, alcohol and medication intolerance may develop (Miller 1993). Symptoms of chronic fatigue syndrome, PTSD and affective disorder may overlap those of MCS, but if the

patients exhibit chemical sensitivities to environmental triggers as described above they are eligible for admission to the program.

One intriguing theory to explain MCS is that proposed by Bell (1992) and Miller. They point out that one end of the olfactory nerve is in the nose and the other end is in the hypothalamic limbic axis of the brain. It has been demonstrated that environmental chemicals may enter the central nervous system via this pathway (Shipley). They speculate that brain kindling occurs, causing an amplified neuronal response on exposure to a large variety of environmental incitants (triggers). (Of course, irritants in contact with skin or the GI tract will also be carried to the brain via the bloodstream.) The hypothalamic limbic axis is the area of the brain which governs emotions, food cravings, immune function, digestive and metabolic activities of the gastrointestinal tract, and reproduction (Miller 1994). Many of the problems of the Gulf War veterans lie in these spheres. Veterans may also be suffering from direct toxic effects of chemicals on sperm, in the brain, or from other concomitant abnormalities such as impaired liver sulfation detoxification processes.

There are two features of this syndrome which are invaluable in understanding this symptom complex. The first is that of the spreading phenomenon. Although the initial event is frequently an exposure to environmental toxicants (often at very low dosage). the "sensitivity" spreads to low doses of chemically unrelated substances in common use, such as household cleaning chemicals, perfume, alcohol, common foods (foods are admixtures of chemicals), tobacco smoke, exhaust fumes, and fresh newsprint. Repeated minute low dose exposures may trigger symptoms and perpetuate the syndrome. The incitants (triggers) are in such common usage that veterans are literally always at risk of exposures which perpetuate their symptoms. (Miller 1993, Bell 1982)

A second feature of MCS is that of adaptation, or masking. When a patient is constantly exposed to multiple environmental triggers, his reaction to them will not be clear-cut, although it will still result in the continuation of symptoms. The symptomatology is "masked" and the patient is in an adapted state. It is only by withdrawal from the offending irritants and re-exposure that the patient develops a well defined and recognizable reaction. (Miller 1993, Bell 1982)

The longer MCS is allowed to go untreated, the more likely it is that patients become chronically disabled with enormous cost to the individual as well as to society (Miller 1993). In a report from the Ministry of Health of Toronto ( Zimmerman Report, 1986), the estimated bill for 130 patients was in excess of two million dollars. The cardinal principle of treatment is the avoidance of triggering substances (Ashford).

Although the entity of MCS is somewhat controversial, in fact MCS is not uncommon in this country. The National Research Council (1992) estimates that 15% of the US population may be susceptible. The Directory of the Association of Occupational and Environmental Clinics (Washington, D.C.) lists evaluation of MCS at the Massachusetts General Hospital, Emory University School of Public Health, Robert Wood Johnson Medical School, Yale University, and Johns Hopkins, among other prestigious universities' occupational health clinics.

One clinically useful theoretical model of MCS holds that each individual has a total tolerable load of chemical, physical, and emotional stress which, when exceeded, may lead to MCS in susceptible individuals (Randolph, 1962; Ashford). The MCS syndrome may begin with psychological stress accompanied by a petrochemical/insecticide exposure (Miller 1993). Did this stress overload/chemical exposure combination happen in the Persian Gulf? The psychological and physical stressors involved in the Gulf War operation included: going to war on short notice, the use of many Reserve soldiers rather than hardened troops, the fear of poison gas and Scud attacks, rumors of high casualty rates, trucks arriving filled with body bags and caskets , little sleep, excessive heat, fear of mines, fear of fighting in Mission Oriented Protective Posture (MOPP) suits at high temperatures, seeing hundreds of dead animals with no explanation given by superiors, and hearing poison gas alarms going off often necessitating donning MOPP gear, and sitting isolated from others for more than one hour.

Chemical stressors included exposures of troops to more than twenty insecticides, diesel fuel used in heaters in sleeping areas, contact by troops with ground soaked with diesel fuel to keep the dust down, ( 30,000 gallons per day in each of some encampments) petrochemicals in the wash water, exposure to oily clothing from fuel, fire and smoke, pesticide fogging in tents while occupied with our soldiers,

pesticide spraying of toilet seats, living in tents on the flight line , inhaling fumes and smoke from the oil well fires, use of Chemical Anti Resistant compound (CARC) paint (Diisocyanate ) without issuing proper ventilation or airline respirators. Further, we learned at the NIH Technology conference that uniforms were impregnated with pyrethrum insecticides and reimpregnated every six washings thus providing 24 hour direct dermal contact with insecticides. Soldiers often slept only six inches apart facilitating the inhalation of pesticides (Haines).

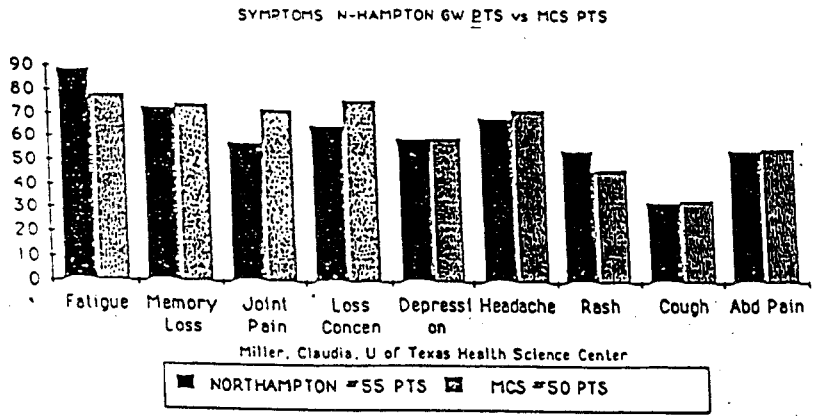
In October of 1993, the Defense Department for the first time acknowledged that low levels of chemical warfare agents were detected in the air in the Persian Gulf at certain sites (Parks).The anticholinesterase compound, Pyridostigmine, ( the "anti-nerve gas" pill) was taken at the order of Division and Corps Commanders when in their opinion the danger of poison gas attack was imminent. Some soldiers we interviewed took more than thirty tablets.

Anticholinesterase agents prevent the hydroxylation of acetyl choline which can lead to unopposed cholinergic stimulation and secondary neuro-muscular fatigue, paralysis, excessive salivation and lacrimation, bronchoconstriction, nausea, vomiting, diarrhea , impaired cardiac function, shock and death (Goodman). It was postulated that if Pyridostigmine was bound to acetylcholinesterase, the nerve agent could not bind. Hence, pyridostigmine would be protective, since it could be reversed by atropine. Pyridostigmine had never before been given to large populations of normal individuals in such an uncontrolled manner. The Army Institute of Chemical Defense in their Doctrine of Use recognized the potential toxicity of this compound, stating that " If a dose is missed, under no circumstances should one take two tablets as a make-up dose" (Gum).

There were, in fact, three potential sources of anti-cholinesterase exposure on the battlefield: Sarin nerve agent, organophosphorus insecticides (after World War 2 the technology for poison gas production was diverted into the manufacture of anticholinesterase insecticides) and Pyridostigmine. Anti-cholinesterase agents (e.g., insecticides) have long been recognized as sufficiently toxic to cause initial sensitization to multiple chemicals at normally encountered doses. A post war

experiment in which cockroaches were pre-treated with pyridostigmine found the insecticide Deet to be 500% more lethal. (Moss).

As has been stated, the patient with multiple chemical sensitivities and the Persian Gulf veterans whom we have examined appear to react to chemicals in very common usage. In a study of 55 of our patients, 86% recognized environmental exposures as perpetuating or exacerbating their symptoms. We compared the symptoms of 50 self-identified cases of MCS documented by Miller (Miller, 1994) with 55 cases of our own at Northampton VA Medical Center Persian Gulf Environmental Clinic. The chart below shows the similarity in incidence of these symptoms.




These patients feel vulnerable to an increased symptomatology from even the ordinary activities of daily living. Feeling "attacked" on all sides, the patient may retreat and become non-functional (Heuser 1992). Because the complex problems of the Persian Gulf veteran encompass the physical, the emotional and the cognitive ( and untreated may result in social isolation and disability, with high costs to society), NVAMC recommends a BIOPSYCHOSOCIAL Treatment Proposal. This treatment is modeled on approaches that have already proven successful in other treatment sites:

removal of triggers and rebuilding of psychological and physical strength. The program consists of up to a 30 day stay in a chemically clean unit, regulated diet, psychological support using non drug therapies, family support, exercise training and detailed education in such topics as environmental controls, assistance with securing work site accommodations, management of diet and self directed exercise (Rea 1992, Ashford). The patients will be followed by the treatment team for one year.

An additional critical component will be rigorous evaluation to measure the degree of success of the program in achieving its objective of decreased symptomatology and improvement in physical and emotional well-being. The evaluation components of our clinical program are detailed in a separate document.

The next section details our proposed program.

## I. ADMITTING PROCESS

1. Case Definition for Purposes of Admission: Those Gulf Era Veterans with Multiple Chemical Sensitivity Syndrome which is defined as multi- system symptomatology attributable to multiple chemical exposures. Patients must be suffering from two or more symptoms originating from two or more body systems/ organs sufficiently severe to adversely affect the patient. Patient's symptoms are now exacerbated by low levels of exposure to chemicals in common usage (Ashford, Cullen, Heuser).

2. Applicant Recruitment: We will accept applications through the usual inter-VA communication and referral procedures, including letters to all environmental physicians and communication through VA Internet access. Self referred patients and those referred from Veteran Advocate groups may also submit applications.
The submitted budget does not allow for VAMC Northampton to pay for travel to the treatment site.

3. Application Process: There are two objectives. Our first objective is to have a screening team not involved in the treatment determine suitable candidates for admission. The second objective is to receive in-depth information on those patients admitted to the program and to impart necessary information to them regarding the program.
   (a) The first mailing will be designed specifically to determine applicants who are considered to be appropriate for treatment in this program, to provide general information to the treating team should the patient be accepted, and to inform the patients about the program and obtain informed consent. (The detailed instructions to the

outside screening committee are described in Appendix A.) Fifteen of our Gulf War patients at Northampton VAMC have completed the application for admission as part of a pilot study. In all cases the information on the application form coincided with the presence and severity of their symptoms. Subjects were able to fill out all categories. The responses were checked for accuracy and consistency during the clinic visit which followed. We expect to continue this pilot study and to use 25 applications completed as a teaching tool for instruction of the screening team.

(1) Application for admission (see Appendix B.).

(2) Medical clearance from VA or civilian physician. It is important that these patients have had a thorough general medical workup to exclude any diagnoses which may be best treated by the usual medical model.

(3) Laboratory work and diagnostic workup required for Gulf War veterans (Farrar): This basically is a thorough, general workup to find diagnoses which would be best treated under the usual medical model. There is, however, also an immunology profile. Some patients with chemical exposures do have immunological abnormalities, including abnormal T cell, abnormal T helper/suppressor ratio, decreased NK counts, low NK activity, and positive ANA and thyroid antibodies (Wojdani 1991, Heuser). Similar immune abnormalities have been described in Persian Gulf veterans tested at Immunoscience Laboratory, Los Angeles, CA (Wojdani, 1993). The screening team will have special instructions in appendix A. in the interpretation of laboratory tests.

(b) The second mailing will be to accepted candidates to objectively gauge the degree of disability and obtain facts necessary for treatment and to produce a much more detailed document which can be used as a patient history.

(1) Environmental History (see Appendix C.
(2) List of allowed toiletries and clothes.
(3) Date of admission.
(4) Map and travel information.
(5) Test Battery contained in the Evaluation Protocol

## II. DETAILS OF PROPOSED 30-DAY TREATMENT PROGRAM

Length of stay is estimated at 30 days (Rea, personal communication, 1994). This will allow adequate time for patients to deadapt (unmask, detoxify) from chemical exposure and give them time to adapt to the realities of coping with MCS through the program which will be described below.

### 1. Control of the Environment

The Environmental Health Unit ( EHU) is considered the "gold standard" (Ashford) for the diagnosis and treatment of those afflicted by chemical sensitivity. In the EHU it is possible to overcome the masking ( adaptation) effect of continuous exposure to environmental incitants in air food and water and effect de-adaptation (unmasking). The adapted patient feels ill but cannot pin point or at times avoid the offending incitants. De-adaptation accomplishes several goals : once removed from the incitants causing the symptoms, the patient will feel much better; re- contact with offending agents will produce a clearly defined reaction ( Ashford, Bell, 1982,Randolph,Rea, 1979, Miller, 1993).

The unit will be housed on one wing of Ward D at Northampton VAMC, ( including the nursing station), which will be renovated and designated the Northampton VA

Medical Center Environmental Health Unit. The scope of changes to Ward D to accommodate chemically sensitive patients will require some major changes to the air handling systems. The South Wing will be isolated from the rest of the floor, both physically through an air lock, and by separation of the air handling system. The patient space will be positively pressured, and the air lock will be negative. The air lock will be situated adjacent to the nursing station, with nursing station access. The doors will be interlocked so only one can be opened at a time. The new partitions containing the doors will be constructed from floor to ceiling. The existing ductwork will be cleaned and modified to place the returns in the patient rooms. The Bathrooms are new, but require a sealer on the grout. Ceiling tiles will be replaced with hard surface tiles.

Time line for construction:

Day 1 to 90: Select contractor, select mechanical engineer, review existing air handling system, design of air handling and lock system.

Day 90-180: Construction to completion.

Ward D is an ideal location since it contains the Pulmonary Function Lab the services of which will be in high usage as respiratory problems occur in the majority of the patients. Spirometry and peak flow as well as submaximal pulmonary stress testing will be of great clinical value. Patients with MCS frequently have respiratory problems, including exertional asthma. There is a room fit for a vigorous exercise/sauna program lined with natural materials ( an old O.R.), adjacent showers, a room to hold the circuiting apparatus ( see later discussion: exercise), space to see out patients that will be environmentally protected and room for staff offices. The treatment team has worked together with the Program Director for over five years using the biopsychosocial approach to chronic pulmonary and geriatric patients. Ward D has wall oxygen, suction, and is near other medical staff in case of an acute crisis. Lastly, there is a direct entrance to the outside with no need to go to the ground floor which has been recently carpeted.

The beds, bedding and room furnishings will be made from nonsynthetic materials. The clothing worn by staff and patients will be from natural fibers and laundered in nontoxic detergents. The use of perfume, chlorinated and petrochemical based products will be strictly forbidden. There will be specially filtered water available and spring water for drinking and cooking. Commercially available spring water from a variety of readily available New England sources will be tested by a nearby water testing laboratory. The spring water to be used in the program will then be selected on the basis of purity and economy. Safe cleaning chemicals, non volatile organic compounds, for the unit will include borax, original Bon Ami, super washing soda, Neo-Life Green soap (Rea, 1994,Barrett ,Maki). Laundry will all be washed on Ward D. These safe cleaning chemicals will be used on the whole of Ward D, the hallway leading to D West, and including the Day Room, Porch, Nursing Station, and Laundry Room on DX. Traffic into the unit will be strictly controlled and the industrial hygienist will check the air quality on a regular basis. The television sets will be enclosed and vented. The majority of furnishings will be metal. The perimeter radiant heat will be modified and filtered. The water supply system for showers will be filtered

Dr. William Rea, the medical director of the successful Environmental Health Center of Dallas , Texas will act as consultant. He has already made one trip to the proposed unit and met with the chief engineer. All renovations will be pre-approved by Dr. Rea as well as all nutritional supplements, water and cleaning agents ( Rea 1994, Ashford). All staff will be non smokers. Their uniforms will be washed in the same manner as those of the patients. They will change into special "clean" uniforms at work (Lawson).

**2. Nutritional Support**

Based on data from other patients with MCS (Rea 1992), we can expect that approximately 80% of our veteran patients will have food sensitivities or intolerances. Foods are admixtures of chemicals. The body's biochemical process for breaking down foreign chemicals can strain its ability to metabolize foods that

involve similar metabolic pathways, creating a reduced ability to process the food and an increase in intolerance to certain food types. The primary goal in managing food sensitivity is identification and elimination of offending incitants. Certain foods have cross-antigenicity with other members of the respective food family because they are chemically similar ( Rao). Further, one must keep in mind that the signs and symptoms of food sensitivity cover a tremendous range of individuality in each patient and that they are myriad. New food sensitivities may develop in MCS patients because of the spreading phenomenon. Theoretically, however, food sensitivity is perhaps the only allergic disorder in which one can perfectly control the avoidance of incitants. For this reason it becomes possible to demonstrate a cause and effect relationship between the ingestion of a specific food and the accentuation of allergic symptoms (Boyles).

Food reactions may be fixed and immediate, probably IgE mediated: symptoms will occur each time a food is consumed no matter how long it is avoided. The food reactions that are more common in MCS may be IgG mediated (Trevino) and are much more subtle and difficult to detect. If a patient is allergic to a food, reaction may not be immediate. In that case, especially when the patient is eating the food (such as wheat or milk) constantly, reaction will not be exaggerated and clear-cut but will result only in a continuance of previous symptoms. The symptomatology is "masked" and the patient cannot correlate the ingestion of food with chronic symptoms (Trevino, Lawlor).

To complicate this picture further, the initial ingestion of the allergic foods often results in a stimulatory reaction in which the patient "feels better." When the stimulatory phase abates, the undesirable symptomatology returns and the patient, remembering the "high," then eats the food again. In essence, he becomes addicted to the very substance that is causing his problem. Once the patient is "addicted" to a particular food, he will satisfy his craving by frequent consumption of the food in various forms in an attempt to alleviate the symptoms of withdrawal. If the food is eliminated entirely, the patient may suffer withdrawal symptoms over a period of 3 to 5 days. At the end of this stage, it is postulated that total withdrawal of the food antigen leaves a significant level of uncomplexed IgG. If the

food is again consumed, there will be a clearly definable reaction (Trevino).

To summarize, when a patient is frequently exposed to the food incitant, the phenomenon of adaptation or masking occurs. The patient does not feel well but cannot discern what triggers are causing his or her symptoms. When repeatedly exposed to the same or chemically similar food, spreading also occurs--the development of new allergies, each with a varying reaction. When food incitants are removed for a period of time, deadaptation or unmasking occurs and it is easier for the patient to recognize food triggers. When foods are eaten infrequently, the rate of development of new allergies declines sharply.

It is for the above reasons that we wish to utilize an elimination/rotary diversified diet which is therapeutic, preventive and diagnostic (Boyles). We can expect that the regulated diet of our program will (1) detect new food sensitivities, (2) prevent new reactions from occurring, and (3) give the patients a nutritionally dense core of safe foods before they leave the program (Rao, Boyles, Sampson 1986,1988, Rea 1979, Pastorello).

In a rotation diet, the same food item is not eaten more often than once every four days. Different foods within the same food family may be consumed every other day. For example, if using the grass family on Monday, wheat will be eaten on Monday and Friday and oats may be eaten on Wednesday. Ready prepared, processed foods with artificial colors, flavors and preservatives, foods with many ingredients, and canned foods with contain residues, are avoided. Utilized foods are fresh or frozen. Less chemically contaminated foods, preferably organic, are preferred. Spring water in glass containers is utilized for drinking and cooking. Meals are spaced 3 to 4 hours apart, and food portions are not restricted (Maynard, Rockwell).

Food rotation itself, however, may not be sufficient to effect an impressive improvement in symptoms. Recently, 62 patients with MCS at the Breakspear Hospital in England under the direction of Doctors Monro and Christopher Heard (Bland) were found to have defects in their liver sulfation pathways. They were

given a tailored nutrition intervention program with the result that 75% of the patients had an improved liver sulfation pathway and a simultaneous decline in symptomatology of MCS.

The liver is an extremely complex body organ. One of its major functions is detoxification, which allows for safe excretion of offending substances. The liver converts endo and exotoxins to byproducts which are excretable in urine. In an interesting experiment (Bland), patients with no abnormalities in the usual liver function tests were divided into two groups. The test group received an oligoantigenic diet (allergen-free), which contained minerals and nutrients supportive of upregulation of hepatic detoxification. The placebo control diet was similar in all respects to the test diet with the exception that it contained only the RDA levels of all vitamins and minerals. The participants stayed on their respective diets for 21 days. A metabolic questionnaire which has been derived from the Cornell Medical Index (Bland), was given to both groups. Phase 1, liver detoxification, was tested by caffeine clearance, and Phase 2 by the ability of the liver to convert sodium benzoate to hippurate for excretion. Before eating the test meal, both groups had similar test results. After intervention, however, there was a statistically significant difference in Phase 1 and Phase 2 systems with enhanced Cytocrome P450 activity in the test diet group and a concomitant decrease in chronic symptoms and health complaints. Bland has concluded that individuals with very low P450 activity are those whose physiologies are most sensitive to environmental exposures and are also those who have the greatest number of chronic symptoms as measured by the metabolic screening questionnaire.

Given these findings, we will use an intervention diet in our program which will include oligoantigenic components such as white rice protein concentrate, an energy-efficient source of dietary fat such as medium chain triglycerides, an easily digested carbohydrate with a low fermentation sensitivity as in high molecular weight dextrins along with specific upregulation nutrients such as zinc, copper, manganese, molybdenum, iron, B vitamins, L-cysteine, glutathione, N-acetyl cysteine, tocopherol, carotene, and ascorbate. To this hypoallergenic liquid we will add foods in a monorotation. Hopefully, this schema will allow elimination of

offending allergens and improve the conjugation ability of the liver, thereby preventing the production of secondary toxins, and result in fewer complaints on the metabolic screening questionnaire (Rigden).

In the first weeks of the program, foods with known high allergenicity will be eliminated. This includes dairy products, beef, pork, veal, nuts and those foods containing gluten (wheat, oats, rye, et al.). In addition, all alcohol-containing products and caffeine-containing beverages will be excluded. Acceptable foods will include chicken, turkey, lamb, legumes, cold-water fish such as salmon, halibut and mackerel, fruits and vegetables.

A careful dietary history is essential for the detection of food allergens which should be eliminated from the onset and also for the detection of symptomatology resulting from food triggers. If a patient suffers symptomatology after any meal, the offending food will be eliminated and another food substituted. A food diary (see Appendix D.) completed after each meal, will be implemented to detect symptomatology during all phases of the program (Rockwell).

Example of the Northampton VA Medical Center Rotation Diet:
Three glasses of oligoantigenic liquid

| | BREAKFAST | LUNCH | SUPPER | SNACK |
|---|---|---|---|---|
| DAY 1 | Acorn Squash | Halibut | Tuna | Raisins |
| DAY 2 | Banana | Lamb | Chicken | Pear |
| DAY 3 | Butternut Squash | Turkey | Sole | Figs |
| DAY 4 | Garbanzo Beans | Potato | Cornish Hen | Pineapple |

Three Glasses of Oligoantigenic Liquid per day

| | BREAKFAST | LUNCH | SUPPER | SNACK |
|---|---|---|---|---|
| DAY 1 | Acorn Squash<br>Grapefruit | Halibut<br>Turnip Greens | Tuna<br>Broccoli | Cantaloupe<br>Raisins |
| DAY 2 | Banana<br>Sweet Potato | Lamb<br>Pears | Chicken<br>Green Beans | Avocado<br>Prunes |
| DAY 3 | Butternut<br>Squash<br>Brussels<br>Sprouts | Turkey<br>Lettuce | Sole<br>Zucchini | Figs<br>Oranges |
| DAY 4 | Garbanzo<br>Beans<br>Apple | Potato<br>Tomato | Cornish Hen<br>Green Peas | Strawberry<br>Pineapple |

At the end of 2 rotations, patients will have consumed 32 different foods in a controlled manner.

The dietitian will measure body composition before and after treatment, check weight weekly, and ensure meals are completely nutritious. The dietitian will construct a detailed diet manual which will be approved by Mrs. Barbara Maynard, a highly experienced dietitian and author of the book Rotational Bon Appetit. Our plan is to adapt the current VAMC Northampton diet, which is nutritious and diversified, to this plan. This will minimize added expense and maximize the ability of other similar future VA programs to utilize a

rotation diet successfully. A specially trained dietitian with a knowledge of food families will oversee this aspect of care.

Any vitamin or other nutritional supplements will be specially formulated for those with allergies, will not contain diluents, preservatives or chemical additives, and will be free of plant and animal alle. ens. At the Dallas Environmental Health Center, vitamin and mineral levels are regularly measured and supplemented as needed (Johnson, 1989). Galland reported on several nutritional abnormalities, including excretion of essential amino acids, decreased erythrocyte superoxide dismutase activity, among others, and reported that supplements with antioxidants including selenium, copper, zinc, sulfur containing amino acids did produce major clinical improvement in chemically sensitive patients. Research on humans has supported the use of antioxidants such as vitamin A, C, E and selenium as protectors against certain pollutants (Calabrese).

**3) Psychological Support:**

We have found psychiatric conditions common in veterans of the Persian Gulf which are similar to those described in MCS (Bell 1993). Studies suggest that affective disorders such as depression, anxiety disorders such as panic and phobias, may be common in this subset of patients. The symptoms of low-level chemical exposure may include depression, difficulty concentrating, anxiety, peculiar bodily sensations, headache, and other subjective symptoms. Patients feel as though they cannot trust their own bodies or feelings, for at one moment they might feel fine, making plans or appointments. Then, perhaps the next day or even on the very same day, they may feel headachy, sleepy, lethargic, and suddenly they are unable to fulfill the plans they made when they felt energetic. A trip down the soap aisle in the supermarket may result in agitation with accompanying outbursts. The patient may complain of lethargy and depression followed by feeling "wired up" ( Shayevitz, 1990). These ups and downs are frequently interpreted by physicians and even patients as responses to psychosocial stresses. However, patients who have been treated in an environmental unit often find that there is a direct, clear, cause-and-effect relationship between

their symptoms, foods and chemicals.

Psychiatric diagnoses are not etiological explanations for environmental illness, they are simply labels for a set of symptoms. Additional conditions in these patients, such as borderline antisocial personality disorders, can definitely complicate treatment as well as increase the risk of concomitant substance abuse problems. (Bell 1993).

Nondrug therapies done by specially trained psychologists and psychiatrists of the cognitive behavioral/guided imagery type can be effective in patients with MCS (Didriksen, Haller). It must be remembered that finding an effective psychological therapy does not prove that the illness is psychogenic. Concomitant co-morbidity such as PTSD may require individualized help (Bell,1993).

The primary purpose of our treatment is the development of techniques to improve self-control, sense of competence, and autonomy, the feeling of healing from within and the development in the patient of preparatory skills for dealing with the myriad of distressing situations which have already happened and which, in fact, may occur in the future (Baldwin). The use of guided imagery and cognitive therapy as a therapeutic approach will begin with an emphasis on the achievement of relaxation through relaxation response and meditation. Relaxation and meditation provide the psychological setting for the establishment of conditions conducive to imagery and control of thought processes. With the use of positive imagery and cognitive therapy and the shift away from recurring frightening themes, there is a likelihood that the patient can increasingly master his emotional, social, and physical problems. This will provide him with an important new asset that will increase his sense of being in charge as opposed to being buffeted by a host of physical and emotional reactions (Singer).

We want our patients to feel they can have a rich and full life with many interesting ways of viewing things and a "can-do" philosophy. We want them to perceive they are in control from within, will have a comfortable sense of direction from inside, will not feel overwhelmed, victimized, resentful, or suffering from the necessity to retreat. The veteran will once again be able to take and accept risks so necessary for personal development. Our aim, then, will be to have the patient re-establish an optimistic

outlook, reinforce a positive self image and be able to handle setbacks, failures and frustrations. (Beck 1976, Singer 1974, Burns 1980, Baldwin 1985, Didriksen, Bell 1993, Ashford, Rigden, Simon).

The primary criteria for the employment of the Psychologist and Psychiatrist will be expertise in cognitive therapy and guided imagery. The Psychologist and Psychiatrist will be responsible for the development of the treatment manual.

Steven McDermott, M.D., Director of the Cognitive Therapy and Research Program at Massachusetts General Hospital and Director of Cognitive Therapy at Westwood Lodge Hospital, has agreed to join the evaluation team. His duties will include:

(1) Interview potential candidates and sign off on their retention as the Program Psychiatrist and Psychologist.

(2) Supervise the Program Psychologist and Psychiatrist in the development of the treatment manual and sign off when completed satisfactorily.

(3) Rate taped sessions submitted to him on a random basis, using the rating scale developed by the National Institute of Mental Health for Cognitive Therapy.

(4) On Site teaching and consultation as required.

Rorry Zahourek, MS, RN, CS, Assistant Clinical Professor, University of Massachusetts School of Nursing and author of Relaxation and Imagery: Tools of Therapeutic Communication and Intervention (Saunders, 1988), has also agreed to join the team. Ms. Zahourek is an acknowledged expert in Guided Imagery, recognized as a teacher, therapist and consultant. She will act as consultant and program planner for Guided Imagery and:

(1) Interview potential candidates and co-sign Dr. McDermott's appraisal.

(2) Sign off on the treatment manual as regards guided imagery and help in its development.

(3) Rate randomly recorded case sessions.

(4) Provide on-site teaching and consultation as required.

These measures will result in a detailed treatment plan so that all patients will receive consistent psychological support by experts and will ensure that quality control is sustained through careful monitoring of these sessions.

**4. Education**

Patients with chemical sensitivities feel assaulted by the most common and mundane of items- a new car interior, fragrance emanating from the person sitting next to them in a movie, a new coat of paint, a freshly waxed store floor, deodorant in the rest room. Frightened and wounded, they retreat into social isolation. A vicious cycle ensues, for the less they do, the less they can do. Ignorant of self protection techniques, forays out of this isolation result in further damage and indeed some sufferers live their lives in porcelain lined dwellings.

From the first day of admission to the EHU at Northampton, the emphasis will be on the relief of symptoms and the permanent return to pre-illness functioning. The patient will enter into an active partnership with the treatment team in an intense program of education to prepare them for discharge ( Golos & O'Shea, 1987). Upon entering the unit, the patient will be given an audio tape with accompanying printed material. This tape will describe MCS and introduce all the key concepts. The patient

will be able to listen as frequently as he/she wishes. A series of lectures will be presented over the course of the thirty day stay covering the following subjects:

(a) **Topics covered in the educational program:**

(1) Understanding the effect of chemicals on the body: Important principles: Total body load (burden), adaptation (masking), bipolarity, biochemical individuality, spreading phenomenon and switch phenomenon, a strategy for treatment of exposures and relapses (Ashford, Rea 1992).

(2) Controlling exposures in the home.

(i) Knowing about the Fair Housing Act, knowing how to list needed accommodations in writing for house manager or owner. Controlling pesticides, no smoking policies, nontoxic cleaning agents, "petrochemical air fresheners," petrochemical products used for repair, maintenance, construction or remodeling, exhaust from heating systems and appliances that use natural gas, oil or wood, keeping the house free of dust (Bower, Rousseau, Gorman, Dadd, Golos 1992).

(ii) Controlling exposures in the bedroom: Making the bedroom oasis, learning about toxic furniture, including mattresses, foam pillows, buying new linens, washing bed linens (Golos 1992).

(iii) Improving air quality at home. Home and room filters, respirators and masks, reading boxes, ventilation, materials, storage, garage (Rousseau). Furniture, cleaning chemicals, house paints, removing dust and molds, non-toxic pet control.

(iv) Improving water quality (Rousseau, Bower).

(v) Controlling exposures in medical care and medications (Ziem 1994).

(vi) Controlling neighborhood pesticide exposure (Ziem 1994).

(vii) Do you need to move to another dwelling (Shayevitz 1991)?

(3) Going to Work:

Improving air quality.

Understanding the Americans with Disabilities Act, reasonable accommodations, e.g., special filtering devices, no smoking policies, special parking area away from fumes, nontoxic cleaning products, nontoxic construction products, the elimination of air fresheners, other environmental controls. Reading material: The ADA Handbook, The Rehabilitation Act of 1973, literature from the New England Center for Environmental Health Strategies, the government ADA hotline, and technical assistance line.

(4) Travel and Leisure: Creative but nontoxic projects and leisure activities . Car filters. Venturing out into the community safely (Shayevitz 1991, Ziem 1994).

(5) Networking: Publications and national organizations, information on chemicals, pesticides and product safety, support groups (Lamielle, Dadd).

(6) Nutrition:

(i) The mechanism of food allergy, food addiction, withdrawal, and repetitious eating.

(ii) Home testing of foods.

(iii) The rotary diversified diet.

(iv) Food families, cooking methods, recipes, and substitutions.

(v) Sources and supplements.

(vi) Reading food labels.

(vii) Understanding commercial preparation and packaging methods.

(viii) The healthy core shopping list (Golos, Rogers, Rockwell, Lamielle).

(7) Conservation of Energy: For personal hygiene, in the kitchen, housecleaning, shopping, washing clothes, daily activities (Shayevitz 1991).

(8): Exercise: cardiopulmonary conditioning, suggested training program, understanding the fit principle, training sensitive zone, exercise prescription (Shayevitz, 1991, McArdle, Katch).

(9) Emotion: Learning about oneself, interpreting what one has learned, acting on discoveries, knowing when to seek help (Baldwin, Beck, Singer).

Each lecture will be accompanied by written material so that by the time of discharge, the patient will have a virtual textbook of information which has been individualized for him/her.

Our education program will take the patients into the community on guided trips during the 4th week of the program where they can learn how to enjoy themselves while avoiding incitants. Damaging exposures however, are inevitable, but our patients will know exactly what to do to mitigate symptoms.

In every aspect of our treatment plan, from avoidance techniques to the zealous pursuit of happiness, the patient will be given his own individualized self- directed plan. At a minimum, at discharge from the unit the patient will (1) understand his individual avoidance regimen, (2) know how to work and spend leisure time safely, (3) understand proper diet, and (4) follow prescribed exercise plan safely. A thirty day treatment plan is just a start for these patients who have been ill for 4 years, but our aim will be to " propel" the patient into momentum for getting well rather than ever retreating into a porcelain village . (Ziem, 1994,1991, Rea 1992, Rogers, Dadd, Randolph et al., Gorman, Golos, 1992, 1987, Samet)

**5. Exercise /Sauna program:**

A significant number of toxic chemicals are lipid or fat soluble and tend to bioaccumulate, particularly in the fatty tissues throughout the body. This is a significant point, for once these types of chemicals enter the body's fat stores they are not easily removed by natural physiological mechanisms. In fact, establishment of a normal body weight will be important in this program. Studies of organohalide levels in adipose tissue have shown that over 90%, and in some cases even 100% of the sample collected, had detectable levels of DDT, dieldrin, apatichlor, apoxide and PCB (Root). In 1973, PPB, a fire retardant, was substituted for cattle feed supplement in the state of Michigan, contaminating milk and meat.

In 1978, 97% of 1,000 individuals tested in Michigan had detectable PPBs in their adipose tissues and several studies have estimated that these residents may in fact bear a toxic burden throughout their lifetime (Wolff, 1979, 1982 ).

The exercise sauna treatment developed by Hubbard (Ashford) has been shown to reduce chemical burdens in humans., The sauna program consists of forced sweating at 140 degrees Fahrenheit immediately following physical exercise. We will begin with 10 minutes, excusing the veteran promptly if any discomfort or dizziness occurs. We will gradually increase the sessions by 2 minutes at a time until we reach a maximum of 30 minutes per sauna session. There will be 5 to 6 sauna days per week. There will be careful attention paid to pre- and post-sauna weight, blood pressure, temperature and pulse. Minerals and fluids will be added to replace those lost by sweating. Ten to fifteen per cent of toxic materials excreted through the body will be present in sebaceous sweat.

In a study by Root presented at the Proceedings of the National Conference on Hazardous Wastes and Environmental Emergencies, 15 symptoms of a chemically exposed population, which appear to be identical to those of the Persian Gulf veterans, including rash, weakness, incoordination, fatigue, nervousness, headaches, joint , muscle pain and abdominal pain, were compared with those of a healthy population. In general, the symptoms were approximately 2 to 4 times more common in the chemically exposed population. After treatment in the exercise sauna programs, symptoms significantly improved (Root, Ziem 1994, Ashford).

A principle component of the exercise training will be aerobics. This will result in an increase in trained muscles' capacity to mobilize and oxidize fat. Aerobic exercise increases the activity of fat mobilizing enzymes. At any submaximal work rate a trained person uses more free fatty acids for energy than his untrained counterpart. Aerobic exercise also contributes to other advantages in stroke volume, cardiac output, oxygen extraction, heart rate during exercise and respiratory function. Exercise produces endorphins which improve mood and exercise means strength and self empowerment.

Another component of our training program will be that of strength training (anaerobic exercise). Both men and women often lack sufficient strength to successfully perform activities which will greatly enhance their life after leaving the program such as tennis, golf, skiing and dancing. Appropriate forms of muscular overload activity improves muscular strength and also has a favorable effect on body composition (Katch).

Each patient will receive an exercise prescription based on working at 70-85% of the maximal heart rate, which will be estimated at 220 minus the age and is called the Training Sensitive Zone (TSZ). Time in the training zone will vary for each participant according to their individual fitness level, with the ultimate goal to be able to work at this level for 30 minutes. The higher levels of Training Sensitive Zone will be utilized in the aerobic portions of the program. In the anaerobic portion, or circuit training, veterans may find it more comfortable to work at the lower end of the TSZ, approximately 60-75% of max.

A key team member will be a trained exercise scientist whose credentials are approved by Professor Frank Katch of the University of Massachusetts Exercise Science Department. Dr. Katch has agreed to join the team as consultant in the writing of a detailed manual and to ensure quality control he will monitor random sessions and provide patient and staff education.. The exercise scientist will initiate a program of circuit weight training. Circuiting modifies the standard approach to strength training, de-emphasizing heavy local muscle overload in order to provide a more general total bodily conditioning. This can be expected to improve body composition, muscular strength, and endurance. In a circuit program a person lifts a weight that is 40-55% of his or her maximum strength. It is then lifted as many times as possible for 30 seconds. After an individually determined rest period, the participant moves to the next weightlifting station until the circuit is completed. Four exercise stations will be utilized and the circuit will be repeated several times to eventually allow for 20--30 minutes of continuous exercise. As strength increases, the weight in each station will be increased and the rest periods decreased. A circuit program will be carried on every other day or equivalent throughout the 30-day stay. Light free weight lifting will also be utilized.

The second component of this program will be that of interval training. This will include an aerobic program with repeated exercise bouts with rest or relief intervals varying from several minutes to several seconds as the program progresses. The prescription will be modified in terms of intensity and duration of exercise interval, the length and type of relief interval and the number of work intervals, repetition blocks or sets per workout to meet the specific requirements and individual fitness levels of these veterans. Interval training produces high intensity intermittent exercise for a relatively long period. For example, few people can run at a 4-minute mile pace for longer than a few minutes. However, if running intervals are limited to only 15-30 seconds, followed by rest intervals, the patient is able to accomplish a significant amount of high intensity exercise with proper spacing of rest and work intervals. This allows a significant aerobic exercise without an appreciable buildup of lactic acid, thus reducing fatigue. Recovery takes place more quickly (Katch).

Patients will also be introduced to simple aerobic techniques using running in place, moving to music, and jumping rope. Continuous training involving steady-paced exercise performed at moderate levels for sustained periods of time will be employed, but of sufficient energy intensity to ensure physiological improvements and mobilization of fat. This continuous exercise training will be submaximum and will be able to be engaged in for considerable time in relative comfort 7 days a week over the 30-day period and will be ideal for use in the postdischarge phase of treatment.

Each facet of the exercise program will contain the following components:

1. A warm-up walk and gentle movement phase lasting 5 minutes.

2. Stretching and flexibility exercises, to include gastrocnemius stretching, Achilles tendon stretching, quadriceps stretch, side stretch, and total body stretch.

3. Warm-up.· Veterans will exercise beginning at a very low level, gradually increasing the pulse rate to that just below each individual TSZ over the next 7 minutes.

4. Training Sensitive Zone time. The effort will be increased and the heart rate will be brought into the prescribed range. This time will vary according to the individual's fitness. Veterans will be allowed to exercise only to the point of feeling they have worked but are not exhausted, that they feel elated and not depressed, sore, or stiff. They may not exercise over that point at which they cannot say four words without taking a breath or at which they feel chest pain, dizziness or anxiety. If possible, for each individual, time in the TSZ will be increased to 30 minutes.

5. Cool-down. This is a time to allow heart, lungs and muscles to recover gradually. It is an opportunity for the large pool of blood that will now be located in the extremities to be redistributed back to the central part of the body. In this phase the participants will gradually return to the warm-up walk rate over a period of 5-10 minutes. At the completion of the cool-down the pulse should be below 120 or back to resting level.

6. Post-cool-down stretching and flexibility. The object of this phase will be to relieve the increased contraction of muscles which occurs during strenuous exercise and decrease the number of post-exercise aches and pains, as well as contribute further to overall suppleness and flexibility. All stretching flexibility exercises are repeated at this point. 10 min.

The exercise might be divided as follows:

Days 1, 3 and 5: Moderately low-level aerobics with circuit training.

Days 2, 4 and 6: High-level aerobics with interval training.

Day 7: Low-level aerobics, light free weight lifting.

**6. An Example of a Daily schedule:**

Dressed, washed and have eaten breakfast by 8:00. 8:15 - 9:15, rounds.

Nine-fifteen to 11:00, exercise/sauna therapy.

Stress management, 11:30-12:30

Lunch and rest period, 12:30-1:30

1:30-2:15, Education.

2:15-4:30, Cognitive group/individual therapy.

Supper, 5:00

6:00, evening program: study course material, take tests, reading assignments and prepare reports, social interaction, recreational activities.

10:00, lights out

Weekend program

Occupational therapy, 9:00-10:00

Exercise/sauna program, 10:00-11:30

11:30-12:15, Education -- Review of week's lectures

Lunch

1:00-3:00, games: backgammon, bridge teacher, bridge, chess

meditation, reflection, prayer with hospital chaplain

5:00, Supper

Evening, entertaining movies, complete studies for the next week's educational program

**III. Personnel**

The interdisciplinary team is key to the success of this treatment program. Members of the team will include not only the Psychologist, Psychiatrist, Medical Director, Social Worker, Exercise Scientist, Nurses, Nurse Practitioner, but also the Janitors, Dietitian, Food Service Workers, Engineers, Pharmacist, Respiratory Therapist, and Laundry Workers. It is imperative that each member of the team be given the specific education necessary to his/her part of this program. The team must remain as permanent as possible. The Program Director will be responsible for training of all team members, for the choosing of each individual team member in concert with the Chief of Medicine and the Chief of Staff and all members will be detailed to the medical service under a matrix design. Usage of the Matrix Management Method will ensure that all team members are responsible to one person and that they will not be removed from the Environmental Unit, thus necessitating retraining of personnel , diminishing the time spent in patient care. **Adverse effects in patients resulting from contamination of the air, food or water will invalidate the research. It is therefore imperative that the Program Director be in control of all aspects of patient environment and treatment.** Team members must be non-smokers and refrain from wearing scented toiletries. Their uniforms and clothes must be

washed in the identical manner to that of the patients. Staff who cannot comply with this contract will not be eligible for interdisciplinary team membership.

The program director will further be responsible for the necessary thorough environmental history and the development of any individualized aspects of the treatment program. She will guide the patient through the gamut of reactions which may occur during treatment, aid in the recognition of environmental hazards unique to each patient and prescribe the necessary environmental controls and nutritional support. The program director will be responsible for the operation of the outpatient program to ensure continuity of care and patient follow-up.

The nurse practitioner will assist the Program Director, will help to see in and out patients, and also coordinate the education program.

The social worker will play an active role in group, individual and family therapy, will help secure safe housing and workplace accommodations for the patient and follow the patients in the post-hospitalization phase of treatment to ensure proper follow-up.

The psychologist and psychiatrist will provide individual, group and family therapy, and contribute to continuity of care by providing therapy on an outpatient basis both for individuals and for groups.

The nutritionist will oversee all aspects of the diet and will participate in the patient education program. She will devise food substitutions when allergies occur using her knowledge of food families ; she will collate the diet diaries.

The nurses will provide the constant supervision required to detect reactions in their earliest phases.

The secretary will enter all data collected on the computer.

The team chaplain will hold regular sessions using prayers, readings, meditations, reflections and music.

Vocational Rehabilitation referrals will be made as required.

**IV. Post Hospital Treatment:**

The program director, nutritionist, exercise therapist, psychiatrist, social worker and psychologist will hold outpatient office hours once weekly for follow up care. Patients will be seen in groups the size determined by the current patient census. For those patients unable to come to the medical center, telephone interviews will be held.

Post treatment schedule: Visits at one, three, six, nine and 12 months.

There will also be a bi-monthly support group run by the Psychologist and a similar group run by the team social worker.

There will be regularly scheduled supervised outpatient exercise training sessions.

Psychological and physiological outpatient testing will occur according to the schedule outlined in the Evaluation Protocol.

The social worker will provide a valuable link with other VAMC'S, help to secure safe work accommodations and link with the families.

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# Appendix A

## Instructions for the Screening Team

## INSTRUCTIONS FOR SCREENING TEAM

A. Check the application for admission. This application is divided into 5 sections printed in bold and labeled 1 to 5. It is expected that all "Yes" answers will be given confirming presence in the Persian Gulf, a metabolic screen score of 30 to 160 points and at 1 symptom with a ranking of 3 or 4 in at least 2 categories, 1 or more chemical exposures in the Gulf, recognition of 2 or more environmental triggers, and a completed informed consent. If all answers are "Yes," proceed with B.

B. Check the physician's summary on the back of Part V, Defined Data Base, Physical Examination, VA Form 10-7978e.

We would expect in this section the physician will check all "No" answers to such questions as: the temperature is over 100; blood pressure over 150/90; significantly enlarged glands in neck or elsewhere in the body; enlarged liver; enlarged spleen; abnormal mass anywhere in the body; red, hot, tender or swollen joints; deformity or condition which would exclude participation in an exercise program or exclude diagnosis of MCS. The laboratory/radiology summary should have all "No" answers.

There is one exception. It will not matter whether the physician answers "Yes" or "No" to the question regarding the sinus series..

Look at the scoring sheet labeled "Profile of an Eligible Patient." All accepted patients will have this profile.

## APPLICATION FOR ADMISSION

**A. Please check sections (1-5) on the application for admission.. There will be five sections. In order to be eligible for acceptance, the answer must be "Yes" in all sections.**

**Section 1.** Presence in Persian Gulf era confirmed. __ Yes ___ No
**Section 2.** Metabolic Screen: Does the candidate score 30-160 points
score of 3-4 in at least 2 categories __Yes ____No

**Section 3.** Gulf exposure history: Does the applicant answer yes to any of the identified exposures? Confirm one or more ___ Yes ___ No

**Section 4.** Other environmental questions: Does the applicant answer yes to one or more exposures? ___ Yes ___ No

**Section 5.** Treatment Program (Informed Consent): All eligible candidates must initial each line of the identified conditions of treatment ___ Yes ___ No

Check Physician's Summary on the back of Form 10-7978e.

**B. Physical Examination: All answers for eligible candidates will be "No"**

- Fever? ___Yes ___No
- Blood pressure > 150/90 ___ Yes ___No
- Significantly enlarged lymph glands in neck or elsewhere in the body ___Yes ___ No
- Enlarged liver ___ Yes ___ No
- Enlarged spleen ___ Yes ___ No
- Mass anywhere in body ___ Yes ___ No
- Red hot tender or swollen joints ___ Yes ___ No

Check Physician's Summary on the back of Form 1-7978e.

**C. Laboratory/Radiology Findings: All answers for eligible candidates will be "No"**

- Sed rate > 20 mm ___ Yes ___ No
- WBC > 12,000 , HGB < 12 gr. ___ Yes ___ No
- Elevated Liver Enzymes ___ Yes ___ No
- Billirubin over 2 ___ Yes ___ No
- Stools positive for Ova and Parasites ___ Yes ___ No
- EKG consistent with myocardial ischemia or infarct ___ Yes ___ No
- Positive biopsy for Leischmaniasis ___ Yes ___ No
- Elevated TSH, T3, T4, FTI. or low T3, T4, FTI ___ Yes ___ No
- More than 1 plus protein in the urine ___ Yes ___ No
- Fasting blood sugar > 120 ___ Yes ___ No
- Elevated BUN or creatinine ___ Yes ___ No
- CT of brain shows mass (patient describes headaches) ___ Yes ___ No
- Sinus series is abnormal (patient describes headaches) ___ Yes ___ No
- Abnormal chest X-ray ___ Yes ___ No

## Profile of an Eligible Patient

**1. Application for Admission: All answers for accepted candidates will be "Yes"**
**Check only sections in bold print (1-5).**

| | | |
|---|---|---|
| • Presence in Persian Gulf era confirmed. (1.) | X Yes | ___No |
| • Metabolic Screen: Score 30-160 points (2) | X Yes | ___ No |
| • Symptoms coincide with those positive on MSQ and/or Chief Complaint | X Yes | ___ No |
| • Gulf exposure history:? Confirm one or more (3.) | X Yes | ___ No |
| • Other environmental questions: confirm one or more (4.) | X Yes | ___ No |
| • Patient Contract. (5) All lines initialed | X Yes | ___ No |

**2. Physical Examination: All answers for eligible candidates will be "No"**

| | | |
|---|---|---|
| • Fever | ___Yes | X No |
| • Blood pressure > 150/90 | ___Yes | X No |
| • Enlarged lymph glands in neck or elsewhere in the body | ___ Yes | X No |
| • Enlarged liver | ___ Yes | X No |
| • Enlarged spleen | ___ Yes | X No |
| • Mass anywhere in body | ___ Yes | X No |
| • Red hot tender or swollen joints | ___ Yes | X No |

**3. Laboratory/Radiology Findings: All answers for eligible candidates will be "No"***

| | | |
|---|---|---|
| • Sed rate > 20 mm | ___ Yes | X No |
| • WBC > 12,000 , HGB < 12 gr. | ___ Yes | X No |
| • Elevated Liver Enzymes | ___ Yes | X No |
| • Billirubin over 2 | ___ Yes | X No |
| • Stools positive for Ova and Parasites | ___ Yes | X No |
| • EKG consistent with myocardial ischemia or infarct | ___ Yes | X No |
| • Positive biopsy for Leischmaniasis if done | ___ Yes | X No |
| • Elevated TSH, T3, T4, FTI. or low T3, T4, FTI | ___ Yes | X No |
| • More than 1 plus protein in the urine | ___ Yes | X No |
| • Fasting blood sugar > 120 | ___ Yes | X No |
| • Elevated BUN or creatinine | ___ Yes | X No |
| • CT scan of brain, if done, shows mass | ___ Yes | X No |

- Chest X-ray is abnormal __ Yes _X_ No
- Sinus series normal or abnormal OK

**PERSIAN GULF LABORATORY WORK**

1. CBC
2. T and B lymphocytes, helper/suppressor ratio, natural killer cells
3. Sed rate
4. Antinuclear antibody
5. Serum immunoglobulin IgG , Ig E, IgM, IgA
6. Liver profile,Serum GGT
7. Stool for ova and parasites (3)
8. Eosinophil count
9. Urinalysis
10. Serum B12 and folate
11. T3, T4, TSH
12. Hepatitis screening tests For A B And C
13. Electrolytes, fasting blood sugar,Magnesium, Calcium, Phosphorous

4. BUN creatinine
5. Stool for occult blood, WBC
6. Rheumatoid factor

# Appendix. B.

## Application for Admission.

## APPLICATION FOR ADMISSION

**1.** Are you a Persian Gulf Era Veteran?
From:____ Month ____Year To: ____Month____Year

When did you first become ill? _____Month _____ Year
Are you ill now? Y N

**2.** Metabolic Screening

Chief complaint (single worst symptom):

_____

_____

List four other complaints (symptoms) in order of severity:
1. _____ 2. _____
3. _____ 4. _____

Rate each of the following symptoms based upon your health for the past 30 days:

Point Scale: 0 = never or almost never have the symptom
1 = occasionally have it, effect is not severe
2 = occasionally have it, effect is severe
3 = frequently have it, effect is not severe
4 = frequently have it, effect is severe

Digestive:
___ Nausea or vomiting
___ Constipation
___ Belching, passing gas
___ Diarrhea
___ Bloated feeling
___ Heartburn
___ TOTAL

Ears:
___ Itchy ears
___ Drainage from ear
___ Earaches, ear infection
___ Ringing in ears, hearing loss
___ TOTAL

| | | |
|---|---|---|
| **Emotions:** | ___ Mood swings<br>___ Anger, irritability | ___ Anxiety, fear, nervous<br>___ Depression<br>___ TOTAL |
| **Energy/Activity:** | ___ Fatigue, sluggishness<br>___ Hyperactivity | ___ Apathy, lethargy<br>___ Restlessness<br>___ TOTAL |
| **Eyes:**<br>eyelids | ___ Watery, itchy eyes<br>___ Dark circles under eyes | ___ Swollen, reddened or sticky<br>___ Blurred/tunnel vision<br>___ TOTAL |
| **Head:** | ___ Headaches<br>___ Dizziness | ___ Faintness<br>___ Insomnia<br>___ TOTAL |
| **Lungs:** | ___ Chest congestion<br>___ Shortness of breath | ___ Asthma, bronchitis<br>___ Difficulty breathing<br>___ TOTAL |
| **Mind:** | ___ Poor memory<br>___ Poor concentration<br>___ Difficulty making decisions<br>___ Learning disabilities | ___ Confusion<br>___ Poor coordination<br>___ Stuttering, stammering<br>___ Slurred speech<br>___ TOTAL |
| **Mouth/Throat:** | ___ Chronic coughing<br>___ Sore throat, hoarse<br>___ Swollen or discolored tongue, gums, lips | ___ Gagging, frequent need to clear throat<br>___ Canker sores<br>___ TOTAL |
| **Nose:** | ___ Stuffy nose<br>___ Hay fever<br>___ Excessive mucous | ___ Sinus problems<br>___ Sneezing attacks<br>___ TOTAL |
| **Skin:** | ___ Acne<br>___ Hair loss | ___ Hives, rashes, dry skin<br>___ Flushing or flashes |

| | | |
|---|---|---|
| | ___ Excessive sweating | ___ TOTAL |
| Heart: | ___ Skipped heartbeats<br>___ Chest pain | ___ Rapid heartbeats<br>___ TOTAL |
| Joints/Muscles: | ___ Pain or aches in joints<br>___ Stiffness, limited movement | ___ Arthritis<br>___ Pain, aches in muscles<br>___ Feeling of weakness or tiredness<br>___ TOTAL |
| Weight: | ___ Binge eating/drinking<br>___ Overweight<br>___ Water retention | ___ Craving certain foods<br>___ Compulsive eating<br>___ Underweight<br>___ TOTAL |
| Other: | ___ Frequent illness<br>___ Genital itch, discharge | ___ Frequent or urgent urination<br>___ TOTAL |

_____ GRAND TOTAL

Add up the numbers to arrive at a total for each section, then add the totals for each section to arrive at the grand total.

## 3. GULF EXPOSURE HISTORY

**Were you exposed to oil, smoke, products of combustion, pesticides or other fumes: ___Daily ___Weekly ___Monthly ___Rarely**

**___Yes ___No Kerosene heaters fueled with diesel (or Mogas blend) in sleeping or work tent/bldg.**
**___Daily ___Weekly ___Monthly ___Rarely**

**___Yes ___No Diesel portable field heater that fumed and smoked in sleeping or work tent.**
**___Daily ___Weekly ___Monthly ___Rarely**

__Yes __No Admin. Bldg/tent heated with Herman Nelson heater
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Fuel spills and sprays on hands, arms, body or hands in diesel to clean parts.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Clothing areas were oily from oil well fire and smoke
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Directly downwind of, or walked over ground soaked with fuel oil around base camp/work areas for dust control.
___Daily ___Weekly ___Monthly ___Rarely_

__Yes __No Fuel in shower water
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Drove diesel trucks or tanks in, or out of the unventilated holds of ships at port
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Worked in mess tent with M-2 burners
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Used in-vehicle, nighttime, diesel heater during downtime in _____M-1A1 tank, or _____ other tracked vehicle
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Was on burn detail for human waste using gasoline/diesel fuels .
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Got fogged heavily with pesticides
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Unloaded pesticide treated equipment
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No __Don't know I took the anthrax vaccine

__Yes __No I took the anti-nerve gas pill. How many? _____

__Yes __No __Don't know I took the botulism vaccine

__Yes __No Performed duty at a toxic landfill and staging area called Whiskey Hotel or similar.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Refueled truck tankers topside, exposing self to fuel vapors rising from the large top portal.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Served duty on a ship with petrochemicals entering the water supply via its desalinization system.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Stood in tracked vehicle exhaust to stay warm.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Stood above and around fumes from concentrated battery acid while filling new batteries for installation.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Stationed downwind/near the world's largest petrochemical plant & ammonia plant near Al Jubayl. ___ Miles

__Yes __No Had physical contact/inhalation of Carc paint from freshly painted tracked vehicles and storage containers.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Contact with smoke from oil well fires.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Diesel fuel sprayed in the encampments to keep the dust down.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Diesel fuel in the shower water.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Diesel fuel in the drinking water.
___Daily ___Weekly ___Monthly ___Rarely

__Yes __No Was in areas where animals/livestock/insects had all died.
___Daily ___Weekly ___Monthly ___Rarely

## 4. OTHER ENVIRONMENTAL QUESTIONS

If yes, what symptoms?

Do you notice an increase in symptoms in:

place of worship __Yes __No Symptoms: _____
malls or shopping centers
___ Yes ___ No Symptoms: _____
school ___ Yes ___ No Symptoms: _____
particular classroom
___ Yes ___ No Symptoms: _____
car ___ Yes ___ No Symptoms: _____
gas station __ Yes __ No Symptoms: _____
beauty parlor, hair stylist
___ Yes ___ No Symptoms: _____
fabric store __Yes __No Symptoms: _____
carpeting stores Yes __No Symptoms: _____
hospital ___ Yes ___ No Symptoms: _____

going down soap aisle in grocery store

___ Yes ___ No Symptoms: _____

Other _____

Do these products bother you?

Gasoline products

___ Yes ___ No Symptoms: _____

Exhaust fumes

___ Yes ___ No Symptoms: _____

Soaps, detergents

___ Yes ___ No Symptoms: _____

Fabric softeners

___ Yes ___ No Symptoms: _____

Bleaches ___ Yes __ No Symptoms: _____

Chlorinated water

___ Yes ___ No Symptoms: _____

Ammonia __ Yes __ No Symptoms: _____

Polishes, floor waxes

___ Yes ___ No Symptoms: _____

Insect sprays

___ Yes ___ No Symptoms: _____

Mosquito spray

___ Yes ___ No Symptoms: _____

Moth balls __ Yes __ No Symptoms: _____

Asphalt, tar

___ Yes ___ No Symptoms: _____

Disinfectant, sprays/liquid

___ Yes ___ No Symptoms: _____

Rubber products

___ Yes ___ No Symptoms: _____

Varnish, paint, shellac

___ Yes ___ No Symptoms: _____

Hair sprays __ Yes __ No Symptoms: _____

Cosmetics ___ Yes __ No Symptoms: _____

Perfumes ___ Yes __ No Symptoms: _____

Newsprint __ Yes __ No Symptoms: _____

Tobacco smoke

___ Yes ___ No Symptoms: _____

Metals

Nickel __ Yes __ No Symptoms: _____

Mercury __ Yes __ No Symptoms: _____

Inexpensive earrings

___ Yes ___ No Symptoms: _____

Other _____

## 5. PATIENT CONTRACT

The statements below describe the conditions you'll be required to meet as part of the treatment. Please read each carefully and initial each line signifying that you agree.

_____If I smoke/chew tobacco I will stop before admission
_____If I drink, I will give up all alcohol
_____If I drink Diet Coke or similar I will give up drinking this and all sodas
_____I am willing to give up chocolate.
_____I understand there will be no passes and visitation may be limited.
_____I will participate in the education program, which includes study and homework..
_____I am willing to make many lifestyle changes during the program and after I am discharged.
_____I am willing to go on a regulated diet, including a liquid diet for 4 days.
_____I will eat only what is served to me. This may be only one food (portion size unlimited) at each meal.
_____I will actively participate in an exercise program tailored for me.
_____I am willing to accept psychological support and learn to look at things a new way.
_____I will not expect to leave the unit except on authorized trips for my 30-day stay.
_____I understand that during the detoxification process I may undergo withdrawal reactions such as headache, depressed feelings, feeling of anxiety and angry outbursts.

I have read all of the above. I understand and I will comply as checked, or, if accepted, I understand that failure to comply will result in immediate discharge.

Witness _____
Signature_____

Date _____

**BIBLIOGRAPHY**

Haines
American Academy of Environmental Medicine
Bland

Supplemental measurements for CFS + PTSD

**Questions to assess fatigue and chronic fatigue syndrome**

*If subject reports persistent fatigue as a symptom*, he/she is asked the following questions:

a. How often have you experienced this symptom in the past month?
CODE: How many times/past week?
[0] __ none now
[1] __ once
[2] __ 2-3 times
[3] __ 4-6 times
[4] __ > 7 times
[5] __ generally all the time
[8] __ don't know, can't determine

b. When you are experiencing this symptom in the past month, how long does it last?
[0] __ not experiencing now
[1] __ acute, one time, 1 day
[2] __ chronic, > 2-7 days
[8] __ don't know, can't determine

c. In the past month, how would you describe the intensity of the symptom?
[0] __ no discomfort
[1] __ mild, minimal, noticed but not bothersome
[2] __ moderate, some discomfort
[3] __ severe, considerable distress
[4] __ extreme, medical treatment, incapacitating
[8] __ don't know, can't determine

d. Have you lost work or had to take sick days in the past month as a result of the symptom?
[0] __ no
[1] __ yes, if yes, how many days?: _____

e. When did you first start experiencing this symptom?
Month/year _____

f. Is there anything specific that you think may have triggered the start of the symptom?

g. Now, when you experience the symptom, is there any particular circumstance that triggers it?

h. Compared to over the past year, how would you say the symptom has been in the past month? it getting worse, getting better or about the same?

[1] __ getting worse
[2] __ about the same
[3] __ getting better

In addition, the subject is asked:

A
1. Does the fatigue get better with bed rest? [0] ___ no [1] ___ yes
2. Have you had to reduce your average daily activities because of your fatigue? [0] ___ no [1] ___ yes
   If yes, how much? _____% reduction

3. What types of things don't you do now because of your fatigue?

B Is your fatigue accompanied by:

| | | |
|---|---|---|
| 1. Sore thoat? | [0] ___ no | [1] ___ yes |
| 2. Short-term memory loss? | [0] ___ no | [1] ___ yes |
| 3. Tender or sore lymph nodes? | [0] ___ no | [1] ___ yes |
| 4. Muscle pain? | [0] ___ no | [1] ___ yes |
| 5.Multijoint pain without joint swelling or redness? | [0] ___ no | [1] ___ yes |
| 6.Headaches of a new type, pattern or severity? | [0] ___ no | [1] ___ yes |
| 7. Unrefreshing sleep? | [0] ___ no | [1] ___ yes |
| 8. Malaise lasting more than 24 hours after exercise? | [0] ___ no | [1] ___ yes |

---

**For diagnosis of CFS [extracted from Fukuda et al., 1994]:**

1. A criteria--fatigue should not get better with bedrest, there should be a *substantial* reduction in daily activity, and it should have lasted for at least 6 consecutive months
2. B criteria-- positive endorsement of at least 4 of the 8 symptoms
3. If subject meets all the above criteria and does not report having a psychological or medical condition that would produce similar symptoms (refer to exclusion/inclusion list included in Fukuda et al., 1994), then he/she would be diagnosed with CFS.

NOTE: We also administer a Fatigue Questionnaire along with the SF-36 to get an indication of the subject's limitations.

(Office Use Only) ID # ___

**Here is a list of problems and complaints that veterans sometimes have. Please read each one carefully and then indicate, using the numbers to the right, how much you have been bothered by that problem in the PAST MONTH.**

| | Not at all | A little bit | Moderately | Quite a bit | Extremely |
|---|---|---|---|---|---|
| 1. Repeated, disturbing memories of your military experiences? | 1 | 2 | 3 | 4 | 5 |
| 2. Repeated, disturbing dreams of your military experiences? | 1 | 2 | 3 | 4 | 5 |
| 3. Suddenly acting or feeling as if your military experiences were happening again? | 1 | 2 | 3 | 4 | 5 |
| 4. Feeling very upset when something happened that reminded you of your military experiences? | 1 | 2 | 3 | 4 | 5 |
| 5. Trouble remembering important parts of your military experiences? | 1 | 2 | 3 | 4 | 5 |
| 6. Loss of interest in activities that you used to enjoy? | 1 | 2 | 3 | 4 | 5 |
| 7. Feeling distant or cut off from other people? | 1 | 2 | 3 | 4 | 5 |
| 8. Feeling emotionally numb, or being unable to have loving feelings for those close to you? | 1 | 2 | 3 | 4 | 5 |
| 9. Feeling as if your future will somehow be cut short? | 1 | 2 | 3 | 4 | 5 |
| 10. Trouble falling or staying asleep? | 1 | 2 | 3 | 4 | 5 |
| 11. Feeling irritable or having angry outbursts? | 1 | 2 | 3 | 4 | 5 |
| 12. Having difficulty concentrating? | 1 | 2 | 3 | 4 | 5 |
| 13. Being "superalert," or watchful or on guard? | 1 | 2 | 3 | 4 | 5 |
| 14. Feeling jumpy or easily startled? | 1 | 2 | 3 | 4 | 5 |
| 15. Having physical reactions when something reminds you of your military experiences? | 1 | 2 | 3 | 4 | 5 |
| ***In the last month, how much have you tried to:*** | | | | | |
| 16. Avoid thinking about your military experiences, or avoid having feelings about them? | 1 | 2 | 3 | 4 | 5 |
| 17. Avoid activities or situations because they reminded you of your military experiences. | 1 | 2 | 3 | 4 | 5 |

6c

## Fatigue Questionnaire

1. Have you been experiencing feelings of Fatigue in the past TWO weeks? By Fatigue we mean a sense of tiredness, lack of energy, or total body give-out.

[0] no ___
[1] yes ___

**If yes, please complete the following:** Please read each statement and choose a number from 1 to 7, where #1 indicates that you completely disagree with the statement and #7 indicates you completely agree. Please answer these questions as they apply to the past TWO WEEKS. [Indicate 'NA' if you feel question does not apply to you.]

**Circle the appropriate number!**

| Questions | Completely disagree | | | | | | Completely agree | |
|---|---|---|---|---|---|---|---|---|
| 1. I feel drowsy when I am fatigued. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 2. When I am fatigued, I lose my patience. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 3. My motivation is lower when I am fatigued. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 4. When I am fatigued, I have difficulty concentrating. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 5. Exercise brings on my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 6. Heat brings on my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 7. Long periods of inactivity bring on my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 8. Stress brings on my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 9. Depression brings on my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 10. Work brings on my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 11. My fatigue is worse in the afternoon. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 12. My fatigue is worse in the morning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 13. Performance of routine daily activities increases my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 14. Resting lessens my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 15. Sleeping lessens my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 16. Cool temperatures lessen my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 17. Positive experiences lessen my fatigue. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 18. I am easily fatigued. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 19. Fatigue interferes with my physical functioning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 20. Fatigue causes frequent problems for me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | N |
| 21. My fatigue prevents sustained physical functioning. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 22. Fatigue interferes with carrying out certain duties and responsibilities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 23. Fatigue predated other symptoms. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 24. Fatigue is my most disabling symptom. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 25. Fatigue is among my three most disabling symptoms. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |

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| Questions (cont.) | Completely disagree | | | | | | Completely agree | |
|---|---|---|---|---|---|---|---|---|
| 26. Fatigue interferes with my work, family, or social life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 27. Fatigue makes my other symptoms worse. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 28. Fatigue that I now experience is different in quality and severity than the fatigue I experienced before I developed this condition. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |
| 29. I experience prolonged fatigue after exercise. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | NA |

## Appendix C.

### Environmental History For Accepted Patients.

NOTICE TO PATIENTS:

You have already been accepted into the program. Please fill out this questionnaire as best you can and we will complete it with you upon arrival at the Northampton VAMC Environmental Health Unit.

NORTHAMPTON VAMC
ENVIRONMENTAL HISTORY

DATE _____

NAME_____ AGE _____

ADDRESS _____PHONE NO.(  ) _____

_____ZIP CODE_____

BIRTHPLACE_____ DATE OF BIRTH _____

Which Service? Rank and Title?
For what job did you train

What were your actual duties ?

Education:
Adults: ____ Grade school ____Years of high school ____Years of college
____Years of post graduate ____ Learning disabilities
Children: Grade school: ____ Grade High school: ____ Grade
Birth defects: ____ If yes, status post-Gulf service: ___ Yes ___ No

Goal in requesting treatment _____
_____
_____
General health information: Ht. ____ Wt. ____ BP (date) _____
When and where did you get your last physical check-up? _____
_____

MARITAL STATUS: ___ Single ___ Married ___ Widow(er)
___ Separated ___ Divorced

**OCCUPATION**_____ **HOBBIES**_____

LIST WORK HISTORY AND DATES PRIOR TO PERSIAN GULF._____

_____

_____

Any chemicals, fumes or combustion products involved?

Any other contact with chemicals fumes, combustion products at work or at hobbies or in any way:

At work, are your symptoms better
worse
the same

Are you bothered by smoking in your work place?

Any particular place or room at work which bothers you?

Have you been exposed to any of the following items at work presently or in previous jobs?

Asbestos
Chemicals
Fumes
Mists (like spray paints)
Biologics (blood, serum, etc.)
Dusts (grain, cotton)
Agricultural sprays

Do you think your work and/or machines have

anything to do with your symptoms?

Are there materials used at work that you think have something to do with your symptoms?

Describe these materials and/or machines/equipment

How long at this employment?

How many miles do you travel to work
by expressway miles?_____ Sideroads miles?_____

**CHIEF COMPLAINT AND PRESENT ILLNESS**

Chief complaint (YOUR SINGLE WORST SYMPTOM):_____
_____
_____

List four other complaints in order of severity:

1. _____ 2. _____

3. _____ 4. _____

Date main symptoms first began? _____
Began in what state or country? _____
How often do you feel ill? ____Daily ____Weekly or ____Times per month
What symptoms, if any, are always with you? (List in order of severity.)
1. _____
2. _____
3. _____
Never free of symptoms? ___Yes ___No
Free of symptoms? ___Yes ___No When? _____
Date main symptoms first began? _____
Began in what state or country? _____
How often do you feel ill? ____Daily ____Weekly or ____Times per month
What symptoms, if any, are always with you? (List in order of severity.)

1. _____
2. _____
3. _____

Never free of symptoms? ___Yes ___No
Free of symptoms? ___Yes ___No When? _____
Symptoms worse what time of day? ___Awakening ___Afternoon
___Evening ___Night
Symptoms are relieved by medication? ___Slightly ___Moderately
___Completely ___Not at all

Do you feel better at home, at work or outside?

Have you developed an intolerance for alcohol (can't drink the way you used to)?

Date or age main symptoms first began? _____

Began in what state or country? _____

If your symptoms are episodic --

When and where did latest episode begin and end? _____

How often do episodes occur? ___Daily ___Weekly or ___ Times Per Month

How long do they last? ___ Minutes ___ Hours ___ Days or ___ Weeks

What symptoms, if any, remain in between attacks? (List in order of severity)

1. _____

2. _____

3. _____

Never free of symptoms? ___ Yes ___ No

Free of symptoms? ___ Yes ___ No When? _____

Symptoms worse what time of day? ___ Awakening ___ Afternoon
___ Evening ___ Night

Symptoms are relieved by medication? ___ Slightly ___ Moderately
___ Completely ___ Not at all

Symptoms are associated with fever? ___Frequently ___Never

Symptoms are worse in the house after lights have been on an hour? ___Yes ___No

Early spring? __Yes __No In June? __Yes __No In September? __Yes __No

List current additional medical problems (symptoms): 1. _____

2. _____ 3. _____

Please answer these questions about your Gulf experience.

_Yes __No Saw body bags and caskets.

__Yes __No Heard forecast of large numbers of casualties

__Yes __No Was afraid of fighting in MOPP gear at high temperatures.

__Yes __No Had inadequate sleep.

__Yes __No Was frightened of poison gas attacks.

__Yes __No Was worried about mines.

__Yes __No Was worried about Scud attacks.

__Yes __No Heard poison gas alarms going off.

__Yes __No Had to sit in MOPP gear for more than one hour at a time.
How often?

## REVIEW OF SYSTEMS BY SYMPTOMS

SKIN: Check past or current skin symptoms:

| | | |
|---|---|---|
| ___ Eczema | ___ Redness | ___ Rash |
| ___ Itching | ___ Edema | ___ Cracking |
| ___ Bruise easily | ___ Weeping lesions | ___ Hives |

List the main skin areas involved: _____

Is your skin sensitive to? ___ Sun ___ Fabrics ___ Detergents ___ Other_____

Did you have unusually severe teenage acne? ___ Yes ___ No

Antibiotic given: ___ Yes ___ No How long: _____ Type: _____

HEADACHE AND CEREBRAL: Check items which apply to pain and intensity:

| | | |
|---|---|---|
| ___ Constant | ___ Throbbing | ___ Constriction |
| ___ Vise-like | ___ Excruciating | ___ Episodic |
| ___ Pulsating | ___ Tight | ___ Drawing |
| ___ Dull | ___ Burning | ___ Band-like |
| ___ Heaviness | ___ Sharp | ___ Boring |
| ___ Cap-like | ___ Soreness | ___ Cutting |
| ___ Pressure | ___ Cramp-like | ___ Acute |

| Check the location of head pain: | Character of pain: |
|---|---|
| ___ On right side of head | ___ Begins slowly |
| ___ On back of neck | ___ Lasts hours |
| ___ Back of the eyes | ___ Returns regularly |
| ___ In upper teeth | ___ Clears without treatment |
| ___ Top of head | ___ Clears with treatment |
| ___ Back of head | ___ Lasts seconds |
| ___ Forehead | ___ Lasts minutes |
| ___ Temple | ___ Lasts days |
| ___ On left side of head | ___ Begins suddenly |

___ On the crown of head
___ In the cheek
___ Episodic
___ Relieved by walking

Check items associated with headache:

___ Loss of sight
___ Dazzling lights
___ Diarrhea
___ Swelling of eye
___ Inflamed eye
___ Tearing of eye
___ Running nose
___ Nasal blockage
___ Visual disturbance
___ Pallor
___ Queasy stomach
___ Abdominal pain
___ Nausea
___ Vomiting
___ Neck/shoulder pain
___ Flushing
___ Chilly sensation

Check what your headache is preceded or worsened by:

___ Exercise
___ Odors
___ Alcoholic drinks
___ Arguments
___ Foods
___ Coffee/tea
___ Muscle strain
___ Unusual stimulation
___ Fear
___ Anger
___ Fasting
___ Disappointment
___ Intense light
___ Eye strain
___ Chilling
___ Intense thinking
___ Humidity
___ Overheating
___ Anxiety
___ Rejection
___ Infections
___ Motion
___ Noise

EYES: Check symptoms which apply:

___ Itching
___ Dryness
___ Sties
___ Puffiness
___ Bloodshot
___ Dark circles
___ Cataracts
___ Irritated
___ Burning
___ Crusty lids
___ Twitching lids
___ "Floaters"
___ Blurred vision
___ Glaucoma
___ Watering
___ Pain
___ Granulated lids
___ Swelling of lids
___ Mucus in eyes
___ Sensitive to light
___ Wear glasses

Are these symptoms present all year round? ___ Yes ___ No

Which is your worst season? ___ Spring ___ Summer ___ Fall ___ Winter

Which months: _____

EARS: Check symptoms which apply:

___ Hearing loss
___ Itching inside
___ Blocked sensation
___ Pressure
___ Serous otitis
___ Drainage
___ Nerve deafness
___ Crusting inside
___ Dizziness
___ Pain
___ Ever lanced
___ Tubes in ears
___ Wear hearing aid
___ Ringing/roaring
___ Sense of imbalance
___ Fluid accumulation
___ Frequent infections

Are these symptoms present all year round? ___ Yes ___ No

Which is your worst season? ___ Spring ___ Summer ___ Fall ___ Winter

Which months? _____

NOSE/SINUSES: Check each symptom which applies (to greater than normal degrees):

___ Itches
___ Sneezes
___ Burns
___ Post-nasal drip
___ No sense of smell
___ Other _____
___ Blocks
___ Bleeds
___ Blisters
___ Mucus yellow
___ Polyps
___ Runs
___ Crusts
___ Sinus infections
___ Mucus blood-streaked
___ Require nose drops/spray

Are these symptoms present all year round? ___ Yes ___ No

Which is your worst season? ___ Spring ___ Summer ___ Fall ___ Winter

Which months? _____

When? ___ Upon arising
___ Upon lying down
___ After meals
___ At night
___ After medicines
___ Cold ___ Hot ___ Dry

___ Other _____

Do you experience a profuse watery discharge from nose and nasal stuffiness, followed in 36 to 48

hours by purulent secretions and chest symptoms (such as a wheeze, cough, expectoration)?
___ Yes ___ No

MOUTH AND THROAT: Check symptoms which apply:

___ Cracked lips/corners
___ Sleep with mouth open
___ Sore/raw tongue
___ Throat/palate itch
___ Throat clearing
___ Wear dentures
___ Bad taste
___ Chapped lips
___ Hoarseness
___ Lose voice
___ Difficult swallowing
___ Throat closes
___ Grind teeth in sleep
___ Bad breath
___ Fever blisters
___ Tongue swollen
___ Sore throats
___ Teeth pain
___ Fillings, which type?
_____

Do you ever have swollen neck glands? ___ Yes ___ No

If you use any of the following, indicate the brand name:

Toothpaste _____ Dentifrice _____ Mouthwash _____
Tobacco _____ Chewing gum_____ Cough drops _____
Chapstick _____ Lipstick _____
Adhesive for dental plates _____

CARDIAC: Check any chest symptom you have now or have had in the past:

___ Rapid heart
___ Heart enlargement
___ Skipped beats
___ Chest pains
___ Murmurs
___ Ankle swelling

Which is your main symptom? _____

List diagnosis if made _____

When is this symptom worse?
___ Morning
___ Mid to late morning
___ Mid to late afternoon
___ Night
___ Spring
___ Summer
___ Fall
___ Winter
___ Year Round
___ Other _____

If you take cardiac medications --

Which medications relieve you best? _____

How soon do these medications relieve you? _____

For how long do these medications relieve you? _____

RESPIRATORY: Check any symptom you have now or have had in the past:

___ Wheezing
___ Frequent colds
___ Frequent coughs
___ Cough dry
___ Cough mucus
___ Asthma
___ Frequent infections
___ Pleurisy
___ Tight chest
___ Short of breath
___ Bronchitis
___ Pneumonia
___ Night sweats/flushing
___ Heavy chest

How far can you walk vigorously before becoming short of breath? _____

Which is your main symptom? _____

When is this symptom worse?
___ Morning
___ Mid to late morning
___ Mid to late afternoon
___ Night
___ Spring
___ Summer
___ Fall
___ Winter
___ Year round
___ Other _____

Which medications relieve you best? _____

How soon do these medications relieve you? _____

For how long do these medications relieve you? _____

Do you smoke? ___ Yes ___ No How many per day? _____
How long have you smoked? _____

Have you ever smoked? ___ Yes ___ No How long did you smoke? _____

When did you quit? _____

GASTROINTESTINAL: Check symptoms which apply:

___ Heartburn
___ Bloating
___ Good appetite
___ Poor appetite
___ Picky eater
___ Cramping
___ Use laxatives
___ Mucus in stools
___ Ulcer
___ Indigestion
___ Flatulence
___ Queasy stomach
___ Frequent nausea
___ Frequent vomiting
___ Vomit blood
___ Diarrhea
___ Anal pain
___ Gallbladder trouble
___ Retaste food
___ Belch frequently
___ Bloody stools
___ Stomach aches
___ Constipated
___ Anal itching
___ Tarry stools
___ Rectal bleeding

Do these symptoms occur in relation to eating? ___ Yes ___ No

If so, what foods: _____

Do you take any "GI" medications? ___ Yes ___ No

If so, please list: _____

GENITOURINARY: Check items which apply:

___ Genital Herpes
___ Difficult urination
___ Sores
___ Have Trichomonas
___ Being treated for Trichomonas
___ Spouse being treated for Trichomonas
___ Itching
___ Burning
___ Kidney disease
___ Prostate trouble
___ Bladder disease
___ Syphilis
___ Pass blood
___ Bed wetting
___ Cystitis
___ Have/had cancer
Where _____
___ Kidney stones
___ Painful urination
___ Incontinent
___ Have discharge
___ Have yeast infection
___ Impotence
___ Frigidity
___ Other _____

MUSCULOSKELETAL: Check which items apply:

Do you have: Muscle pain? __ Yes __ No How severe: 1+__ 2+__ 3+__ 4+__
Joint swelling? __ Yes __ No How severe: 1+__ 2+__ 3+__ 4+__

Has fluid been removed from any joint? ___ Yes ___ No

Do you have morning stiffness? ___ Yes ___ No How long does it last? _____

If present, when did pain or swelling begin? _____

Is it steady or off and on? ___ Yes ___ No

Do you experience: Fatigue? ___ Yes ___ No

Check diagnoses you have been given by other physician:

___ Osteoarthritis
___ Rheumatic fever
___ Lupus
___ Collagen Vascular Disease
___ Convulsions
___ Rheumatoid
___ Multiple Sclerosis
___ Autoimmune Disease
___ Paralysis
___ Other _____

ENDOCRINE: Check items which apply:

Do you now have or have you ever had:

A weight loss of more than 5 pounds during the last 12 months? __ Yes __ No

A weight gain of more than 5 pounds during the last 12 months? __ Yes __ No

Lack of appetite? __ Yes __ No Notable increase in appetite? __ Yes __ No

Abnormal thirst? __ Yes __ No Diabetes or sugar in the urine? __ Yes __ No

Enlarged thyroid, goiter, over- or underactive thyroid? __ Yes __ No

Low blood sugar? __Yes __No

elling around eyes? ___ Yes ___ No

amps in the legs? ___ Yes ___ No

OMEN ONLY: Check which items apply:

___ Breast soreness before periods
___ Breast soreness during periods
___ Had breast biopsy
___ Other _____

___ Breast cysts or lumps
___ Breast soreness
___ Had mastectomy
___ Breast implants

ge at onset of menses? _____

___ Regular periods
___ Irregular periods
___ Scant flow
___ Heavy flow
___ Partial/total hysterectomy

___ Had D & C
___ Had miscarriage
___ Use lubricants
___ Use diaphragm

___ Use contraceptive pill
___ Use foam
___ Use douches
___ Pregnant now

hich of your symptoms do you have before periods? _____
ow long do they last? _____

hich symptoms do you have during periods? _____
ow long do they last? _____

hich symptoms do you have at ovulation? _____
ow long do they last? _____

ge at menopause? _____ Taking which hormones? _____

urgery of the uterus, ovaries, etc.? ___ Yes ___ No

f yes, please specify _____

esareans? ___ Yes ___ No If yes, when? _____

reast surgery? ___ Yes ___ No If yes, when? _____

How many pregnancies? _____ How many children born alive? _____

How many premature births? ____ How many stillbirths? ____ How many miscarriages? ____

Any complications with pregnancies? ___ Yes ___ No

If yes, please specify and state when? _____

Any adopted children? ___ Yes ___ No

NEUROLOGICAL/PSYCHOLOGICAL: Check items which apply:

___ Weakness in limb
___ Numbness
___ Tingling
___ Abnormal gait
___ Tremor
___ Convulsions
___ Dizziness
___ Fainting spells
___ Blackouts
___ Amnesia
___ Had shock therapy
___ Frequently keyed up and jittery
___ Shaky
___ Startled by sudden noises
___ Often feel suddenly scared
___ Go to pieces easily
___ Forgetful
___ Listless
___ Stuporous
___ Withdrawn feeling
___ Feel "lost" in time
___ Had a nervous breakdown
___ Family member had nervous

___ Blurred vision
___ Double vision
___ Foot drop
___ Spinal pain
___ Neck pain
___ Feel groggy
___ Unable to concentrate
___ Short attention span
___ Vision changes
___ Unable to reason
___ Considered a nervous person
___ Worried by little things
___ State of anxiety
___ Unusual tension
___ Frustration
___ Numbness
___ Often break out in cold sweats
___ Sweats
___ Profuse sweating
___ Depressed
___ Psychiatric care
___ Have difficulty staying awake
___ Daytime sleepiness

___ Abnormal EEG
___ Diagnosis of Multiple Sclerosis
___ Lack of coordination
___ Tics
___ Back pain

breakdown
___ Use tranquilizers
___ Hospitalized for nerves
___ Aggressive
___ Misunderstood by others
___ Irritable
___ Easily flare in anger
___ Feeling of hostility
___ Undue fatigue
___ Pale
___ Hyperactive
___ Restless legs
___ Considered clumsy
___ Unable to coordinate muscles
___ Have difficulty falling asleep
___ Have difficulty staying asleep
___ Sleep walking
___ Often awakened by frightening dreams

___ Am a workaholic
___ Often unable to perform work
___ Have had hallucinations
___ Have had visions
___ Have heard voices
___ Am being controlled by other forces
___ Have seriously considered suicide
___ Have overused alcohol
___ Cry often
___ Often unhappy
___ Feel insecure
___ Have overused drugs
___ Been addicted to a drug
___ Extremely shy or sensitive
___ Other _____

Tell us anything you would like about your daily life: _____

_____

_____

ENVIRONMENT: Check items which apply:

Do you live in an apartment? ___ Yes ___ No How old? _____

Do you live in a house? ___ Yes ___ No How old? _____

Other type of housing: Mobile home, farm, etc. Be specific: _____

Is there a garage attached? ___ Yes ___ No

Is there an abundance of vegetation immediately around your home? __Yes __No

Does your home tend to get dustier than other homes? ___ Yes ___ No

Does your home tend to get drier than other homes? ___ Yes ___ No

Does your home have a basement? ___ Yes ___ No

Have you ever noticed mold or mildew in your home (basement, bathroom, closet, windowsills, etc.)? ___ Yes ___ Nov

Any strong odors you notice that bother you that never did before? List:

_____

At home, are there:
new furniture or carpets
dust
mold
gas heat
smoke
waterbed
particle board in your bedroom
foam mattress - foam pillows

POLLEN: Check items which apply:

___ Worse outdoors
___ Worse on windy days
___ Watering of eyes
___ Itching of eyes
___ Redness of eyes
___ Worse on clear sunny days
___ Worse outdoors from 7-11 a.m.
___ Air conditioning helps

Do you flare when going from an air conditioned room to open air? __ Yes __ No

Does the cool air of air conditioning increase your symptoms? __ Yes __ No

Are nasal and eye symptoms both present? __ Yes __ No

Do you notice a flare of your symptoms on known high pollen days? __ Yes __ No

Are your symptoms: Worse in spring? ___ Yes ___ No
Worse in summer? ___ Yes ___ No
Worse in fall? ___ Yes ___ No

DUST: Check items which apply:

__ Worse indoors __ Better outdoors __ Dusting or sweeping increases symptoms

Flare shortly after going to bed? ___ Yes ___ No

Symptoms accentuate on waking? ___ Yes ___ No

Symptoms recur or increase each year with the return of cold weather? __Yes __No

Do you experience definite nasal symptoms:

With little or no itching of your eyes? ___ Yes ___ No
With itching of your eyes? ___ Yes ___ No

Do you experience? ___ Sinus headaches ___ Frequent colds
___ Productive cough ___ Purulent secretions
___ Intermittent fever ___ Worse in damp air

Are your symptoms worse when furnace goes on for the year? ___ Yes ___ No

Explain: _____

MOLD: Check items which apply:

___ Worse outdoors between 4:30 to 8:30 PM
___ Worse after sundown
___ Cool evening air increases your symptoms
___ Worse in damp places or low places in the road
___ Worse when mowing or playing on the grass
___ Symptoms worse from mid-July to November
___ Better in your house
___ Worse in certain room
Name it: _____
___ Flare in basement
___ Worse in a certain home
___ Worse in your house
___ Worse in other homes

___ Distinctly worse from September to frost
___ Definite increase of symptoms around October 1st
___ Worse on windy days
___ Especially worse with north wind
___ Flare around food mills (smut)
___ Other: _____

PILLOW: Check items which apply:

___ Feather
___ Foam rubber
___ Kapok
___ Synthetic
___ Down
___ Other_____

Spouse/roommate's pillow: _____

MATTRESS: Check items which apply:

___ Water bed
___ Cotton
___ Foam rubber
___ Conventional
___ Futon (cotton/foam)
___ Plastic covered
___ Box spring or innerspring
___ Other _____

Spouse/roommate's mattress: _____

BLANKETS: Check items which apply:

___ Wool
___ Cotton
___ Quilt
___ Synthetic

Spouse/roommate's: _____

ANIMALS OR PETS: Check items which apply:

___ Dog
___ Fish
___ Hamster
___ Other _____
___ Cat
___ Rabbits
___ Guinea pig
___ Bird
___ Horse (own/ride)
___ Cattle

Animals in house? ___ Yes ___ No Animals in bedroom? ___ Yes ___ No

PLANTS: Check items which apply:

Do you have indoor plants? ___ Yes ___ No

If yes, how many, where: _____

FLOORING: Check items which apply:

Carpets/rugs: ___ cotton ___ wool ___ synthetic
Carpets/rugs padding: ___ foam ___ felt ___ straw/fiber
Tile: ___ vinyl ___ marble ___ terrazzo ___ ceramic

APPLIANCES: Check items which apply:

Stove: ___ gas ___ electric Exhaust fan? ___ Yes ___ No
Dryer: ___ gas ___ electric
Refrigerator: ___ gas ___ electric
Water heater: ___ gas ___ electric Location: _____

CLIMATE CONTROL SYSTEMS: Check items which apply:

Heating:

___ Gas forced air
___ Oil forced air
___ Electric forced air
___ Radiator steam/hot water heat
___ Electric baseboard or panel
___ Wall furnace
___ Floor furnace
___ Gas or kerosene heating unit
___ Fireplace
___ Space heater (vented/unvented)
___ Other _____

Where is the furnace located? _____

Air Conditioning:

___ Window unit
___ Central

Filters: ___ electrostatic ___ hepa
___ fume control ___ carbon
___ other _____

FURNISHINGS: Check items which apply:

Upholstery: ___ cotton
___ synthetic

Cushions: ___ foam
___ cotton
___ synthetic

Window coverings:

Blinds: ___ metal
___ wooden

Draperies: ___ synthetic
___ cotton

CHEMICALS: Check items which apply:

Do you use strong chemicals (i.e., disinfectants, bleaches, oven and drain cleaners) in your home? ___ Yes ___ No If yes, name them: _____

Do you use floor and furniture wax and wax remover? ___ Yes ___ No

Do you use pesticides in your home? ___ Yes ___ No If yes, name them: _____

_____

Do you or have you used a lawn care company? ___ Yes ___ No If yes, name of the company _____ When was the last time? _____

How often do you have the treatments? _____

Do you regularly have your home treated for insects? ___ Yes ___ No
If yes, name of the company and list the specific name of the chemical _____

_____

Have you had your home treated for termites? ___ Yes ___ No If yes, when ___

_____ List the product used: _____

Do you live near a power generating station? ___ Yes ___ No If yes, how near?

___ 500 feet or less ___ 1/2 to 3 miles ___ 5 miles ___ 10 miles

Do you live near an electric distribution sub-station? ___ Yes ___ No If yes,

how near? ___ 500 ft. or less ___ 1/2 to 3 miles ___ 5 miles ___ 10 miles

Do you live near high voltage electrical transmission lines? ___ Yes ___ No

If yes, how near? ___ 500 ft. or less ___ 1/2 to 3 miles ___ 5 miles ___ 10 miles

Is there a power transformer near your home? ___ Yes ___ No If yes, how near?

___ 500 feet or less ___ 1/2 to 3 miles ___ 5 miles ___ 10 miles

Do you live in direct line of a T.V. transmitter? ___ Yes ___ No

Do you believe you have symptoms produced from these? (Circle the appropriate answer)

1. T.V. transmitter
2. Electric lines
3. Transformer
4. Generating station
5. Electric distribution sub-station

If so, please list or describe: _____

_____

Do you live near a microwave tower? ___ Yes ___ No If yes, how near?

___ 500 feet or less ___ 1/2 to 3 miles ___ 5 miles ___ 10 miles

Do you live near a radio tower? ___ Yes ___ No If yes, how near?

___ 500 feet or less ___ 1/2 to 3 miles ___ 5 miles ___ 10 miles

What type of electric lights do you have?

___ Incandescent ___ Fluorescent ___ Full spectrum

Do you notice symptoms from your lighting? ___ Yes ___ No If yes, list the symptoms in order of severity.

1. _____ 3. _____

2. _____

On what type of equipment do you prepare your food?

___ Gas ___ Electric ___ Microwave

Do you notice any difference in symptoms from food prepared in a specific way?

Gas: ___ Yes ___ No Electric: ___ Yes ___ No Microwave: ___ Yes ___ No

Do you notice any symptoms when near the microwave oven? ___ Yes ___ No

Do you notice any symptoms from exposure to the T.V.? ___ Yes ___ No

Do you have a T.V. antenna on your home? ___ Yes ___ No

Do you have cable television? ___ Yes ___ No.

Do you work in a modern office building with computers, electric typewriters, photocopiers, printers, word processors? ___ Yes ___ No

Do you operate any of these machines? ___ Yes ___ No If yes, list the symptoms produced in order of severity.

1. _____ 2. _____

Do you notice a sensitivity to metal? ___ Yes ___ No

Do weather change cause a change in your mental or physical health? __ Yes __No

Explain: _____

Do you use electric blankets? ___ Yes ___ No If you experience symptoms, list them in order of severity.

Blankets: 1. _____ 2. _____ 3. _____

Metal: 1. _____ 2. _____ 3. _____

Weather changes: 1. _____ 2. _____ 3. _____

Do you obtain your water from a well? ___ Yes ___ No

How deep is the well? ___ 25 ft. ___ 50 ft. ___ 100 ft.

Is it an Artesian well? ___ Yes ___ No

Do you have a basement? ___ Yes ___ No

What kind of soil does your area have? ___ Sandy ___ Clay ___ Granite ___ Shell ___ Phosphate rock

What kind of material constitutes your basement floors & walls?

___ Solid concrete ___ Concrete ___ Cinder block ___ Soil

From what material is the foundation of your home constructed?

___ Concrete ___ Wood ___ Other _____

Do you notice any cracks in the foundation or walls of your basement? __Yes __No

How many stories does your house have? ___ One ___ Two ___ Three

Do you have storm windows & doors? ___ Yes ___ No
Is your home well insulated? ___ Yes ___ No

What type of insulation do you have? _____

Is your home well ventilated? ___ Yes ___ No

Explain _____

Has there been any mining in the immediate vicinity of your home? __ Yes __ No

If yes, how near? ___ 1 mile or less ___ 5 miles ___ 10 miles

Do you know of any landfill areas near your home? ___ Yes ___ No

If yes, how near? ___ 1 mile or less ___ 5 miles ___ 10 miles

Do you know what substance constituted the landfill on which your home was built? ___ Yes ___ No

If yes, what was the substance? _____

Do you know the previous use of the land on which your home was built?
___ Yes ___ No

If yes, what was the previous use? _____

Do you live near a gasoline station or similar? ___ Yes ___ No

Please explain: _____

Do you live near a neighbor who uses pesticides? ___ Yes ___ No

Please explain: _____

How long have you lived in this home? _____

Have you noticed any change in your health since being in this home?
___ Yes ___ No

If yes, what type of change? __ Heart __ Lungs __ GI __ Cerebral __ Other_____

List three symptoms in order of severity. 1. _____

2. _____ 3. _____

Do you have an air or water purification system, or both? ___ Yes ___ No

___ Both: Type _____

Have you had any air sampling done in your home? ___ Yes ___ No

Results: _____

Have you had any water sampling done? ___ Yes ___ No

Results: _____

Do you feel better inside or outside your home? ___ Inside ___ Outside

Do you feel better in a particular room or area? ___ Yes ___ No

Which one? _____

Do you feel worse in a particular room or area? ___ Yes ___ No

Which one? _____

Has your house been checked for radon? ___ Yes ___ No

If yes, please explain: _____

INHALANT AND CHEMICAL EXPOSURE: Check your occupation and exposures.

___ Office worker
___ Professional worker
___ Work around cosmetics
___ Work around fumes
___ Farm worker
___ Factory worker
___ Works indoors
___ Work in extreme heat
What type_____

___ Work in extreme cold
What type _____
___ Salesperson
___ Construction worker
___ Painter
___ Hospital worker
___ Teacher
___ Works with animals
___ Other _____

Check if exposed to; double-check if you have symptoms from:

___ Dust
___ Overstuffed furniture
___ Fireplace
___ Slab home
___ Post & beam home
___ Old home
___ Marshy area
___ Desert area
___ Woody area
___ Prairie
___ Tobacco smoke
___ Linoleum
___ Linoleum tile
___ New carpet
___ Old carpet
___ Rugs
___ Wooden floors
___ Kapok

___ Photocopy paper
___ Varnish
___ Solvents
___ Lacquer
___ Furniture polish
___ Floor wax
___ Incense
___ Mothballs
___ Disinfectants
___ Plastic
___ Dyes
___ Paints
___ Turpentine
___ Diesel fumes
___ Exhaust fumes
___ Gasoline fumes
___ Alcohol
___ Dry cleaning

___ Pesticides
___ Herbicides
___ Grain dust
___ Mildew
___ Dog inside
___ Cat inside
___ Bird inside
___ Other pets inside
___ Sisal (rope)
___ Tar
___ Rubber
___ Chemicals
___ Potted plants
___ Cosmetics
___ Nail polish
___ Perfume

List family hobbies which bring on symptoms (model planes, etc.):_____

_____

List family work exposures: _____

_____

List 4 symptoms, if any, from these exposures in order of severity:

1. _____ 2. _____

3. _____ 4. _____

FOOD: Check items which apply:

___ Excessive hunger
___ Excessive thirst
___ Weight loss
___ Weight gain
___ Overeat foods
___ Crave certain foods
___ Crave beverages
___ Avoid certain foods
___ Dislike certain foods

___ Bothered by food odors
___ Eat daytime snacks
___ Eat bedtime snacks
___ Eat "junk" foods
___ Skip meals
___ Eat regular meals
___ Crash diets
___ Elimination diet

___ Rotation diet
___ "Caveman" diet
___ Use exotic foods
___ Cook from scratch
___ Use convenience foods
___ High protein diet
___ Vegetarian diet
___ Other_____

Check items which apply to you, the adult, when you were <u>an infant and child</u>:

___ Bothered by foods
___ Poor appetite
___ Bottle fed
___ Eczema
___ Constipation
___ Stomachaches
___ Night sweats
___ Learning problem
___ Dyslexia

___ Bothered by beverages
___ Picky eater
___ Colic
___ Hives
___ Diarrhea
___ Headaches
___ Hyperactivity
___ Behavior problem
___ Other _____

___ Feeding problems
___ Failure to thrive
___ Constant hunger
___ Skin rash
___ Vomiting
___ Gassiness
___ Leg aches
___ Fussiness
___ Celiac syndrome
___ Other_____

Is there a family history of allergies or food intolerance? ___ Yes ___ No

Are most of your meals ___ at home ___ at restaurants

Do you mostly eat foods that are? __ fresh __ canned __ frozen __ packaged

What are your favorite or most enjoyed foods?_____

What are your favorite or most enjoyed beverages? _____

Check preference __Beer __Wine __Scotch __Bourbon __Gin __Vodka __Rum

How many alcoholic drinks do you have daily? _____

How many cups of coffee do you drink daily? _____ Regular or decaffeinated?_____

How many cups/glasses of tea do you drink daily? _____

How many soft drinks do you drink daily? _____ Regular or diet?_____

List particular habits, problems, or peculiarities concerning your food intake:

_____

_____

_____

IMMUNIZATION: Have you ever had:

Smallpox vaccination ___ Yes ___ No If yes, when _____

DDT or Tetanus Toxoid? ___ Yes ___ No If yes, when _____

Polio immunization? ___ Yes ___ No If yes, when _____

Mumps immunization? ___ Yes ___ No If yes, when _____

Measles immunization? ___ Yes ___ No If yes, when _____

Anthrax immunization? ___ Yes ___ No If yes, when _____

Typhoid immunization? ___ Yes ___ No If yes, when _____

Botulinus immunization? ___ Yes ___ No If yes, when _____

Other: _____

LIST MEDICATIONS YOU ARE PRESENTLY TAKING: _____

_____

_____

PAST HISTORY

Allergies, or asthma: include antibiotics, metals, seasonal (hayfever).

Medical or surgical illnesses. List all operations.

Have you ever been diagnosed by a physician as having epilepsy? ___ Yes ___ No
depression? ___ Yes ___ No

high blood pressure? ___ Yes ___ No

head injury? ___ Yes ___ No Describe _____

_____

Name any conditions such as kidney trouble, diabetes, heart disease, stroke, loss of consciousness, etc., which you presently have or have had:

_____

_____

Please list major illnesses you have had and the date, if known: _____

_____

Have you had a birth defect? ___ Yes ___ No
Have you had a birth injury? ___ Yes ___ No

In school -- were or are you an exceptional, good, poor student: _____

MEDICATION/DRUGS TAKEN IN THE PAST: Check items which apply:

___ Brondecon
___ Aminophyllin
___ Vanceril
___ Susphrine
___ Bronkodyl
___ Alupent
___ Bronkephrine
___ Theophylline
___ Theo-Dur
___ Elixophyllin
___ Prednisolone
___ Prednisone
___ Epinephrine
___ Cortisone
___ Adrenalin
___ Penicillin
___ Insulin
___ Mycin drugs
___ Dilantin
___ Antibiotics
___ Deconamine
___ Phenobarbital
___ Demorol
___ Codeine
___ Decadron
___ Deconamine

___ Lanoxin
___ Nystatin
___ Nizoral
___ Seldane
___ Nasalchrom
___ Xanax
___ Lithium
___ Valium
___ Muscle relaxers
___ Digestive enzymes
___ Konsyl
___ Metamucil
___ Diuretics
___ Laxatives
___ Thyroid medications
___ Dietary supplements
___ Vitamins
___ Sleeping pills
___ Marijuana
___ Street drugs
___ Minerals
___ A.C.T.M.
___ Aspirin
___ Tylenol
___ Cough medicine
___ Nose drops

___ Tranquilizers
___ Digitalis
___ Sulfa drugs
___ Paregoric
___ Blood pressure medications
___ Birth control pills
___ Inderol
___ Hormones
___ Antihistamines
___ Others _____
___ Others _____
___ Others _____
___ Others _____

If you use illicit drugs -- last usage date: _____

Do you feel addicted? ___ Yes ___ No

ALLERGY: Check items which apply:

Have you ever had allergy tests? ___ Yes ___ No If yes, when and what type?

_____

With what physician? _____

Are you taking allergy injections at the present time? ___ Yes ___ No If yes,

please explain: _____

Do you frequently require emergency treatment for allergy? ___ Yes ___ No

How many times per year? _____

List current allergy treatment, if any: _____

HOSPITALIZATION:

Please list all hospitalizations and state purpose: _____

_____

_____

Please list all operations and give dates: _____

_____

_____

STUDIES: Check items which apply:

In the recent past have you had any of the following studies:

X-rays of the sinuses? ___ Yes ___ No If yes, when? _____

X-rays of the chest? ___ Yes ___ No If yes, when? _____

X-rays of the stomach, gallbladder, or colon? __ Yes __ No If yes, when?_____

X-rays of the teeth (dental examination)? __ Yes __ No If yes, when? _____

Scans of the whole body, bone, or brain? __ Yes __ No If yes, when? _____

Electrocardiogram? ___ Yes ___ No If yes, when? _____

Hearing tests? ___ Yes ___ No If yes, when? _____

Blood or urine tests? ___ Yes ___ No If yes, when? _____

Tuberculin skin test? ___ Yes ___ No If yes, when? _____
(TB skin test)

Proctoscopic examination? __ Yes __ No If yes, when? _____

Mammography? __ Yes __ No If yes, when? _____

SURGICAL HISTORY: Check items which apply:

Have you had:

Tonsillectomy and Adenoidectomy? __ Yes __ No If yes, when?_____

Surgery of nose, ears, mastoid, or sinuses (also sinus irrigation or flushing)? __ Yes __ No If yes, when? _____

Appendectomy? __ Yes __ No If yes, when? _____

Hernia repair or rupture surgery? __ Yes __ No If yes, when? _____

Hemorrhoidectomy? __ Yes __ No If yes, when? _____

Surgery of stomach, bowel, or gallbladder? __ Yes __ No If yes, when? _____

Any other operations? __ Yes __ No If yes, please specify:

_____

Surgery for fractures, concussions? __ Yes __ No If yes, please specify:

_____

SENSITIVITIES

CONTACT DERMATITIS: Check items which apply:

Has your skin ever been bothered by contact with any substances? __ Yes __ No

If yes, which substance? _____

How widespread was the involvement? _____

How frequently has it recurred? _____

What treatment have you used? _____

Have you ever had? __ Poison Oak __ Poison Ivy __ Poison Sumac __ Other____

Does wearing metal watches, rings, necklaces cause you to break out?_____

INSECT SENSITIVITY: Check items which apply:

List any insects to whose bite or sting you get greater than normal reactions:

_____

Check any reaction you get:

| | | |
|---|---|---|
| ___ Hives | ___ Fainting | ___ Nausea |
| ___ Dizziness | ___ Shock | ___ Loss of consciousness |
| ___ Vomiting | ___ Mental confusion | ___ Large local swelling |
| ___ Difficulty in breathing | ___ Difficulty swallowing | ___ Other _____ |

___ Required hospitalization ___ Anaphylaxis _____

Do insects seem to single you out? ___ Yes ___ No Which insects? _____

How many reactions to insects have you had? _____

What type of treatment do you receive after each reaction? _____

MEDICATION: List any allergy to drug or injection, with symptoms:

| Drug | Symptom | Drug | Symptom |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Check your reaction to: ___ Dental Anesthesia ___ Iodines
___ Other Anesthesia ___ Tetanus Antitoxin
___ Tetanus Toxoid ___ X-ray Contrast Media
___ Other vaccination _____

COMMUNICABLE DISEASES: Check items which apply:

Do you now have or have you ever had:

___ Yes ___ No Measles
___ Yes ___ No German measles
___ Yes ___ No Mumps
___ Yes ___ No Chicken pox
___ Yes ___ No Whooping cough
___ Yes ___ No Diphtheria
___ Yes ___ No Influenza
___ Yes ___ No Scarlet fever or Scarlatina
___ Yes ___ No Rheumatic fever
___ Yes ___ No Polio or meningitis
___ Yes ___ No Tuberculosis
___ Yes ___ No Valley fever
___ Yes ___ No Infectious mononucleosis
___ Yes ___ No Syphilis
___ Yes ___ No Gonorrhea
___ Yes ___ No Other_____

FAMILY: Check any of the following illnesses which occurred in your family:

___ Hayfever
___ Cancer
___ Eczema
___ Epilepsy
___ Asthma
___ Psychiatric care
___ Emphysema
___ Kidney disease
___ Undue fatigue
___ Hives
___ Headache
___ Vertigo
___ Heart disease
___ Indigestion
___ Drug use
___ Diarrhea
___ Brain tumors
___ Diabetes
___ Constipation
___ High blood pressure
___ Low blood pressure
___ Tuberculosis
___ Arthritis
___ Depression
___ Nervousness
___ Nervous breakdown
___ Emotional problems

Dementing illness: __Yes __No
Learning disabilities: __Yes __No
Any neurological disease: __Yes __No

| | |
|---|---|
| Diabetes: | __Yes __No |
| High blood pressure: | __Yes __No |
| Multiple sclerosis: | __Yes __No |
| Lupus: | __Yes __No |
| Alzheimer's: | __Yes __No |
| Cancer: | __Yes __No |
| Epilepsy: | __Yes __No |
| Depression: | __Yes __No |
| Substance abuse: | __Yes __No |
| Rheumatoid arthritis: | __Yes __No |

Explain: _____

_____

Additional comments: _____

_____

FATHER: Age _____ Health (Mention all allergies or known diseases if living):

_____

AGE AT DEATH: ____ If deceased, cause of death: _____

MOTHER: Age _____ Health (Mention all allergies or known diseases if living):

_____

AGE AT DEATH: ____ If deceased, cause of death: _____

BROTHER OR SISTER: Age or ages _____ Health (Mention all allergies or

known diseases if living): _____

AGE AT DEATH: _____ If deceased, cause of death: _____

HUSBAND OR WIFE: Age ____ Health (Mention all allergies or known diseases

if living): _____

AGE AT DEATH: ____ If deceased, cause of death: _____

SON OR DAUGHTER: Age or ages _____ Health (Mention all allergies or known diseases if living): _____

AGE AT DEATH: ____ If deceased, cause of death: _____

GENERAL FAMILY: Check items which apply:

Has any blood relative ever had:

Heart disease, heart attack, high blood pressure or stroke? ___ Yes ___ No

If yes, who? _____

Tuberculosis? ___ Yes ___ No If yes, who? _____

Cancer? ___ Yes ___ No If yes, who? _____

Blood disease like leukemia, severe anemia, bleeding tendency? ___ Yes ___ No

If yes, who? _____

Diabetes? ___ Yes ___ No If yes, who? _____

"Goiter," overactive or underactive thyroid? ___ Yes ___ No If yes, who? _____

_____

Ulcers of stomach or duodenum? ___ Yes ___ No If yes, who? _____

FAMILY HISTORY TO ALLERGY: Check items which apply:

Has any blood relative ever had:

Migraine? ___ Yes ___ No If yes, who? _____

Hayfever, sinus trouble or frequent colds? ___ Yes ___ No If yes, who? _____

_____

Asthma, bronchitis, or frequent chest colds? ___ Yes ___ No If yes, who?

_____

Hives? ___ Yes ___ No If yes, who? _____

Eczema? ___ Yes ___ No If yes, who? _____

Skin rash from cosmetics or metals, detergents? ___ Yes ___ No If yes, who?

_____

Poison ivy or oak, ultraspore, sumac? ___ Yes ___ No If yes, who? _____

_____

Insect allergy? ___ Yes ___ No If yes, who? _____

Food allergy? ___ Yes ___ No If yes, who? _____

Adapted with permission, Environmental Health Clinic, Dallas, TX

# APPENDIX D.

## FOOD DIARY

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DAILY FOOD DIAry
NAME: ---------- DATE:----------

PLEASE GRADE : 5= average day 0-5 grade increasing symptoms 5-10 decreasing symptoms

| | | day 1 | day 2 | day 3 | day 4 | Comments |
|---|---|---|---|---|---|---|
| Breakfast | Food | | | | | |
| | Reaction | | | | | |
| Lunch | Food | | | | | |
| | Reaction | | | | | |
| Dinner | Food | | | | | |
| | Reaction | | | | | |
| Breakfast | Food | | | | | |
| | Reaction | | | | | |
| Lunch | Food | | | | | |
| | Reaction | | | | | |
| dinner | Food | | | | | |
| | Reaction | | | | | |

# APPENDIX E.

# CONSULTANTS

| | Expertise |
|---|---|
| Iris Bell, M.D., Ph.D.<br>Department of Psychiatry<br>VAMC Tucson, Arizona | MCS Research<br>Symptomatology |
| Steven McDermott, M.D.<br>Director, Cognitive Therapy<br>Massachusetts General Hospital | Cognitive Therapy |
| Natalie Golos<br>Author, Environmental Medicine,<br>Success in the Bedroom | MCS Education |
| Frank Katch, Ph.D.<br>Professor, Exercise Science<br>University of Massachusetts, Amherst | Exercise Physiology |
| Barbara Maynard, R.D.<br>Author, Rotational Bon Appetit | Nutrition,<br>Rotation Diet |
| Rory Zahourek, R.N., M.A.<br>Assistant Clinical Professor<br>School of Nursing | Guided Imagery |

University of Massachusetts, Amherst

Mr. SHAYS. At this time I would call on Mr. Gilman, who is the chairman of the International Relations Committee of this House, and appreciate you being here.

Mr. GILMAN. Thank you, Mr. Chairman.

First of all, I want to commend you for providing us the opportunity to further pursue this important issue, and I also want to recognize the commitment of many of our colleagues on this subcommittee in pursuing the issue.

While I have not benefited from last year's hearings or actual participation, I do share our colleagues' concern for our Nation's Persian Gulf war veterans and their families. The issue of the Persian Gulf war syndrome is highly controversial and emotional for all of those involved, including the families of the veterans involved.

And while we may disagree about the cause of the syndrome or even if one all-encompassing disease exists, I think we all agree that the Department of Defense's record on this subject left much to be desired. It is simply inexcusable that DOD flatly and categorically denied the presence of chemical weapons in the Persian Gulf war theater, despite evidence to the contrary. It was only after being faced with overwhelming evidence that this position was suddenly reversed last summer.

Likewise, the VA's position of not having given much attention and priority to the possibility of low-level exposures in their medical research and in our treatment of our veterans, I think was short-sighted. In essence, it appears that the VA simply followed the lead by the Department of Defense in not considering the possibility of low-level chemical exposure.

There are numerous serious questions which do remain. In recent studies by the President's Advisory Committee, and two separate university studies have resulted in widely diverse conclusions, certainly more research is needed, yet we must guard against studying this subject to death. There are numerous veterans who are suffering from something that was related to their service in the Gulf.

I am concerned that all the studies in the world are not going to reveal any magic bullet which will answer all of our questions with regard to the cause of the syndrome, yet the Persian Gulf theater was a highly toxic environment. Whether it was a few chemical agents or a combination of various factors, we are not certain. But in all probability, stress from combat played a role, but I remain highly skeptical that stress is the sole cause.

One issue which I hope we will be addressing, Mr. Chairman, during this or any future hearings, is that of the reported birth defects in children born to Gulf war veterans, especially those who had healthy children born prior to the Gulf war. That issue which has not received much attention is one that could safely be assumed to be totally unrelated to any combat stress. With this being said, I again thank Chairman Shays for pursuing this issue. I look forward to hearing the testimony of our witnesses today.

Mr. SHAYS. Thank you very much, Mr. Gilman, and at this time I would call on Ms. Ros-Lehtinen.

Ms. ROS-LEHTINEN. Thank you so much, Mr. Chairman.

Although I am not fortunate enough to serve on your subcommittee, I wanted to briefly stop by and congratulate you for holding a hearing on this important issue. As the wife of a Vietnam veteran, our family knows all too well how long it took our Armed Forces to recognize the health effects that many of the chemicals used in that war had on the brave men and women who fought there and served our country well.

We certainly thought that sad chapter was behind us, yet we find ourselves in a new decade once again confronting the bureaucracy and slowness of recognizing the effects of different chemicals used now in a new combat theater. So I congratulate you for holding the hearing, and we hope that—and we are optimistic that good things will come for our veterans as a result of your hearings.

Thank you, Mr. Chairman.

Mr. SHAYS. I thank the gentlelady. At this time I would call on Mr. Snowbarger, who is a new member of the committee, and is also designated to be the vice chairman of this subcommittee, and it is wonderful to have you here.

Mr. SNOWBARGER. Mr. Chairman, thank you, not only for the opportunity to serve on this committee, but to serve as your vice chairman.

Briefly, I wanted to thank the panelists for their presence here today and I look forward to their remarks. I realize that the committee has done a lot of work on this issue before, so I am kind of coming in at the tail end of some of this. But the importance of the topic was brought home again as late as last Friday when one of my constituents came to me complaining that he was having problems with Gulf war syndrome and was anxious to hear what the committee's work was going to show on his behalf. I am happy to be part of the committee, Mr. Chairman, and thank you.

Mr. SHAYS. I thank the gentlemen, and at this time, Mr. Horn, do you have a statement you would like to make?

Mr. HORN. I don't have a statement.

Mr. SHAYS. Great to have you here.

Let me say we have three excellent panels, and we are very eager to hear from all of them. I think, as most of you know, when we scheduled this hearing we thought it would be a slow day in the Capitol and obviously it is a very important day with the debate on the ethics of the Speaker. And so this committee will attempt to adjourn at approximately 12 o'clock.

Our intention is we will finish the first panel. We are not going to keep you here and have you come back. So our intention is to have the first panel conclude, and at the end of that probably adjourn. It could be as late as—excuse me, not adjourn but to recess. It could be as late as 1:30 or 2. But I do suspect that the first panel will take all of our time.

So with that, let me just take care of some House business we need to take care of first.

First, I will be swearing in the witnesses in a few minutes. I have been designated by the chairman of the committee since I am not officially the chairman of the subcommittee, and that is, pursuant to a letter of January 16, I have the authority to swear in witnesses, subject to the approval of Mr. Waxman as well, who has concurred. We will be doing that shortly.

Before we swear in the witnesses, I ask unanimous consent that all members of the full committee be permitted to place any opening statements in the record, and that the record remain open for 3 days for that purpose. And without objection, so ordered.

[The prepared statement of Hon. Mike Pappas follows:]

Statement

**~~TESTIMONY~~ OF THE**
**HONORABLE MICHAEL PAPPAS**
**TO THE GOVERNMENT REFORM AND OVERSIGHT COMMITTEE**
**SUBCOMMITTEE ON HUMAN RESOURCES**

**Tuesday January 21, 1997**

Mr. Chairman, ~~It is a great honor and privilege to come before the Subcommittee on Human Resources on my first official Congressional hearing as a Member of the United States Congress.~~

I am absolutely committed to making sure our nations veterans receive a full investigation into the effects of the Persian Gulf War Syndrome. Our veterans deserve nothing less after the tremendous sacrifice they made during the war and I commend the committee for their comprehensive investigation into this terrible sickness.

Additionally, I am confident that the committee's work will help broaden the public knowledge on a wide range of specific issues relating to the syndrome, including the role of low level exposures in causing gulf war illnesses and battlefield stress as a factor in causing the illness. Furthermore, it is my sincere hope that as a consequence of this new knowledge, the government agencies responsible for treatment will better be able to assist our veterans.

Finally, I would like to thank the group of witnesses that the committee has asked to testify. I am sure that their testimony will give this committee and the American people a clearer insight into better identifying Gulf War Syndrome.

Mr. SHAYS. I also ask unanimous consent that our witnesses be permitted to include their written statements in the record, and without objection so ordered.

At this time, I would officially recognize and ask them to stand. Dr. Kenneth Kizer, Under Secretary for the Health Department of Veterans Affairs, it is wonderful to have you here; and Bernard Rostker, Special Assistant for Persian Gulf War Illnesses, Department of Defense; and also Dr. Donald Custis, also a retired Admiral.

I understand that the acoustics here are not too good and if you have trouble picking up what we are saying, don't be reluctant to ask any of us to slow down.

Dr. Custis as well, Admiral, U.S. Navy, retired, member, Presidential Advisory Committee on Persian Gulf War Veterans' Illnesses.

So we have a wonderful panel, and also we will be swearing in Ms. Holly Gwin, who was involved in actually writing the final draft of the report as counsel in charge of the report as well.

And Ms. Gwin, is it your intention to have a statement or will you be here to respond to questions?

Ms. GWIN. Respond to questions.

Mr. SHAYS. Therefore, we need to swear all of you in. Therefore, if you would stand—I would say we swear even Members of Congress when they come before the subcommittee.

[Witnesses sworn.]

Mr. SHAYS. For the record, all four witnesses have responded in the affirmative. We are going to go in the order in which I called you, from left to right.

Dr. Kizer, it is wonderful to have you here, and I appreciate the good work you do for the Department of Veterans Affairs.

**STATEMENTS OF KENNETH W. KIZER, M.D., UNDER SECRETARY FOR HEALTH, DEPARTMENT OF VETERANS AFFAIRS, ACCOMPANIED BY FRANCES MURPHY, VA CENTRAL OFFICE; BERNARD ROSTKER, SPECIAL ASSISTANT FOR PGW ILLNESSES, DEPARTMENT OF DEFENSE; DONALD CUSTIS, M.D., ADMIRAL, U.S. NAVY (RETIRED), MEMBER, PRESIDENTIAL ADVISORY COMMITTEE ON PGW VETERANS' ILLNESSES, ACCOMPANIED BY HOLLY L. GWIN, DEPUTY DIRECTOR AND COUNSEL**

Dr. KIZER. Good morning, Mr. Chairman. Having provided rather lengthy written testimony, I will keep these comments relatively brief.

I would like to make comments in five specific areas. First, I would like to note that we believe the VA has a good program to deal with the illnesses of our Persian Gulf veterans. It is a comprehensive program that includes providing medical care, conducting research, granting disability compensation, and conducting education and outreach efforts.

Illustrative of the medical care provided are the following statistics that indicate over 63,000 registry exams have been performed to date; over 187,000 veterans have been seen in our ambulatory care clinics; over 19,000 veterans have been hospitalized; and more

than 74,000 have been seen in our readjustment counseling vet centers.

Notwithstanding the fact that we believe the VA has a very good program, we are continually looking for ways to improve it and make it better, and, therefore, we welcome this opportunity to engage in this ongoing dialog.

The second area I would like to comment on has to do with the notion of a syndrome per se; perhaps I can put a few things in perspective here.

We believe that Persian Gulf veterans have a diverse array of symptoms and conditions that cannot be neatly folded into one diagnosis or one syndrome. We also firmly believe that the veterans who seek care from the VA are suffering from genuine illnesses, and we are providing treatment for these veterans as illustrated by the numbers that I just cited. I would also note, perhaps contrary to one of the comments, I don't recall exactly who made it before, many veterans are benefiting from the treatment that is being provided.

Again, I would like to illustrate with some numbers the fact that our Persian Gulf veterans' conditions do not cluster in any one system or disease category. Instead, they span a wide range of illnesses and diagnostic categories.

To date, in our registry examination program, over 7 percent of the diagnoses have been for infectious diseases; over 14 percent for respiratory disorders; 11 percent for gastrointestinal conditions; 7 percent—7.1 percent—for cardiovascular or circulatory problems; 3.4 percent for genitourinary conditions; 13½ percent for skin disorders; nearly 5 percent for injury for poisoning conditions; 15 percent for psychiatric disorders; over 8 percent for neurologic conditions; and less than half of 1 percent for neoplasms.

These numbers also help to put in perspective the notion of stress. While the VA does believe that some veterans are suffering from stress-related conditions, it would certainly be a gross mischaracterization of the record and the facts to indicate that VA believes that all of these veterans are suffering from stress-related conditions. Indeed, just to the contrary. While we believe some are, we feel that most are not suffering from stress, per se.

The third area I would like to comment on briefly has to do with a question as to whether the VA listened to the Persian Gulf veterans. I think the facts are there, indeed, and an objective review of the record, will clearly show that VA has been attentive to the veterans' concerns about toxic exposures, including chemical warfare agent exposures.

This data is illustrated by many things, including the questions and design of the uniform case assessment protocol that is used to evaluate Persian Gulf veterans, as well as the current registry examination protocol.

Other examples are the research studies that have been funded, most of which were funded before information about the Khamisiyah incident was reported by DOD; by the establishment of the VA Environmental Hazard Centers in 1994; by our collaboration with Japanese scientists investigating the Tokyo subway terrorist incident involving sarin, beginning well over a year before the data about Khamisiyah was reported by DOD; and, by repeated

public comments, some of which have been widely reported in the media. Indeed, I can recall being chastised at a hearing by somebody else for my comments that were reported in USA Today in early March——

Mr. SHAYS. Just for the record, that was not a hearing before this committee.

Dr. KIZER. That is correct. As I said, it was before another committee for comments——

Mr. SHAYS. We may chastise you for other reasons.

Dr. KIZER. I am sure you will.

Just to finish that, I think the record clearly shows both in the public media as well as elsewhere that we have been wide open to this possibility from the beginning.

The fourth area that I would comment on really has to do with the illnesses and conditions that our Persian Gulf veterans have, illustrating both some of the strengths and some of the shortcomings of modern medicine. Indeed, the practice of medicine today continues to be an art as well as a science. The fact that about three-fourths of our Persian Gulf veterans have had their conditions diagnosed as quickly as they have been and with the least amount of invasive testing as possible certainly would not have been possible 15 or 20 years ago.

However, today's medical knowledge does not have all the answers, and despite the wonders of modern medicine and the illusion that is often created by television or the movies, many people have symptoms and conditions for which there is no clear diagnosis or understanding of the disease, and certainly no "magic bullet" of treatment.

I can tell you from my firsthand experience as a professor at a university medical center where many complex patients came with uncertain diagnoses, uncertain conditions, that that was the norm, and many people left the university medical center likewise without having firm diagnoses established. Likewise, I can tell you as a medical toxicologist that medical science certainly does not hold answers or the science is not as refined in the area of toxicology as we would like.

This is very clearly borne out by some of the issues and some of the questions that you have asked, Mr. Chairman, regarding assessing individuals for potential exposure to chemical warfare agents. There simply is no valid chemical test today to identify chemical warfare agent exposures that occurred years ago. You just cannot do that because the science does not exist. That is the sort of confirmatory testing that both of us would like to be able to do on our veterans does not exist. And as I think Mr. Sanders commented in his opening comments, that really is no different from the situation that exists with our agricultural workers or with industrial workers who have been exposed to many of the same neurotoxins in a variety of other settings in the course of their work as well as members of the public who may live near Superfund or who live near various other toxic waste sites and have developed various symptoms that they believe are related to chemical exposures, and in many cases multiple chemical exposures.

We know that many conditions—just to finish this point—we know that many of the symptoms and conditions that people have today and have received a diagnosis, especially for those who have had nonspecific symptoms, may get alternative diagnoses if they see other practitioners. Indeed, I would hazard to say as I look at the panel it probably would not be a unique experience that you may have been to a physician once who told you he wasn't sure exactly what you were suffering from or likewise you may have seen more than one physician for the same condition and gotten more than one diagnosis or impression as to what was causing your symptoms. This is not at all unique to Persian Gulf veterans, by any means. Likewise, as medical science advances and more tests are performed on individuals, we certainly find that diagnoses are often refined.

Just the last point in this regard, I would also note that the VA has recognized that forward-looking thinkers usually challenge traditional views. Often the forward-looking thinkers have views that are at variance with established or conventional thinking. We also recognize that such researchers have had difficulty getting their unconventional methods or diagnoses or treatments accepted by the scientific community.

Recognizing this fact, the VA has kept an open mind and open door. We will certainly continue to listen to and encourage innovative ideas. The one thing we will require, though, is that investigative methods and techniques have to be consistent with sound science and ethical principles of experimentation. We simply do not believe that veterans can be the focus of experiments.

Finally, Mr. Chairman, and recognizing that my time is rapidly disappearing here, let me comment——

Mr. SHAYS. Dr. Kizer, we value your testimony and realize you won't always be coming before the committee so there is no time restraint on you.

Dr. KIZER. I was watching the lights.

Mr. SHAYS. It helps us get a gauge, so we will put the green on again.

Dr. KIZER. Thank you, Mr. Chairman.

The last area I want to comment on in this brief opening statement is the one that you asked me to comment upon and that is the studies by Dr. Haley and Dr. Schwartz that were published in last week's issue of the Journal of the American Medical Association.

In brief, just to summarize those studies, the study by Dr. Schwartz and his colleagues was a population-based telephone survey of a sample of 2,000 Persian Gulf veterans and an equal number of Gulf-era veterans whose home of record was in Iowa. The participation rates were high in this study, which is good. About 76 percent of the eligible subjects participated.

This study examines self-reported symptoms and their prevalence rates, and used validated algorithms to group symptoms into five categories of medical conditions. The study group was found to have a significantly higher self-reported prevalence of medical and psychiatric conditions, including asthma and bronchitis, post-traumatic stress disorder, depression, cognitive dysfunction, chronic fatigue, and fibromyalgia.

Among these Persian Gulf veterans, these conditions were more often reported by those with self-identified exposures to pyridostigmine bromide, chemical warfare agents, pesticides, solvents, and smoke than those who did not report, or self-report, such exposures.

I would note that this higher rate of self-reported symptoms is very similar to the findings of a study that the VA requested CDC to conduct some time ago of Pennsylvania veterans. That was published in the June 1995 issue of Morbidity and Mortality Weekly Report.

I would also, Mr. Chairman, if you would indulge me, take this opportunity to publicly thank Dr. Schwartz. As is typical of VA physicians, most VA physicians are members of university faculty, and certainly Dr. Schwartz fits that category. He is one of our staff physicians at the Iowa City VA Medical Center and a faculty member at the University of Iowa. I would certainly like to thank him for his work, not only on a day-to-day basis with our patients at the medical center, but also for his work on this study.

Likewise, Dr. Haley, who is one of the attending physicians at the VA Medical Center in Dallas. I would also like to acknowledge and thank him for his efforts on behalf of the patients at the VA Medical Center in Dallas where he works, as well as recognizing his position with the university there.

Let me turn specifically to the studies of—several studies, three studies—that are reported by Dr. Haley and colleagues in the issue of JAMA that I cited. These studies focus on a single military unit of Gulf war veterans, the 24th Reserve Naval Construction Battalion and this to characterize the illness of this group of veterans. Dr. Haley administered a detailed questionnaire on symptoms and risk factors to 249 of the 606 members of this unit, 41 percent of the unit, and through a technique called factor analysis, the investigators found six patterns of symptom clusters, indeed six different syndromes in this relatively small group of persons.

I actually, in the interest of time, will forego all of the details that were reported, particularly of the studies that focused on the 23 veterans that were most intensively studied with neuropsychological and neurophysiologic testing. I would just note that when the findings were reported by the authors, and the findings of the studies were shown to and reviewed by a group of neurologists, no abnormality was found. Using some complicated statistical methodologies, Dr. Haley was able to identify, in the aggregate, the patients from the study group who had more symptoms or abnormalities than the others.

I would also, in the interest of time, not go through some of the specific limitations. We would concur with Dr. Haley in his discussion of the report and what is published in the journal, that the studies do suffer from a number of shortcomings that make it difficult to extrapolate the findings, particularly the small sample size and the potential problem of selection bias.

At this point, we are in the process of engaging in further discussion with Dr. Haley to find out some of the details that were not published. So, we will defer further discussion of these issues until a later time when we have had the opportunity to go over some of these details with him.

I would note, though, that we don't believe that these studies provide the definitive answer. They certainly are important. We view them as very significant findings, but further research is necessary to answer questions both raised by these studies as well as by others and, likewise, we need to review the findings of these studies within the context of what else is known about what may precipitate those findings, accepting the findings themselves. There is literature that also needs to be reviewed as far as what may have caused those specific findings, and that is, of course, a process that will continue.

Let me conclude these comments, Mr. Chairman, by again noting that we believe the VA has a good program for dealing with the illnesses of Persian Gulf veterans. No one is being turned away from care, and while it may take some time for research to provide answers to some of the problems that some of our veterans have, we will continue to provide the best care that we can while that research is being brought to conclusion.

Likewise, I would just repeat—as I said at the outset—that we welcome the scrutiny of our program. The scrutiny has been provided by the Presidential Advisory Commission, by the many veterans' service organizations that have been acutely interested in this subject, by the National Academy of Science and the Institute of Medicine that has an ongoing review of the program, by the Veterans Affairs Committees of both the House and the Senate, by this subcommittee, and all of the many other entities that already have commented upon and will comment in the future or that will review this effort.

Thank you, Mr. Chairman. I would—if I might also just ask one procedural question, having not testified before you before. One of the things I have noticed in some other hearings is that sometimes words may be used differently by different people. You as an attorney may use a word somewhat differently than I as a physician might, and if that arises, I just wonder if you will allow us to make sure we are talking about the same thing when words like that come up.

[The prepared statement of Dr. Kizer follows:]

**Statement of**
**Kenneth W. Kizer, M.D., M.P.H.**
**Under Secretary for Health**
**Department of Veterans Affairs**
**Before the**
**House Committee on Government Reform and Oversight**
**Subcommittee on Human Resources and Intergovernmental Relations**
**Hearing on Health Issues**
**of Persian Gulf War Veterans**

**January 21, 1997**
* * * * * * * * * *

Mr. Chairman and Members of the Committee, I welcome this opportunity to continue the dialogue with you regarding VA's programs related to Persian Gulf War veterans. In response to your specific request, Mr. Chairman, I will comment particularly on VA's responses to the likelihood of low-level exposure of some American troops to chemical warfare nerve agents.

## BACKGROUND

In the way of background, let me reiterate a few points about VA's general response to the health concerns of our Persian Gulf War veterans.

On August 2, 1990, Iraq invaded Kuwait, and the United States responded by sending American personnel to the Persian Gulf. Ultimately, nearly 700,000 U.S. troops were deployed to the Gulf in Operations Desert Shield and Desert Storm. After months of tense military build-up in a spartan and hostile desert environment in which our troops were outnumbered and under constant threat of chemical and biological warfare attacks, our coalition forces launched an air war and, later, a short ground war, defeating Iraq after four days of battle. It is worth emphasizing, however, that while the war itself may have technically lasted only a few

days, the combat environment and associated battlefield stressors were present and affected coalition forces for several months.

As you well know, Mr. Chairman, for some Persian Gulf War veterans the war did not end when the cease-fire was signed. Shortly after returning from the Persian Gulf War, some veterans began to report a variety of symptoms and illnesses. In preparation for the expected needs of this latest group of combat veterans, VA immediately began development of its Persian Gulf programs. The first component of VA's comprehensive Gulf War response was the establishment of a health care program, the VA Persian Gulf Registry health examination program. The Registry was developed in 1991, and implemented in 1992. It has continued to function as a health care access program ever since.

In 1998, at the request of VA, Congress enacted Public Law 108-210, giving Persian Gulf veterans special eligibility for VA health care. This authority remains operational today.

In late 1994, when I joined the Department of Veterans Affairs as Under Secretary for Health, VA already had a well-established set of programs. Since that time, we have worked continuously to improve and expand our Persian Gulf programs to encompass a comprehensive four-pronged approach, addressing medical care, research, compensation, and outreach and educational issues. We hope that through continuous scrutiny and review of VA programs these efforts will continue to improve. We are addressing the concerns expressed by veterans, veterans service organizations, and the Presidential Advisory Committee on Gulf War Veterans' Illnesses. Specifically, the Department is reviewing suggestions to extend the presumption period for compensation and will present our recommendation to the President by March 8, 1997.

## REGISTRY EXAMINATIONS

VA provides Persian Gulf Registry health examinations and follow-up care at its medical facilities nationwide, specialized evaluations at four regional Referral Centers and readjustment and sexual trauma counseling to Persian Gulf War veterans. To date, more than 68,000 Persian Gulf War veterans have completed Registry examinations, almost 187,000 have been seen in VA ambulatory care clinics, more than 19,000 have been hospitalized at VA medical facilities, more than 350 veterans have received specialized Referral Center evaluations, and more than 74,000 have been counseled at VA's Vet Centers.

Persian Gulf veterans participating in the Registry examination program have commonly reported that they suffer from a diverse array of symptoms, including fatigue, skin rash, headache, muscle and joint pain, memory problems, shortness of breath, sleep disturbances, gastrointestinal symptoms, and chest pain. These symptoms have been treated seriously, and have received appropriate medical evaluations.

To date, the diagnoses received by Registry participants do not cluster in one organ system or disease category. Instead, they span a wide range of illnesses and diagnostic categories. To date, 7.1 percent of Registry diagnoses have been for infectious diseases, 14.4 percent for respiratory disorders, 11.4 percent for gastrointestinal conditions, 7.1 percent for cardiovascular or circulatory problems, 3.4 percent for genitourinary conditions, 13.5 percent for skin disorders, 4.8 percent for injury and poisoning conditions, 15.1 percent for psychiatric disorders, 8.3 percent for neurologic conditions and 0.4 percent for neoplasms. 26.4 percent of Registry participants have not had a definitive medical diagnosis, and 12 percent have had no health complaints. While

having no complaints, the latter persons have wished to participate in the examination because they were concerned that their future health might be affected as a consequence of their service in the Persian Gulf War. Seventy-three percent of all Registry participants have self-reported their health as "all right" to "good."

With regard to the possible troop exposure to chemical warfare nerve agents, the Department of Defense has provided VA with a list of 21,799 individuals who they have identified as being within 50 kilometers of the Khamisiyah Ammunition Storage Area during the demolition period in March 1991. A computer match of the Persian Gulf Health Examination Registry database with this list identified 1,978 veterans, or approximately 9 percent, who had completed Registry examinations prior to September 1996. A preliminary comparison of the examination results of these individuals with other Registry participants shows that similar types and rates of symptoms, diagnoses, and self-reported health status are being reported, but virtually all individuals in this subgroup have reported symptoms at the time of their Registry examinations. Furthermore, those 81 Registry participants who have been identified as part of the on-site Khamisiyah demolition team have been diagnosed with musculoskeletal conditions at a higher rate than veterans who were further away -- i.e., beyond the 50-kilometer radius or general Registry group. This health surveillance data is preliminary and is compiled from evaluations of a non-random, self-selected group of the individuals possibly exposed to nerve agents at Khamisiyah. While this information gives one perspective, or a partial snapshot, of the health of some veterans thought to be present at this site in March 1991, the results cannot be generalized to the entire Khamisiyah group or considered definitive. More complete information on the potential exposures, the individual affected, and research on the possible chronic health effects of low-level chemical warfare nerve agent exposures are needed. A copy of this compiled clinical data has

been provided to the Subcommittee.

At this point, I should reinforce the points made by past VA witnesses before this Subcommittee in noting that the Persian Gulf Registry was never intended or designed to be a scientific research study. It is a health care access program which was established to assist veterans' entry into the continuum of VA care. Let me emphasize that it is a program to facilitate gaining access to care. As such, we encourage all Persian Gulf War veterans, symptomatic or not, to get a Registry examination. Furthermore, if Persian Gulf War veterans have health problems that may be related to an exposure that occurred during their Gulf service they are eligible for outpatient and inpatient care at VA medical facilities.

**NO UNIQUE DISEASE EVIDENT AS YET**

While some Persian Gulf veterans have had symptoms that are difficult to diagnose or that remain unexplained, there is consensus among government and non-government physicians and scientists that current evidence does not support the existence of a single or unique disease process or condition causing the symptoms and problems that Persian Gulf veterans have reported. Indeed, the recent reports by Haley, et al., that were published in the January 15, 1997, issue of JAMA report six different syndromes among a group of only 249 veterans.

The results of recently published research studies also have indicated that Persian Gulf veterans are not suffering higher rates of life-threatening medical conditions or being hospitalized at higher rates than their non-deployed counterparts. Do these things mean that there is no problem and that Persian Gulf veterans concerns are being dismissed or ignored by VA? The answer is an emphatic "No".

Statements about the lack of a Gulf War Syndrome should not be misconstrued to mean that VA does not believe the concerns and complaints of Persian Gulf veterans are real. To the contrary, we believe that Persian Gulf veterans who seek care from VA are suffering from genuine illnesses and, as indicated by the numbers previously cited, we are providing treatment for these persons. In this regard, I believe I should also comment on some of the misperceptions that seem to exist regarding VA's view of the role of stress in possibly causing symptoms or disease in some Persian Gulf veterans.

**STRESS AS A FACTOR**

As a physician, I find it disappointing that some people have tried to equate saying that stress may have an etiologic role in some of the reported illnesses is the same as saying that the symptoms or illnesses are viewed as being imaginary or less than real. Indeed, it is hard to believe that in the 1990s anyone would conclude that acknowledgment of the stress response and its very real sequelae somehow implies mental weakness or feigned illness. Such an erroneous conclusion flies in the face of the extensive literature showing the normalcy of stress-induced health effects.

The stress response is a normal reaction to being introduced into a new environment or immersion in an alien setting. The stress response is real, albeit poorly understood at the molecular and biochemical level. In fact, as a species, if we did not have a physiologic response to stress, we would have died out long ago. The very real physical effects of stress in causing heart disease or hypertension, in weakening the immune system and the body's natural defenses, and in causing gastrointestinal malfunction, hormonal imbalance, low birth weight and decreased cognitive function are simply irrefutable. Conversely, the health benefits of stress reduction, emotional

support are also well documented, although even less well understood physiologically than the deleterious effects of stress.

It concerns me greatly that some people seem to want to summarily dismiss the intersection of mind and body and the undeniable fact that altered bodily function can be induced by environmental stress. Irresponsible statements in this regard perpetuate misconceptions and outdated stereotypes, and they discourage people from seeking potentially beneficial treatment for their very real conditions. Someone with stress-induced myocardial infarction, hyperthyroidism or irritable bowel needs treatment for their condition every bit as much as someone who has the same condition but in whom stress has had less of a contributory role.

Having said these things, I should add that this in no way means that VA believes that all the symptoms and complaints experienced by Persian Gulf veterans are stress induced. That would be just as wrong as saying that none of the health effects are stress-related. We believe that some symptoms are sequelae of the stress response and some are not. We have consistently and repeatedly stated our belief that multiple factors have caused the conditions reported by Persian Gulf veterans, and it is disappointing to hear how this has been inaccurately portrayed by some people.

## CONTINUING ACKNOWLEDGMENT OF THE POSSIBILITY OF CHEMICAL WARFARE AGENT EXPOSURES

The record shows quite clearly that VA has always acknowledged the possibility that Persian Gulf War veterans were exposed to a wide variety of conditions and hazardous agents while serving in the Southwest Asia theater of operations, including chemical warfare agents. VA's public statements have always been clear that all exposures, including chemical warfare agents,

were being investigated. VA's openness to veterans' views and concerns is also evident in the representation of veterans service organizations on the VA Persian Gulf War Expert Scientific Advisory Committee. This openness is also reflected in our research program and in the design of our case assessment protocol.

In 1993, VA designed its clinical uniform case assessment protocol to detect clinical signs and symptoms related to possible nerve gas and other neurotoxic exposures. Neurologic examinations and cognitive testing were part of the earliest versions of this protocol. As a consequence, VA diagnostic protocols continue to serve as a valid set of clinical guidelines for initial screening examinations (Phase I) and more comprehensive evaluations of difficult-to-diagnose cases (Phase II). These protocols received positive reviews by highly-respected physicians and scientists in the past, and they will be reviewed once more later this year by a newly constituted Institute of Medicine Committee.

With regard to these protocols, I should also note that to date, no valid diagnostic test has been found to identify chemical warfare agent exposures that occurred years ago; therefore, no confirmatory test can be performed for veterans who wish to know whether or not they were exposed to these toxins during their service in the Gulf. The technology to do this simply does not exist. This is no different from the situation with agricultural or industrial workers who may be exposed to the same types of neurotoxins in the course of their work or to members of the public who live near toxic waste sites and have developed various symptoms that they believe are related to chemical exposures.

In the wake of the recent information regarding the possible exposure of service members to nerve agents at Khamisiyah in March 1991, VA has

been asked whether we listened to veterans who reported their belief that they had been exposed to chemical warfare agents during their Persian Gulf service. We believe that there is undeniable evidence that VA did listen to those veterans and did take appropriate action to investigate their concerns. As one example, members of a Navy Reserve Construction Battalion unit from Alabama, Tennessee, North Carolina, and Georgia reported suffering adverse health effects which they attributed to exposure to chemical warfare agents during their Persian Gulf War service. In response, VA established a pilot medical program at the Birmingham VA Medical Center to evaluate their health status. As part of this special health-care program, more than 100 veterans were evaluated and treated. Veterans with cognitive symptoms received extensive (7-8 hour) neuropsychological testing and clinical evaluations. As another example, within days after the tragic incident of a sarin release in a Tokyo subway on March 20, 1995, VA scientists began collaborative research efforts with scientists in Japan studying the survivors of that incident, because we believed this would help answer questions regarding Persian Gulf veterans.

Furthermore, the VA revised Registry examination protocol routinely asks participants to report the exposures they believe occurred during their service in Desert Shield and Desert Storm, including possible exposure to mustard gas or nerve agents.

In addition to these clinical programs, VA research studies investigating the prevalence of symptoms and medical conditions among Gulf War veterans are designed to determine whether those symptoms and conditions are associated with the wide range of reported risk factors, including chemical warfare agents.

## VA RESEARCH

In order to get the best assessment of the health status of the veterans, a carefully designed and well-executed research program is necessary. VA, as lead agent for federally sponsored Persian Gulf War research programs, has already laid the foundation for such a research plan in cooperation with DoD and HHS. In doing this, we have recognized that forward looking thinkers usually challenge traditional thinking; their views are often at variance with established or conventional thinking. Such researchers have often had difficulty getting their unconventional methods, diagnoses or treatments accepted by the scientific community. Recognizing this fact, VA has kept an open mind and an open door. We listen to and encourage investigators with innovative ideas, although we require that their investigative methods and techniques be consistent with sound science and ethical principles of experimentation.

Under the auspices of the Persian Gulf Veterans Coordinating Board's Research Working Group, VA has developed a structured research portfolio to address the currently recognized, highest priority medical and scientific issues. VA's interest in the array of hazards is clearly reflected in the focus of the government's research program, which includes 90 research projects at various stages of progress in the federal government's research portfolio. More than 30 projects are VA-sponsored. The number of projects in different focus areas are:

- 17 epidemiology projects on symptoms and general health
- 23 projects on brain and nervous system function
- 9 projects on the toxicology of pyridostigmine bromide
- 9 projects on environmental toxicology, including oil well fire smoke
- 5 projects on immunology

- 5 projects on leishmaniasis
- 6 projects on reproductive health outcomes
- 2 projects on the occurrence of life threatening illness and mortality rates
- 2 projects on depleted uranium
- 8 projects in a variety of other focus areas
- 3 projects on chemical warfare agents

Of these projects, 20 have been completed and have provided us with new information on Persian Gulf veterans' illnesses. For example:

- VA and DoD studies demonstrate that although PTSD rates among Persian Gulf veterans who were exposed to violence and carnage are elevated, post-traumatic stress disorder does not explain the majority of health problems in Persian Gulf veterans.

  VA's mortality study demonstrated that Persian Gulf veterans suffer from a small, but significant increased death rate due to injuries when compared to non-deployed military veterans. However, this study found that Persian Gulf veterans are not experiencing cancer or serious life-threatening diseases at a greater rate than their non-deployed counterparts.

- DoD's hospitalization study demonstrates that Gulf War veterans still on active duty do not appear to be experiencing illnesses severe enough to be hospitalized at a greater rate than their non-deployed active duty counterparts.

- VA, DoD and HHS studies demonstrate that deployed Persian Gulf veterans are experiencing more health symptoms than their non-deployed counterparts.

Specific details about these and other government-sponsored research programs are contained in the report Federally Sponsored Research on Persian Gulf Veterans' Illnesses for 1995 and in the 1996 update of A Working Plan for Research on Persian Gulf Veterans' Illnesses.

As can be seen from the above, the federal research portfolio addresses a wide array of concerns. Contrary to what some people have alleged, only a small portion of the government's research has addressed the relationship between stress exposure and psychophysiological outcomes. Most of the focus to date has been on environmental exposures, and most of these were funded well before the information on Khamisiyah became available.

The recent report of the Presidential Advisory Committee on Gulf War Veterans' Illnesses recommended that we increase our research efforts in the area of the relationship between exposure to stress and physiological outcomes. I agree with this. This is an important area of scientific investigation that impacts the lives of everyone, civilian and soldier alike. One example illustrates this: coronary artery disease is one of the most serious public health problems in America, and stress is one of the leading risk factors for coronary artery disease.

Beginning in 1994, VA's research program focused on the possibility that Persian Gulf veterans may have been exposed to a class of neurotoxins that includes sarin and other chemical warfare agents. At that time, VA established three Environmental Hazards Research Centers, each of which

are conducting research related to potential neurotoxin exposure reported by veterans, including chemical warfare agents.

Because a carefully designed and well executed research program is vital to improving health assessments and care for veterans, VA has invested in more than thirty research projects on Persian Gulf veterans' illnesses being carried out nationwide by VA and non-VA university affiliated investigators. In 1996, we established a fourth Environmental Hazards Research Center at the Louisville VAMC for investigation of adverse reproductive outcomes. In addition, VA's Environmental Epidemiology Service has completed an initial Persian Gulf Veterans Mortality Study as part of a long-term study of this issue. The VA "National Health Survey of Persian Gulf Veterans and Their Families" is being carried out by the VA's Environmental Epidemiology Service. Phase I, a postal survey of 15,000 Gulf War veterans and a comparison group of 15,000 Gulf-era veterans, was completed in August 1996. The questions on this survey asked veterans to report health complaints, medical conditions, and possible exposures to a wide variety of possible environmental agents, including potential nerve gas or mustard gas exposure. The response rate for Phase I of this postal survey was good, with an adjusted response rate of approximately 57 percent. Phase II will consist of 8,000 telephone interviews and a review of 4,000 medical records. Phase II will address the potential for non-response bias, provide a more stable estimate of prevalence rates for various health outcomes, and verify self-reported health outcomes in medical records. The Phase III examination protocol is being finalized and VA hopes to initiate examinations of veterans and their family members in Spring 1997. Peer-review is provided by a subcommittee of VA's Persian Gulf War Expert Scientific Advisory Committee. Details of these and other government-sponsored research studies are included in the report Federally Sponsored Research on Persian Gulf Veterans Illnesses for 1995. Copies of this report have been previously provided to the Subcommittee. We

continue to search for answers and to expand our understanding of the complex array of issues related to Persian Gulf veterans' illnesses. While scientific answers are being sought, VA also continues to provide Persian Gulf veterans with needed health care and other services to reduce their suffering.

## COORDINATING BOARD'S ROLE IN RESEARCH

In January 1994, the President established the Persian Gulf Veterans Coordinating Board, chaired by the Secretaries of VA, DoD, and HHS, to provide interdepartmental coordination and direction of federal programs related to Persian Gulf War veterans. The Coordinating Board provides an interdepartmental means to share information on Persian Gulf War veterans health issues, to allocate available resources to the apparent highest priorities, and to disseminate new research information. The Coordinating Board has three specific objectives:

- to ensure that all veterans are provided the complete range of healthcare services necessary to take care of medical problems that may be related to deployment in Operations Desert Shield and Desert Storm;

- to develop a research program that will result in the most accurate and complete understanding of the health problems experienced by Persian Gulf War veterans and the factors that have contributed to these problems; and

- to develop clear and consistent guidelines for the evaluation and compensation of disabilities related to Persian Gulf service.

VA plays a central role in the Persian Gulf Veterans Coordinating Board through its participation in the Clinical, Research, and Compensation

and Benefits Working Groups. In particular, the Research Working Group provides guidance and coordination for VA, DoD and HHS research activities related to Persian Gulf War veterans' health. It coordinates all studies conducted or sponsored by these three departments in order to prevent unnecessary duplication and to ensure that important gaps in scientific knowledge are identified and addressed. The working group is actively involved in directing resources toward high priority questions and monitoring the results of federally sponsored research projects. In the past year alone, it produced the two reports noted earlier: Federally Sponsored Research on Persian Gulf Veterans Illnesses for 1995 and the 1996 update of A Working Plan for Research On Persian Gulf Veterans Illnesses.

One example of the Coordinating Board's proactive role in relevant research administration was its prioritization of the federal government and non-government research proposals submitted for funding pursuant to DoD's 1996 Broad Agency Announcement. The American Institute for Biological Sciences (AIBS) performed peer-review of the 111 proposals submitted. The research working group reviewed those proposals judged scientifically meritorious by AIBS and prioritized them according to relevance and potential to fill gaps in the existing Persian Gulf research portfolio. Twelve research projects encompassing the areas of reproductive outcomes, toxicology of pyridostigmine bromide, modeling of respiratory toxicant exposures from tent heaters, neuropsychological outcomes, immune dysfunction, mycoplasma infection, leishmaniasis, chronic fatigue, fibromyalgia, and neuromuscular function were given high priority for funding by the research working group. On this basis, DoD awarded these grants in 1996.

Although, as I discussed above, the clinical and research programs of VA have been open to the possibility of chemical warfare exposure, studies of the potential long-term health effects of low-level (asymptomatic) chemical

warfare agent exposure were not given a high priority prior to the revelations about Khamisiyah. This was because military and intelligence sources had repeatedly stated that there had been no use, presence, or evidence of exposure to chemical warfare agents in the theater of operations. DoD's report of the battlefield assessment, combined with a lack of clear-cut clinical evidence to support a finding of chemical warfare exposure, led the Coordinating Board to focus its research resources on other questions.

A very important distinction to note, however, is that while exposures per se were not judged to be as high a priority of research as some other areas, the health outcomes which could result from such a neurotoxic exposure were given priority. These outcomes included cognitive, neurologic, and neuromuscular effects. This distinction between not studying exposure but studying exposure effects is a very important point to understand. This decision was supported by committee reports from the Institute of Medicine, VA Persian Gulf Expert Scientific Committee, the National Institutes of Health Technology Assessment Workshop, the Presidential Advisory Committee and others.

When DoD made its June 1996 announcement regarding possible exposure of U.S. troops to sarin and cyclosarin as a result of the demolition at Khamisiyah, the Coordinating Board immediately began revision of its action plan. Through the Research Working Group of the Coordinating Board, VA has developed an action plan to address possible long-term health consequences of low-level exposure to chemical warfare nerve toxins and mustard gas.

The published scientific research on chemical warfare nerve agents to date has shown that non-lethal, but symptomatic exposures may be associated with persistent neurophysiologic test abnormalities of unclear clinical

significance. However, a recent literature review carried out by independent, non-government and government scientists suggests that readily-identifiable, long-term adverse health effects due to nerve agent exposures occur only in humans who show signs of acute toxicity or poisoning. However, I should note that the research in this area is sparse, and the absence of proof is not proof of absence. In VA's judgment, this information does not mean that clinically important adverse health effects cannot or do not occur in the setting of low-level, asymptomatic neurotoxin exposures, especially if combined with other toxic chemicals or environmental stressors. The Coordinating Board has recommended that more research resources be allocated to address this question. I strongly agree with this approach. The Research Working Group has reconsidered the matter and intensified its efforts related to possible effects of low-level exposures to chemical warfare agents.

Based on the Coordinating Board's recommendation, in December 1996, $2.5 million was awarded to complete three new, peer-reviewed, basic science research projects in this area. Furthermore, a request for proposals on low-level chemical warfare nerve agents and other hazardous exposures was developed by the Coordinating Board and published by DoD in the December 10, 1996, issue of the Commerce Business Daily. An additional $11.6 million from the DoD appropriations has been identified to fund this Broad Agency Announcement (BAA), with at least $2 million specifically designated for research on investigation of the possible association of adverse health effects and low-level chemical warfare nerve agent exposure. A copy of the original and amended BAA has already been provided to the Subcommittee.

While these efforts represent a good beginning, in June 1996, I asked VA's Office of Research and Development to take a completely fresh look at these issues. This included asking them to develop a strategic plan for an environmental health research agenda that specifically focuses on low-level

exposures to neurotoxins that might result from chemical warfare agents or other military situations. This is due to me in February. Likewise, we are organizing an international scientific symposium that is scheduled for March 6-7, 1997, that bridges potential military and civilian incidents involving exposure to those types of chemicals. Given the relative lack of worldwide scientific capability for assessing these issues in the traditional open and peer-reviewed manner in which the best science is carried out, we believe it is essential to bring together a multi-disciplinary group of experts to focus on finding innovative solutions to these perplexing issues.

Research related to the illnesses of Persian Gulf War veterans is highly complex, and this is especially so for the investigation of concerns related to possible low-level exposure to chemical warfare agents. VA is committed to meeting these challenges and obtaining the most accurate answers we can concerning the health of PGW veterans and their families.

## RECENT REPORTS

In this regard, Mr. Chairman, in your letter of January 9, 1997, you requested that I comment on the reports on Persian Gulf War veterans that were published in the January 15, 1997, issue of the Journal of the American Medical Association. We believe the reports by Haley, et al., and the epidemiological survey by Schwartz and colleagues represent notable contributions to the research effort underway to better understand the illnesses of Persian Gulf veterans.

The study of Schwartz, et al., is a population-based telephone survey of a sample of 2000 Persian Gulf veterans and 2000 Gulf-era veteran controls whose home of record was Iowa. Participation rates were high; 76 percent of the eligible subjects participated. The study examined self-reported symptom

prevalence rates and used validated algorithms to group symptoms into five categories of medical conditions. The study group was found to have a significantly higher self-reported prevalence of medical and psychiatric conditions including asthma and bronchitis, post-traumatic stress disorder, depression, cognitive dysfunction, chronic fatigue, and fibromyalgia. Among Persian Gulf War veterans, these conditions were more often reported by those with self-identified exposures to pyridostigmine bromide, chemical warfare agents, pesticides, solvents, and smoke than among those not reporting such exposures. The noted higher rate of self-reported symptoms is similar to the findings of a study VA requested CDC conduct on a group of Pennsylvania veterans that was published in the June 1995 issue of Morbidity and Mortality Weekly Report.

Haley and colleagues studied a single military unit of Gulf War veterans, the 24th Reserve Naval Construction Battalion. To characterize the illness of this group of veterans, Haley administered a detailed questionnaire on symptoms and risk factors to 249 (41%) of the 606 members of this unit. Through factor analysis, the investigators found six patterns of symptom clusters – i.e., 6 different syndromes in this small group of persons. The predominate symptom clusters were reported as being characterized by impaired cognition, confusion-ataxia, and arthromyoneuropathy. To further explore the syndromes, 23 of the most symptomatic Persian gulf veterans and 20 controls underwent extensive neuropsychological and neurophysiological testing. A group of neurologists reviewed the cases and were not able to make a diagnosis. However, a complicated statistical comparison of the aggregated test results of the study group compared to the control group found evidence of subtle neuropsychological test abnormalities and asymmetry and prolongation of certain neurophysiologic test parameters. An examination of self-reported exposures showed that risk factors associated with the three mentioned syndromes included flea collars for the impaired cognition syndrome, self-

reported or perceived chemical warfare and pyridostigmine bromide exposure for the confusion-ataxia syndrome, and self-reported DEET and pyridostigmine bromide exposure for the arthromyoneuropathy syndrome.

In addition to noting the findings of these studies, Mr. Chairman, you asked VA to discuss the potential significance of this research. We believe these studies are important because they confirm the findings of other research studies that show that Persian Gulf War veterans report significantly more symptoms than their non-deployed counterparts. On the whole, we concur with the editorial comment of Dr. Phillip Landrigan that accompanied these reports and which was published in the same issue of JAMA. That is, while we view these studies as important, they do have significant limitations. Specifically, they both rely almost exclusively on self-reported symptoms and exposures which may be affected by recall bias. The study of Haley, et al., also suffers from a problem with selection bias which could potentially skew the results. Specifically, only 41 percent of the Seabee cohort chose to participate in the study, and an analysis of nonresponse bias revealed that those who did not respond were less symptomatic than those who participated (43% vs. 70%). Said in a different way, if a greater proportion of the Battalion participated in the study then it is possible that the subtle statistical association that was noted may have disappeared. It may not have, as well. In view of these and other limitations, the study results should be interpreted with caution. They certainly can not be considered definitive. To better understand the study, we will be seeking additional unpublished details directly from Dr. Haley. Having said this, though, I would reiterate that we believe these studies are significant, but our knowledge of the Persian Gulf veterans' illnesses and their relation to Gulf War service is still far from complete. Further research is necessary to answer the myriad new research questions raised by these studies. Of note, these questions were anticipated by the Research Working Group of the

Persian Gulf Veterans Coordinating Board. A request for proposals which was developed by the Research Working Group and published by DoD in the Commerce Business Daily on December 10, 1996, will give the Coordinating Board a further mechanism for addressing these additional research questions. These proposals are due by February 19, 1997.

## CLINICAL TRAINING

VA was proactive in establishing health-care programs for Persian Gulf War veterans. In the immediate post-war period, the medical and scientific community had only limited knowledge of the complexity of Gulf War specific issues and exposures. Through our clinical and research programs, VA has been a leader in the development and dissemination of knowledge on Gulf War-related health issues. In order to keep our health-care providers well-informed on the latest developments, VA has utilized a wide array of communication vehicles including periodic nationwide conference calls, mailings, satellite video-teleconferences and annual on-site continuing medical education (CME) conferences. Our initial efforts were successful in educating a dedicated cadre of well-informed Registry physicians and staff, and we will continue to keep them up-to-date on the latest developments. However, I also see an opportunity to improve the understanding of Persian Gulf war-related health issues by other medical personnel. My goal is that all VA health-care providers will have a working understanding of Gulf War exposures and health issues and will be able to discuss with their Persian Gulf War patients how these issues could impact on their current or future health status. In order to meet this challenge and continue to improve our programs, the Veterans Health Administration has developed and will publish a self-study Persian Gulf CME program for every VA physician in early 1997. We will make this available to non-VA physicians, at cost, as well.

## CONCLUSION

In concluding these comments, Mr. Chairman, I should note that Persian Gulf War veterans are not faceless statistics to VA health care personnel. They are American citizens who have answered their country's call to arms and served their nation bravely. We view them as special people who come to us with genuine problems and concerns for their future. Our doctors, nurses, therapists and directors are dedicated to providing compassionate care, compensation examinations and answering questions to the best of medical science's ability, which I believe we all agree is not as good as we would like in this area. We will push forward with our programs cooperating with DoD and HHS. If we fall short of the high standards we set for ourselves, we will strive harder to achieve our goal of continuous improvement. President Clinton has made it clear that no effort should be spared in this regard. In the end, long after the headlines fade away and national attention turns elsewhere, VA will still be there to care for Persian Gulf and other veterans. This is our mission.

In this regard we are grateful for the assistance provided by the Presidential Advisory Committee on Gulf War Veterans' Illnesses. We recognize the central role they played in the investigation of possible troop exposure to sarin and cyclosarin. The recommendations released in the Committee's final report are very helpful and are being studied carefully. As the President has directed, VA along with the Departments of Defense and Health and Human Services will be preparing an action plan addressing the Committee's recommendations. This action plan, which will be developed through the Coordinating Board, will be presented to the President by March 8, 1997.

Thank you, Mr. Chairman. That concludes my prepared testimony. I will be happy to answer any questions.

Mr. SHAYS. It is essential that we communicate well and I have no problem with you asking for clarification. And, frankly, I don't have any problem if you hear someone ask a question of someone else and step in if you think we are not communicating. I am not an attorney, and I am not offended.

Dr. KIZER. I am sorry, I apologize.

Mr. SHAYS. Dr. Rostker.

Mr. ROSTKER. Thank you, Mr. Chairman——

Mr. SHAYS. Excuse me. I am going to have you lower it down just a little bit. It is the one with the long stem that projects your voice. The other one is the TV camera.

Mr. ROSTKER. Mr. Chairman, thank you very much for the opportunity to come before the committee today to explain to you and to the American people the very many changes we made in the Defense Department.

Mr. Chairman, on 12 November 1996, the Deputy Secretary of Defense, Dr. John White, appointed me Special Assistant for Gulf War Illnesses. This action was part of a broader set of initiatives undertaken in September to assess the Department of Defense's Gulf war illness program in view of the recent events to include the report that soldiers may have been exposed to chemical agents during the destruction of storage sites at Khamisiyah.

My mission as the Special Assistant for Gulf War Illnesses is to serve as the Department of Defense's coordinator for all issues relating to Gulf war illnesses. Two vital aspects of this mission are to ensure that we learn everything possible about the suspected chemical exposure events which occurred during and after the Persian Gulf conflict and to promote improved communications with Gulf war veterans on the relevant health issues.

This mission is critical not only because we have a moral duty to our veterans but also because we must understand what is making our people sick so that we can initiate the vital changes required to protect our forces in the future. We must ensure that DOD puts in place all the required military doctrine, plus personnel and medical policies, procedures, and equipment so as to prevent future repetitions of the problem.

To quote the President: "I want to assure all of you that we will leave no stone unturned in our efforts to investigate Gulf war illnesses, and to provide our Gulf war veterans with the medical care they need. There are mysteries, still unanswered questions and we must do more."

Mr. Chairman, it is my business to leave no stone unturned. To carry out this mission, I have expanded by an order of magnitude the Department of Defense's investigations organization. The original team of 12 is now more than 110 people strong, and they have completely revamped the way we do business. We have the investigators and analysts necessary to perform a full review of currently known incidents, and I have the authority to search out and pursue reports of any new incidences.

My expanded efforts build on earlier work by refocusing and substantially increasing the level of commitment. Much of the increase is focused on incidents which occurred during the Gulf war, the hazardous exposures that may have resulted from these incidents, and the broader implications of such incidents. We are doing this

with renewed dedication to communicate with all veterans who served and fought in Southwest Asia in 1991, including those veterans who are still on active duty, serving in the National Guard and Reserve, and those who have returned to full-time civilian life.

I have expanded into new areas to initiate proactive risk communication strategies with a two-way communication between the DOD, the VA, and the Gulf war veterans as recommended by the Presidential Advisory Committee on Gulf War Illnesses, the PAC. Today, when a veteran calls our telephone hotline to offer information, the veteran receives a followup call and is interviewed by a trained investigator who ensures that information is incorporated into our case files.

These call-backs not only provide an in-depth debrief, but for the future, a single point of contact between my office and the reporting Gulf war veteran. The process involves the veteran in the investigative process in a significant and meaningful way. Our call-back teams work on two shifts from 7 a.m. to 11 p.m., Monday through Friday. Response from the veterans has been extremely positive.

We also collaborate very closely with veterans' service organizations. For example, on December 11th, we hosted the VSOs at a demonstration of the chemical equipment used during the Gulf war, particularly the M8 alarm, 256 test kits and the FOX chemical reconnaissance vehicle. They appreciated the opportunity to become more familiar with the equipment that has often been written about in the press and was the subject of debate in Congress.

We have initiated a formal structure for our incident investigations. We are preparing a series of narratives that summarize what we know about such incidents as Khamisiyah, the Marine breaching operation, operational logs, FOX alarms, for pyridostigmine bromide tablets, and every other issue under investigation. These narratives will be a status report to the American people of what we know, when we knew it, and what actions we plan to take. I expect that this will be the basis for us to more effectively address the concerns of Gulf war veterans and their families.

We are building on the major health programs initiated by the Assistant Secretary of Defense for Health Affairs, Dr. Steve Joseph. Under his leadership, a comprehensive clinical evaluation program was established in which more than 38,000 Gulf war veterans registered—and those Gulf war veterans who are in active duty and in the Reserve components today. The Department of Veterans Affairs has its own registry with 63,000-plus veterans in their registry.

In addition to forming my organization, the Deputy Secretary of Defense generated a number of other important initiatives. In the area of research, the DOD has committed to spending $12 million to study a wide range of medical issues relating to the Gulf war. Further, we are prepared to spend an additional $15 million to study the long-term effects of chemical and other hazardous exposures, including low-level chemical exposures.

At this time, therefore, I am withdrawing the DOD staff paper published on the GulfLINK home page on the Internet which discounts low-level chemical exposures as the cause for Gulf war illnesses. In doing this, I note that the PAC concluded and current

scientific evidence does not support a causal link between low-level chemical exposures and undiagnosed Gulf war illnesses. However, the PAC also recommended that additional research be warranted. We concur in this assessment and plan to fund the appropriate research. I approach this subject with a completely open mind, and our research agenda is clear evidence to this.

Dr. White also initiated a review by the Institute of Medicine of the DOD clinical health examination protocols in light of the possibility of chemical exposures; a review by the Army Inspector General of the military operations at Khamisiyah; and a review by the Assistant to the Secretary of Defense for Intelligence Oversight of the circumstances surrounding the handling of intelligence data concerning Khamisiyah.

Furthermore, Dr. White requested that the National Academy of Sciences provide a mechanism for oversight to meet the President's call for an independent, open, and comprehensive examination of health-related issues and assessment of the multiple issues relating to the protection of our forces. This is in addition to the PAC's oversight of the investigation into low-level chemical exposure events and monitoring of the governmentwide implementations of its recommendations.

Mr. Chairman, I would like to take a moment to comment on issues raised by this committee on 10 December 1996, concerning its perception that field commanders in the Gulf dismissed what soldiers and Marines considered to be valid chemical detections. Marine Corps Gunnery Sergeant George Grass, Major Randy Hebert, and Army Major Michael Johnson are Americans whose service we honor and testimony we welcome. We applaud these men for coming forward to describe events about which we are all deeply concerned. The clarity and detail of their observations contributed significantly to our investigations, and we are examining each and every one of the incidents they report. Their close, personal observations, however, must be taken into the context of all of the information available to us as we go forward in our investigation.

As you see from the illustration provided in the handout before you, I believe we can, indeed, corroborate one of the initial detections cited by Gunnery Sergeant Grass. However, it is important to note that the same log that records his initial chemical alert also records the action taken in response to that alert and the final determination that no chemical warfare agents were present.

Let me be more specific. On 28 February 1991, there is an entry in the CENTCOM Chemical Log published on GulfLINK, and therefore available for all to review, that reads, and I quote: CWO James called: 1st Marine Division has come across an ammo bunker complex with suspected chemical munitions. The FOX has come up with indications of small concentrations of sulfur mustard after numerous tests.

The next day, another log entry states, and I quote again: Chief Warrant Officer James calls back. The suspected bunker was checked out thoroughly. No chemical munitions was found. In fact, we have interviewed the members of the team that checked out that bunker and can confirm that from other sources.

It is also important to note that the unit commanders did what was right and responded appropriately by directing their troops to don chemical protected gear, they cordoned off the area, and waited for properly trained troops to enter and investigate the bunker.

While in this case the chemical logs help clear up the issue here of the ammo bunker reported to this committee, in other cases the same logs identified and confirmed issues we cannot explain. This includes the Czech records which United States equipment could not confirm, and I would note that the Czech detectors were more sensitive than United States equipment, which may help explain why we cannot confirm their initial reports.

In conclusion, we are wholeheartedly committed to find out everything we can about Gulf war illness. This is necessary not only because it is right for our veterans but also because it is imperative for the future safety of our troops. I invite our veterans to assist by contributing their own observations to our investigation. They may do so by calling our toll-free number, and if I might, 1–800–472–6719. We want them to help us become part of our team.

Mr. Chairman, thank you for allowing me to read this statement.

[The prepared statement of Mr. Rostker follows:]

Statement by Dr. Bernard Rostker, Special Assistant to the Deputy Secretary of Defense for Gulf War Illness Before the House Government Reform and Oversight Committee, Subcommittee on Human Resources and Intergovernmental Relations
January 21, 1997

Mr. Chairman, on 12 November, 1996, the Deputy Secretary of Defense, Dr. John White, appointed me Special Assistant for Gulf War Illnesses. This action was part of a broader set of initiatives undertaken on 25 September, 1996, to assess the Department of Defense's Gulf War Illnesses program in view of recent events, to include the reports that soldiers may have been exposed to chemical agents during the destruction of the storage site at Khamisiyah.

My mission as the special assistant for Gulf War illnesses is to serve as the DOD coordinator for all issues relating to Gulf War illnesses. Two vital aspects of this mission are to ensure that we learn everything possible about the suspected chemical exposure events which occurred during and after the Persian Gulf conflict and to promote improved communication with Gulf War veterans on the relevant health care issues. This mission is critical not only because we have a moral duty to our veterans, but also because we must understand what is making our people sick so that we can initiate the vital changes required to protect our forces in the future. We must ensure

that DOD puts into place all required military doctrine, plus personnel and medical policies, procedures and equipment so as to prevent future repetition of the problem.

To quote the President: "I want to assure all of you that we will leave no stone unturned in our efforts to investigate Gulf War Illnesses, and to provide our Gulf War veterans with the medical care they need. There are mysteries still unanswered and we must do more." It is my business to leave no stone unturned.

To carry out this mission I have expanded by an order of magnitude the Department of Defense's investigations organization. The original team of 12 is now more than a 110-people strong and I have completely revamped the way we do business. We have the investigators and analysts necessary to perform a full review of currently known exposures, and I have the authority to search out and pursue reports of any new incidents.

My expanded efforts build on earlier work by re-focusing and substantially increasing the level of commitment. Much of that increase is focused on incidents which occurred during the Gulf War, the hazardous exposure that may have resulted from these

incidents, and the broader implications of such incidents. We are doing this with renewed dedication to communicate with all veterans who served and fought in Southwest Asia in 1991, including those veterans who are still on active duty, serve in the Reserve or National Guard, and those who have returned to full-time civilian life.

I have expanded into new areas to initiate a pro-active, risk communication strategy with the two-way communications between DOD, the VA and the Gulf War veterans as recommended by the Presidential Advisory Committee on Gulf War Veteran's Illnesses (PAC). Today, when a veteran calls our telephone hotline to offer information, the veteran receives a follow-up call and is interviewed by a trained investigator who ensures that information is incorporated into our case files. These call backs not only provide an in-depth debrief, but for the future, a single point of contact between my office and the reporting Gulf War veteran. The process involves the veteran in the investigative process in a significant and meaningful way. Our call back team works in two shifts, from 7am to 11pm Monday through Friday. The responses from the veterans have been extremely positive.

We also collaborate very closely with veterans service organizations (VSO). For example, on December 11, 1996 we hosted the VSOs at a demonstration of the chemical equipment used during the Gulf War, particularly the M8 alarm, 256 test kits and the FOX chemical reconnaissance vehicle. They appreciated the opportunity to become more familiar with the equipment that has often been written about in the press and was the subject of debate in Congress.

We have initiated a formal structure for our incident investigations. We are preparing a series of narratives that summarize what we know about such incidents as Khamisiyah, the Marine breaching operation, operational logs, Fox alarms, pyridostigmine bromide (PB) tablets and every other issue under investigation. The narratives will be a status report to the American people of what we know, when we knew it, and what actions we plan to take. I expect that this will be the basis for us to begin to address the concerns of Gulf War veterans and their families.

We are building on the major health program initiated by the Assistant Secretary of Defense for Health Affairs, Dr. Stephen Joseph. Under his leadership, a comprehensive clinical evaluation program was established in which more than 38,000 Gulf War

veterans registered - 30,000 veterans have requested a medical examination. The Department of Veterans Affairs has entered another 63,000-plus veterans into their Persian Gulf Registry.

In addition to forming my organization, the Deputy Secretary of Defense generated a number of other important initiatives. In the area of research, the DOD has committed to spend $12M to study a wide range of medical issues related to the Gulf War. Further, the DOD is prepared to spend another $15M to study the long-term effects of chemical and other hazardous exposures, including low-level chemical exposure.

At this time, therefore, I am withdrawing the DOD staff paper published on the GulfLINK homepage which discounts low-level exposure as the cause for Gulf War illnesses. In doing this, I note that the PAC concluded and current scientific evidence does not support a casual link between low-level chemical exposures and undiagnosed Gulf War illnesses. However, the PAC also recommended that additional research is warranted. We concur in this assessment and plan to fund the appropriate research. I approach this subject with a completely open mind. Our research agenda is clear evidence of this.

Dr. White also initiated a review by the Institute of Medicine of the DOD clinical health examination protocols in light of the possibility of chemical exposure; a review by the Army Inspector General of military operations at Khamisiyah; and a review by the Assistant to the Secretary of Defense for Intelligence Oversight of the circumstances surrounding the handling of intelligence data concerning Khamisiyah.

Further, Dr. White requested that the National Academy of Sciences provide a mechanism for oversight to meet the President's call for an independent, open, and comprehensive examination of health-related issues and assessment of the multiple issues related to the protection of our forces. This initiative is in addition to the PAC's oversight of the investigation into low-level chemical exposure events and monitoring of government-wide implementation of its recommendations.

I would like to take a moment to comment on an issue raised by this Committee on 10 December 1996, concerning its perception that field commanders in the Gulf dismissed what soldiers and Marines considered to be valid chemical detections. Marine Corps GySgt George Grass, Major Randy Hebert, and Army Major Michael Johnson are Americans whose service we honor and whose

testimony we welcome. We applaud these men for coming forward to describe events about which we are all deeply concerned. The clarity and detail of their observations contributed significantly to our investigations, and we are examining each and every one of the incidents they reported. Their close, personal observations, however, must be taken in the context of all the information available to us as we go forward in our investigation.

As you see from the illustration provided in the handout before you, I believe we can indeed corroborate one of the initial detections cited by GySgt Grass. However, it is important to note that the same log that records his initial NBC alert also records the action taken in response to that alert and the final determination no chemical warfare agents were present. Let me be more specific. On 28 February 1991, there is an entry in the CENTCOM Chemical Log published on GulfLINK that reads "CWO James called: 1st MARDIV has come across an ammo bunker complex (QT75393910) with suspected chemical munitions. The Fox (GCMS) has come up with indications of small conc. of sulfur mustard after numerous tests." The next day, another log entry states "CWO James called back. The suspect bunker was checked out thoroughly--no chemical munitions found."

It is also important to note that unit commanders did what was right and responded appropriately by directing their troops to don chemical protective gear, cordon off the area, and wait for properly trained troops to enter and investigate the bunker.

While in this case the chemical logs help clear up the issue of the ammo bunker reported to this committee, in other cases the same logs identify and confirm detections we cannot explain. This includes the Czech reports which US equipment could not confirm. (Czech detectors were more sensitive than US equipment, which may help explain why we could not confirm their reports.)

In conclusion, we are whole-heartedly committed to finding out everything we can about any factor impacting on Gulf War illnesses. This is absolutely necessary, not only because it is right for our veterans, but also because it is imperative for the future safety of our troops. I invite our veterans to assist by contributing their own observations to our investigation. They may do so by calling our toll free telephone number, 1-800-472-6719 and help us by becoming part of our team. Thank You

# CENTCOM's Chem Logs

| | | |
|---|---|---|
| 281930 | CMO JAMES CALLED. 1ST MARDIV HAS COME ACROSS AN AMMO BUNKER COMPLEX (QT71393910) WITH SUSPECTED CHEMICAL MUNITIONS. THE FOX (CCMU) HAS COME UP WITH INDICATIONS OF SMALL CONC OF SULFUR MUSTARD AFTER NUMEROUS TESTS. ALL POSSIBLE INTERFERENCES WITH PETROLEUM PRODUCTS RULED OUT. THEY ARE OUTSIDE THE BUNKER NOW. NO ONE HAS GONE IN. THEY'VE MOVED THEIR EOD PEOPLE UP, BUT WON'T DO ANYTHING UNTIL THE MORNING. AREA IS CORDONED OFF, ALL THEIR PEOPLE IN THE AREA HAVE BEEN WARNED. | SPOT REP SUBMITTED TO CAT DIR (COL KLIMP), AND ZO. INFORMED CSIC IN OK (LTC FISCHER. J2 RESEARCHING FILES FOR PREVIOUS REPORTS ON THIS SITE. |

**Reports that later turned out to be false included an "ammo bunker complex" discovered by the Marines. Even though there were "numerous tests" for "small conc of sulfur mustard." Further examination by the Marines shows that the "suspected bunker checked out thoroughly -- no chemical munitions found.**

| | | |
|---|---|---|
| 011930 | CMO JAMES CALLED BACK. 'SUSPECT BUNKER' WAS CHECKED OUT THOROUGHLY --- NO CHEMICAL MUNITIONS FOUND.' HE IS PROBABLY RETURNING TO QUANTICO TOMORROW. ASKED HIM TO HAVE SHOW TAPES, LOG BOOKS, ETC. PASSED TO PM NBC DEFENSE SKETING (CPT MARSHALL). | |

# CENTCOM's Chem Logs

| | | |
|---|---|---|
| 192244 | CZECH UNIT REPORTED 2X NG IN THE AIR AT [illegible] AT 1600-HRS, RISING TO 3X NG AT 1300 (IN A REPORT SENT TO LTG [illegible] [illegible]). THIS IS THE GENESIS OF THE FALSE STORY THAT CIRCULATED EARLIER THIS AFTERNOON. | EXPLAINED THIS ONE INFORMALLY. THIS SORT OF THING IS BOUND TO HAPPEN AGAIN. |

**CZECH detectors were more sensitive than US detection equipment and may help "explain" why we could not confirm their reports**

| | | |
|---|---|---|
| 232100 | CENTAF CALLED TO PASS YET ANOTHER CZECH UNIT CHEMICAL REPORT. THEIR PEOPLE IN THE SAME AREA CHECKED IT OUT AND FOUND NOTHING. TOLD THEM TO DISREGARD ANY REPORTS COMING FROM THE CZECHS. | |

Mr. SHAYS. Thank you, Dr. Rostker.

Dr. Custis, we will be happy to hear your testimony. Sir, I am going to ask you if you would line up that mike toward you. It is a little hard to read because it comes over your paper, but it helps us hear.

Dr. CUSTIS. Mr. Chairman, members of the committee, we thank you for this opportunity to appear before you today. We have submitted written testimony for the record. As you requested, I will now summarize this material.

First, there should be no question that the Presidential Advisory Committee on Gulf War Veterans' Illnesses recognizes that many veterans are experiencing medical problems connected to their service in the Gulf war. In the near term, the government needs to fine tune some specific efforts in followup clinical care and risk communication. Overall, however, we were encouraged, for the most part, by the Government's response to the range of health-related problems experienced by Gulf war veterans.

Regarding research, the committee found that the research currently under way places an appropriate emphasis on the epidemiologic studies and stress-related disorders. The broad array of ongoing research will improve our understanding of Gulf war veterans' illness.

To close gaps in the current knowledge base, however, we recommended additional studies in three specific areas on long-term health effects of low-level exposures to chemical warfare agents, on the synergistic effects of pyridostigmine bromide with other Gulf war risk factors, and on the body's physical response to stress.

The committee also noted the importance of continuing to ensure that resources are devoted to mortality studies since some health effects, such as cancer, would not be expected to appear until a decade or more after the end of the Gulf war.

While all the data are not yet in, the Advisory Committee was able to reach some conclusions about the nature of Gulf war veterans' illness. In this regard, we made three findings. First, as I noted, many veterans have illness likely to be connected to their service in the government.

Second, current scientific evidence does not support a convincing causal link between the illness and the symptoms that veterans report today and exposure to any environmental risk factor of the commonly suspected Gulf war risk hazards that we assess. The committee conducted a comprehensive review based on results subjected to peer review of the health effects of pesticides, chemical warfare agents, biological warfare agents, vaccines, pyridostigmine bromide, infectious diseases, depleted uranium, oil well fire smoke, and petroleum products, and psychological and physiological stress; and finally, the fact that stress, which is known to affect the brain, immune system, cardiovascular system, and various hormonal responses, is likely to be an important contributing factor but that it is not and cannot be the whole story.

As you know, the Advisory Committee had one significant caveat about the Government's response related to Gulf war veterans' health concerns. We took strong issue with the Department of Defense's efforts to assess possible exposures of United States troops to chemical warfare agents in the Gulf. An atmosphere of Govern-

ment distrust now surrounds every aspect of Gulf war veterans' illnesses because of DOD's mishandling of this matter. This situation is regrettable, but it is also understandable.

Our investigation of DOD's efforts in this area led us to conclude the Department's early efforts were superficial and lacked credibility. We found substantial evidence of site-specific, low-level exposures to chemical warfare agents. Moreover, we found DOD's investigations had been superficial and were unlikely to provide credible answers to veterans' and the public's questions.

The Advisory Committee also noted that DOD's failure to seriously investigate these issues until late last year also adversely affected decisions related to funding research into possible health effects of low-level exposures to chemical warfare agents.

Before concluding my oral remarks, I do want to mention that during the course of the Advisory Committee's investigations, we judged that the government could do a better job in the future of avoiding post-conflict health concerns. Thus, we made several recommendations to address the need for better communication, better data, and better services.

Ms. Gwin and I would be happy to discuss committee recommendations in greater detail should you have questions, but I especially want to note a strong need to improve data collection and handling. The government has a significant amount of ground to recover with Gulf war veterans and the American public, because they have come to question whether a lack of data, for example on possible exposures, on the pre- and post-development health care veterans, or on the location of troops in theatre, indicates a lack of commitment to veterans' health.

In conclusion, Mr. Chairman and members of the committee, the Nation has begun to pay its debt to Gulf war veterans in many important ways. It is essential now to move swiftly toward resolving their principal remaining concerns: how many U.S. troops were exposed to chemical warfare agents? And to what degree?

Thanks again for this opportunity to review our work with you. We would be happy to answer any questions. I thank you.

[The prepared statement of Dr. Custis follows:]

Presidential Advisory Committee on Gulf War Veterans' Illnesses

**Testimony of**

**ADMIRAL DONALD CUSTIS, M.D.**

**Accompanied by**
**Holly L. Gwin, Deputy Director/Counsel**

***"Presidential Advisory Committee on Gulf War Veterans' Illnesses: Final Report"***

**U.S. House of Representatives**
**Committee on Government Reform and Oversight**
**January 21, 1997**

President Clinton established the Presidential Advisory Committee on Gulf War Veterans' Illnesses in May 1995 to ensure an independent, open, and comprehensive examination of health concerns related to Gulf War service. The Committee, a 12-member panel made up of veterans, scientists, health care professionals, and policy experts, held 18 public meetings between August 1995 and November 1996. We heard invited testimony and received public comment at each meeting, 12 of which were held outside the Washington, DC area; for submission of written material, the Committee's official record was held open on a continuous basis. Staff held in-house consultations, received briefings, conducted literature reviews, interviewed veterans, and reviewed government documents throughout our tenure. We analyzed information on the full range of activities specified in our charter—research, coordinating efforts, medical treatment, outreach, reviews conducted by other governmental and nongovernmental bodies, risk factors (exposure and health effects), and chemical and biological weapons—to reach our findings and recommendations. The *Final Report* presented the Committee's conclusions in three major parts:

- an evaluation of the government's response to Gulf War veterans' illnesses;
- an evaluation of available data on the nature of Gulf War veterans' illnesses; and
- an evaluation of available data on the health effects of Gulf War risk factors.

Findings and recommendations specific to the needs of Gulf War veterans appear throughout the *Final Report* and are summarized in this testimony.

The Committee's primary focus was on Gulf War veterans' illnesses, but parallels with the health concerns of Vietnam veterans became increasingly obvious over time. Thus, the Committee also included in its analysis, recommendations on how to anticipate and avoid post-conflict health concerns.

## ADDRESSING GULF WAR VETERANS' ILLNESSES

Overall, the Committee was encouraged by the government's response to the range of health-related problems experienced by Gulf War veterans. Although somewhat slow to act at the end of the Gulf War, the government is now providing appropriate medical care to Gulf War veterans and has initiated research in the areas most likely to illuminate the causes of their illnesses. The Committee identified ways to fine-tune those efforts, but found that, for the most part, the government acted in good faith to address veterans' health concerns.

In the area of outreach, we found the Vet Centers and Persian Gulf Family Support Program established by the Department of Veterans Affairs (VA) to be effective outreach programs and recommended that these field-based initiatives serve as models for health education and risk communication campaigns.

The Committee agreed with the Institute of Medicine's conclusion that the clinical evaluation programs of the Department of Defense (DOD) and VA are excellent for the diagnosis of Gulf War veterans' illnesses. We found some shortcomings in the availability of treatment, particularly with regard to mental health and reproductive health, and recommended better follow-up care in these areas.

The Committee found that the government's research portfolio is appropriately weighted toward epidemiologic studies and studies on stress-related disorders that are likely to improve our understanding of Gulf War veterans' illnesses. To close gaps in the current knowledge base, we recommended additional research in three specific areas: the long-term health effects of low-level exposures to chemical warfare agents; the synergistic effects of pyridostigmine bromide with other Gulf War risk factors; and basic and applied research on the body's physical response to stress.

The existing knowledge base, including results from epidemiologic studies of Gulf War veterans, data from clinical evaluation and treatment programs for Gulf War veterans, and published literature from decades of toxicologic research, enabled the Committee to reach some conclusions about the nature and causes of Gulf War veterans' illnesses. We found:

- Among the subset of the Gulf War veteran population examined in the ongoing clinical and research programs, many veterans have illnesses likely to be connected to their service in the Gulf.
- Current scientific evidence does not support a causal link between the symptoms and illnesses reported today by Gulf War veterans and exposures while in the Gulf region to the following environmental risk factors assessed by the Committee: pesticides, chemical warfare agents, biological warfare agents, vaccines, pyridostigmine bromide, infectious diseases, depleted uranium, oil-well fires and smoke, and petroleum products.
- Stress is known to affect the brain, immune system, cardiovascular system, and various hormonal responses. Stress manifests in diverse ways, and is likely to be an important contributing factor to the broad range of physical and psychological illnesses currently being reported by Gulf War veterans.

Currently, the extent of service-connected illness among Gulf War veterans is unknown, but the Committee anticipates results from the large, population-based epidemiologic studies now underway will shed light on this issue. In addition to the government's existing research, the Committee also recommended that mortality studies of Gulf War veterans continue, since some health effects, such as cancer, would not be expected to appear until a decade or more after the end of the Gulf War.

As noted, the Committee was generally positive about current programs, but we took issue with the government's performance in one key area: investigation of possible exposures of U.S. troops to chemical and biological warfare agents in the Gulf. We found substantial evidence of site-specific, low-level exposures to chemical warfare agents. Moreover, we found DOD's investigations to date superficial and unlikely to provide credible answers to veterans' and the public's questions. DOD's failure to seriously investigate chemical warfare agent exposures also adversely affected decisions related to funding research into possible health effects of low-level exposures to chemical warfare agents. Hence, the Committee made the following recommendation:

- To ensure credibility and thoroughness, further investigation of possible chemical or biological warfare agent exposures during the Gulf War should be conducted by a group independent of DOD. Openness in oversight activities—including public access to information and veteran participation—public notice of meetings,

opportunity for public comment, and regular reporting are essential. Full public accountability is critical.

We believe the government has a significant amount of ground to recover with Gulf War veterans and the American public, who have come to question whether a lack of data—on possible chemical warfare agent exposures, on the pre- or post-deployment health of veterans, or on the location of troops in-theater—indicates a lack of commitment to veterans' health. The Committee recognizes that in November 1996, DOD announced plans to revamp its investigatory and research programs related to low-level chemical warfare agent exposure, and we intend to scrutinize these efforts in the coming months.

## AVOIDING POST-CONFLICT HEALTH CONCERNS

During the Committee's evaluation of issues related to Gulf War veterans' illnesses, it became clear to us that the government could do a better job of anticipating and avoiding many post-conflict health concerns, generically. Therefore, we recommended that:

- a Presidential Review Directive (PRD) be issued to instruct the National Science and Technology Council (NSTC) to develop an interagency plan to address health preparedness for and readjustment of veterans and families after future conflicts and peacekeeping missions. The President's Committee of Advisors on Science and Technology and other nongovernmental experts, as appropriate, should be asked to review the plan 12 months after the PRD is issued and again at 18 months to ensure national expertise is brought to bear on these issues.

We noted that the NSTC's agenda should take into consideration the Committee's recommendations for better communication, better data, and better services.

### Better Communication

Clearly, the volunteers who serve in defense of our Nation deserve complete and accurate information about the risks they face. An open democracy demands that the public, as well, has the opportunity to engage in policy debates that accompany the commitment of troops abroad. Therefore, the Committee recommended that:

- DOD and VA immediately develop and implement a comprehensive risk communication plan. This effort should move forward in close cooperation with agencies that have a high degree of public trust and experience with risk communication, such as the Agency for Toxic Substances and Disease Registry and the National Institute for Occupational Safety and Health.
- FDA solicit timely public and experi comment on any rule that permits waiver of informed consent for use of investigational products in military exigencies. Among the areas that specifically should be revisited are: adequacy of disclosure to service personnel; adequacy of recordkeeping; long-term followup of individuals who receive investigational products; review by an institutional review board outside of DOD; and additional procedures to enhance understanding, oversight, and accountability.

### Better Data

The Committee identified problems related to missing medical records, the absence of baseline health data, inaccurate records of troop locations, and incomplete data on the health effects of what should have been viewed as reasonably anticipated risks. We noted that, unfortunately, many of the health concerns of Gulf War veterans might never be resolved fully because of the lack of data. To help prevent similar problems in the future, we recommended that:

- DOD officials at the highest echelons, including the Joint Chiefs of Staff and the Commanders in Chief, assign a high priority to dealing with the problem of lost or missing medical records. A computerized central database is important. Specialized databases must be compatible with the central database. Attention should be directed toward developing a mechanism for computerizing medical data in the field (including classified information, if and when it is needed). DOD and VA should adopt standardized recordkeeping to ensure continuity.
- the Persian Gulf Veterans Coordinating Board and other appropriate departments and agencies be charged to develop a protocol to implement the following recommendation, which was made in the Committee's *Interim Report*: Prior to any deployment, DOD should undertake a thorough health evaluation of a large sample of troops to enable better postdeployment medical epidemiology. Medical surveillance should be standardized for a core set of tests across all services, including timely postdeployment followup.
- the government develop more accurate and reliable methods of recording troop locations to facilitate post-conflict health research. DOD should make full use of global positioning technologies.
- the government plan for further research on possible long-term health effects of low-level exposure to organophosphorus nerve agents such as sarin, soman, or various pesticides, based on studies of groups with well-characterized exposures, including: a) cases of U.S. workers exposed to organophosphorous pesticides; and b) civilians exposed to the chemical warfare agent sarin during the 1994 and 1995 terrorist attacks in Japan. Additional work should include followup and evaluation of an appropriate subset of any U.S. service personnel who are presumed to be exposed during the Gulf War. The government should begin by consulting with appropriate experts, both governmental and nongovernmental, on organophosphorus nerve agent effects. Studies of human populations with well-characterized exposures will be much more revealing than studies based on animal models, which should be given lower priority.
- the government continue to collect and archive serum samples from U.S. service personnel when feasible.
- research on possible causes and methods of prevention of excess mortality from external causes among veterans receives high priority.
- the government consider methods for routinely sampling military populations regarding reproductive health so that an appropriate baseline exists for evaluating reproductive outcomes following deployment. In particular, DOD should consult

with the National Center for Health Statistics and strongly consider implementing its National Survey of Family Growth and related methodologies for collecting data.

- the entire federal research portfolio place greater emphasis on basic and applied research on the physical effects of stress and on stress-related disorders.

### Better Services

While the Nation has long provided care to veterans for service-connected health problems, the Committee identified two areas where we believed the government could improve such care. First, the government continues, unfortunately, to give short shrift to veterans' legitimate concerns about reproductive health. And second, society at large continues to stigmatize mental health concerns. Therefore, the Committee recommended that:

- the government conduct a thorough review of VA's policies concerning reproductive health and seek statutory authority to treat veterans and their families for service-connected problems. When indicated, genetic counseling should be provided—either via VA treatment facilities or referral—to assist veterans and their families who have reproductive concerns stemming from military service.
- the government continue and intensify efforts to develop stress reduction programs for all troops, with special emphasis on deployed troops.

## CONCLUSION

Approximately 697,000 men and women answered the call to serve in Operations Desert Shield/Desert Storm. In many important ways—through medical care, outreach, and research—the Nation has begun to pay its debt to these service members. It is essential, now, to move swiftly toward resolving Gulf War veterans' principal remaining concerns: How many U.S. troops were exposed to chemical warfare agents, and to what degree?

Mr. SHAYS. Thank you, Dr. Custis.

First let me ask a question of all of you. Do you have any disagreement with what the others have said on this panel or any clarification or response, anything you have heard so far?

Dr. KIZER. I would say none that I can think of at the moment.

Mr. SHAYS. Dr. Kizer, what mistakes has the VA made in the last 6 years with regard to the Gulf war issue and this whole issue of the syndrome? Where are the mistakes?

Dr. KIZER. I don't know that I would characterize them as mistakes. I think as we have commented on a number of times before, and I have testified before, that we feel the research agenda, as far as the exposure side, was delayed because of information that was provided, I think there is an important point——

Mr. SHAYS. Provided where?

Dr. KIZER. Provided by the Department of Defense.

I think an important point to be made there that has, I think, often been overlooked, is that while the exposure, per se, may not have been investigated, the effects that such exposure might have caused have been the focus of research for quite some time, indeed, antedating this whole discussion about the Khamisiyah incident.

While I can't speak with any firsthand knowledge about the VA in the timeframe that you asked, since I have only been with the Department a little over 2 years, I would also note though that it would appear that early on, from second- or third-hand impression, that the communication, the risk communication side, could have been better than it is today as well.

Mr. SHAYS. So in essence, the only thing you would describe, and you wouldn't even describe it as, a mistake, is that you relied on information from the DOD that said our troops weren't exposed to chemicals or there was not an emphasis on the part of the Department to focus in on chemical issues. Is that fair?

Dr. KIZER. I don't think that quite characterizes what I said accurately, no.

Mr. SHAYS. Well, I don't want to get into a chess game, but I want to understand, and we will be here maybe well past 12, just to tell the panel.

I was hoping you might have answered my questions a little differently. You basically said you wouldn't characterize any of them as mistakes, and that is a pretty strong position to take. I mean, everybody makes mistakes. So why don't you say it again in shorter terms, and I will try to understand what you are saying.

Dr. KIZER. We may be referring to two different things. Your last comment that I responded to had to do with chemicals in the aggregate, and what I think you were referring to was chemical warfare agents, per se.

Many of the research studies have focused specifically on the toxicology of pyridostigmine and other chemicals that have been the subject of discussion in this whole incident. What I was responding to was, as I said, your comment about chemicals as opposed to chemical warfare agents, per se.

Mr. SHAYS. Frankly, I don't care whether it was chemicals or chemical warfare agents. I think our troops were exposed to chemicals, whether defensive or offensive, and the issue I am trying to understand is whether you characterize any of what has happened

with the VA as a mistake. And your first answer, I think, is fair, that you wouldn't characterize anything that the VA has done as a mistake. That is what you said. Is that correct?

Dr. KIZER. That is correct. And the latter half, we were responding to two different things.

Mr. SHAYS. All right, let's go from there. You also said you would characterize your reliance on the VA as what? The VA's reliance on the DOD as regards to chemical exposure, and that was offensive or defensive weapons. How would you characterize your reliance on the DOD on that issue?

Dr. KIZER. I think the Coordinating Board and the various other entities that looked at this whole question of where in the research agenda, or what priority in the research agenda should be exposure to chemical warfare agents, rated that as a lower priority than, say, the potential toxicity of pyridostigmine or some of the insecticides or other chemicals that folks were exposed to. In assessing this and in fashioning the research agenda, the potential effects that these types of neurotoxins would have were addressed.

The issue of exposure to chemical warfare agents, per se, and investigation into that arena, was delayed, and that investigative focus was given a lower priority because of the information that had been provided by DOD.

Hopefully, that clarifies what I was saying.

Mr. SHAYS. So the bottom line is, because the DOD denied that there was any exposure to defensive or offensive chemicals, the VA made a determination that therefore our troops were not exposed to defensive or offensive chemicals.

Dr. KIZER. No, I don't think that at all characterizes what I said, Mr. Chairman.

Mr. SHAYS. OK. We are going to get at it, and I will just keep going at it. I want to understand. I don't want to be in a chess game with you, I just want to understand. So, bottom line, say it over again then in a different way. Try to reach this ignorant mind that I have.

Dr. KIZER. Let me try to rephrase it in a way that may make it more clear then, Mr. Chairman. The VA has been consistently, and certainly during my tenure, as evidenced by a variety of things, some of which I referenced during my opening statement—has been open to and has been concerned about the exposure of troops to chemical warfare agents.

As far as the specific research protocols that were funded, the potential exposure was given lower priority than others——

Mr. SHAYS. Because?

Dr. KIZER. Because of the information that was provided by DOD, although if you look at the nature of the studies that were funded, the potential effects that those agents might have were the subject of investigation, although the exposure, per se, may not have been.

Mr. SHAYS. OK. I find it a little disingenuous, after having six hearings, to have you suggest that the VA was focused in on exposure to offensive or defensive chemical weapons. You basically said it is a lower priority. A lower priority implies just what it says; it wasn't a higher priority, it was a lower priority, and that was the case because of information from the DOD.

To say that you are open or concerned is a meaningless statement, to me. That just means you are open or concerned, it doesn't mean you took action. And to imply there were studies, we have had past witnesses come before us and say basically there were no studies done. There may have been people out in the field doing something, but did not look at this issue; is that right? Did the VA direct any of your people to look at offensive or defensive exposure to chemicals?

Dr. KIZER. Again, to try to make this clear to you, Mr. Chairman, the issue where we're perhaps miscommunicating on are the effects of exposure and exposure, per se. As I said——

Mr. SHAYS. I asked a question. I just want an answer to that question. Tell me the list of studies the VA directed to be done on offensive or defensive exposure to chemicals.

Dr. KIZER. Again, the list of studies is provided——

Mr. SHAYS. No; give me a list of studies related to offensive or defensive exposures to chemicals.

Dr. KIZER. I guess I am having trouble communicating the difference between exposure and the effects of exposure. As I said, the effect that such exposure might produce in human beings has been the subject of investigations.

Mr. SHAYS. What are those studies?

Dr. KIZER. The potential exposure——

Mr. SHAYS. What are those studies?

Dr. KIZER. Again, if one were to look——

Mr. SHAYS. Don't hold up a book. Again, studies dealing with offensive or defensive chemicals.

Dr. KIZER. I am at a loss. We'll be happy——

Mr. SHAYS. Don't be at a loss. You are being evasive.

Dr. KIZER. No, no——

Mr. SHAYS. Doctor, you are being evasive. I am asking a simple question. You want us to believe the VA is doing all these things, and I am saying just give me a list. We have had past witnesses come before us and say: because the DOD said there was no exposure, it did not get the attention from the VA. And now you are telling me that even though it was a low priority, we still were studying it.

We know for a fact you didn't even ask the Registry to ask people coming before it if they were exposed until 1995. And we asked people who work for the VA, including Dr. Murphy, why, and she said because the VA and the DOD had said there was not this exposure, you did not do it. She is shaking her head. She will get a chance to come before us.

The bottom line is, when did you start to ask the Registry to ask when our troops were exposed?

Dr. KIZER. I will defer to Dr. Murphy for the exact date. I believe you are mischaracterizing what I have said.

Mr. SHAYS. OK. It is all a matter of public record. But the bottom line is, when did the VA decide to ask in the Registry whether our troops were exposed to chemicals?

Dr. KIZER. The Uniform Case Assessment Protocol, I believe, was established in 1993, and that was used throughout. As far as the revised Registry examination, that was formally put in place, I believe, in 1995; and we can get the specific date.

Mr. SHAYS. Right. So you didn't even begin to ask our troops if they felt they were exposed to chemicals until 1995.

Dr. KIZER. Again, I don't believe that is an accurate statement insofar as the Uniform Case Assessment did ask that, and, more importantly——

Mr. SHAYS. Sir, excuse me a second.

Dr. KIZER [continuing]. Asked about the effects of exposure.

Mr. SHAYS. Are you saying before this committee that you asked before 1995 whether our troops were exposed to chemicals? Is that your testimony before this committee?

Dr. KIZER. It is my understanding that the Uniform Case Assessment Protocol that existed prior to my joining the Department did explore those issues before——

Mr. SHAYS. That is not what I asked. I asked specifically. "Explore" is too general a word.

Dr. KIZER. The specific revision of the Registry examination——

Mr. SHAYS. Doctor, let me say this to you. There are a lot of things that you are going to be right on, but at least establish some basic point that we can have so we can communicate with each other. We have had witnesses who have come before you.

This is now the seventh hearing, and it is an established fact that you were not asking this question early on because the DOD told you it wasn't a problem. That is an established fact. So if we cannot at least agree on a basis, we are just going to be dead in the water right now.

Is there a comment you want to make?

Dr. KIZER. I think it is a comment I've tried to say in several ways in our short dialog already. The protocol, the specific question you are referring to, was developed in 1994. It was formally implemented in 1995.

Mr. SHAYS. Why did it take so long to get an answer out of a basic question? It was not formally asked until 1995; correct? I mean, it is not a big point.

Dr. KIZER. I know, and I guess I am——

Mr. SHAYS. You don't have to worry whether it is a big or little point, you just have to answer the fact, and we will see where it goes.

1995 is the point at which you began to ask our troops if they were exposed to chemicals. Is that correct?

Dr. KIZER. I don't believe that is correct, sir, because our physicians were asking the question before that. You asked whether a standard Registry examination, whether that was developed in 1995——

Mr. SHAYS. I asked whether the Registry required you to ask that question, and my understanding is—and I am not going to yield this floor until I get this one point; we will be here in spite of what happens on the floor, because we are going to get to the bottom of this. The reason this is going to be so long is, you cannot even establish basic points.

Now, the question I am asking you is, is it not true that the Registry did not ask this question until 1995?

Dr. KIZER. As I think I have said on several occasions, our physicians were asking the question. As far as the——

Mr. SHAYS. I am asking about the Registry——

Dr. KIZER. That was developed in 1994 and implemented formally in 1995.

Mr. SHAYS. So I will ask the question again. Is it a fact that the Registry did not require these questions until 1995?

Dr. KIZER. Again, physicians performing the Registry examinations before that time asked those questions. Did everybody ask it? I can't say that they did, no, but it certainly was being asked and being explored, and, more importantly, the effects of what those agents would cause was being assessed.

As far as the specific Registry protocol examination, as I have said already, that was developed in 1994 and formally implemented in 1995.

Mr. SHAYS. So the Registry did not require those questions until 1995. Is that not correct?

Dr. KIZER. It is not clear how what you are saying and what I am saying are different.

Mr. SHAYS. You don't have to worry about it; you don't; all you have to do is answer a question that is quite simple.

Dr. KIZER. I stand by my answer.

Mr. SHAYS. So the answer is, the Registry did not have to do it until 1995. Is that correct?

Dr. KIZER. Again, the Registry protocol we're talking about was developed in 1994 and implemented in 1995.

I don't understand what the problem is.

Mr. SHAYS. Why are you so reluctant to answer that question? Why is that such a big deal to you?

Dr. KIZER. Because I am trying to answer as completely as possible.

Mr. SHAYS. You are trying to be evasive.

Dr. KIZER. I am not trying to be evasive, Mr. Chairman.

Mr. SHAYS. You are playing a chess game and being evasive.

Dr. KIZER. I beg to differ with you respectfully, sir.

Mr. SANDERS. With the chairman's kind indulgence, let me pick up on your general line of questioning.

It is now recognized that some of our soldiers may have been exposed to chemical warfare agents. We agree on that, right?

Dr. KIZER. Yes, it has been our position from the outset.

Mr. SANDERS. All right. In addition to that, it is generally recognized that our soldiers were exposed to heavy use of insecticides and repellents. They were exposed to leaded fuels used for heating and dust mitigation. They were exposed, some of them, to radioactivity from depleted uranium shells fired at Iraqi tanks. Many of them were exposed to very dense smoke from oil well fires when Saddam Hussein set the Kuwaiti oil wells on fire. They were exposed to parasites that cause a chronic infection, and they may have been exposed to the side effects of troop inoculations in combination with the taking of experimental antinerve gas drug, PB.

Do you agree with that, all of that?

Dr. KIZER. I agree there was variable exposure to the list of things that you mentioned. One of the difficulties throughout this thing is knowing exactly who was exposed——

Mr. SANDERS. I understand that. But you will not disagree, there was a chemical cesspool and more or less some of our soldiers were exposed to some or all of those agents. Is that fair?

Dr. KIZER. Yes. I think, as reflected by our research agenda assessing all of the things that you mentioned, that that is a fact, that we have tried to assess that further, because we believe that those exposures were real.

Mr. SANDERS. OK. Mr. Chairman, I am reading from a document; it is called "Treatment Protocol: A Biopsychosocial Therapeutic Approach for the Treatment of Multiple Chemical Sensitivity Syndrome in Veterans of Desert Storm," by Dr. Myra Shayevitz, physician at the Veterans Administration, dated May 5, 1995.

First paragraph: "Experience at North Hampton Veterans Medical Center has led us to believe that the unexplained health problems of some Persian Gulf veterans may relate to the combination of chemical, physical, and psychological stresses unique to the Desert Storm operation. Veterans seen at our facility and elsewhere have complained repeatedly of multisymptom symptomatology, including overriding fatigue, memory loss, joint pains, loss of concentrating ability, depression, headache, rash, cough, and abdominal pain. This symptomatology is remarkably similar to the syndrome which has been labeled 'multiple chemical sensitivity.' MCS is a condition in which multiple symptoms occur in multiple symptoms of organs of the body as a result of exposure to chemicals."

Now, according to Dr. Burton Shayevitz, who is Myra Shayevitz' husband and also a physician, I believe at the VA, this treatment protocol was presented to a House subcommittee in 1993, to the NIH Symposium on Persian Gulf Syndrome in 1994, cleared through a VA scientific advisory board in 1995, and subsequently derailed at the VA central office by the newly appointed chief medical director. Would that be you?

Who is the chief medical director?

Dr. KIZER. Well, that is the former title of my position, but I can tell you, if that is what the testimony was, that is incorrect.

Mr. SANDERS. You have here—this is not important. This is a protocol done by a physician in North Hampton, MA, employed by the Veterans Administration. Are you familiar with it at all?

Dr. KIZER. I don't know that I've read that specific document.

Mr. SANDERS. Are you familiar with her work?

Dr. KIZER. I've heard of her work, yes.

Mr. SANDERS. I don't want to see us in an adversarial position. I mean, let's be frank. I have enormous respect for Secretary Brown. He is one of the important and good government officials we have. I have no doubt everybody up there wants to see us get to the root of this problem. We are on the same side, so let's not be playing games and let's not get defensive. We are on the same side here, and I am appreciative of the changes we may be seeing in the Department of Defense as well.

I have a simple question. Picking up from the chairman's line of questioning, given all of this exposure and given the presumption that some of it may have been synergistic—people are affected with more than one thing—can you tell us how many diagnoses you have made, the VA has made: OK, he is sick because of overexposure to a variety of chemicals? Do you have that diagnosis? Are there any patients who have been diagnosed in that regard?

Dr. KIZER. I don't have the specific number you are referring to. As I stated in my testimony, somewhere around between 4 and 5 percent of patients have been diagnosed with conditions that were related to toxic exposure or injury. Many of the other conditions may well have been in part due to that.

Mr. SANDERS. Give me some examples of men and women who were exposed. How were they exposed? How did you diagnose them? Five percent is a big number. Give me a couple of examples.

Dr. KIZER. I'm not sure I understand what you are asking.

Mr. SANDERS. OK. You said 5 percent of folks were diagnosed as being exposed as a result of toxic injury. Is that what you are saying?

Dr. KIZER. That is if you look at the aggregate of the nearly 63,000 Registry examinations. If you look at the breakdown by diagnostic category, you see somewhere between 4 and 5 percent.

Mr. SANDERS. OK. Give me some of the factors that led to toxic injury. What do you mean?

Dr. KIZER. Again, I think that what we ought to do to make that more precise is go back, and I can give you that specific diagnosis by pulling direct records that would more completely answer your inquiry.

Mr. SANDERS. I am not sure what it means. You said you diagnosed several thousands. I am not being argumentative.

Dr. KIZER. No; I am just saying perhaps Dr. Murphy would like to comment on some of the specific diagnoses that have been given. We can provide you more complete information. I don't have that information.

Mr. SANDERS. Have you diagnosed anybody who might have been made ill as a result of exposure to the bad air from the burning oil wells or the inoculations they may have received?

Dr. KIZER. I am sorry, I missed part of your question.

Mr. SANDERS. Is there any soldier who has been diagnosed as being made ill as a result of exposure to the bad air from the oil wells or the inoculations they received?

Dr. KIZER. If one is diagnosed with, say, bronchospasm, tightening of the airways, as what's seen in asthma that was due to the chemical-resistant paint, that is the sort of thing we are talking about, or an example of the sort of thing we are talking about for example, bronchitis due to oil well smoke, sinusitis from——

Mr. SANDERS. You have diagnosed people as having been made ill as a result of the smoke of the burning of the oil wells?

Dr. KIZER. That is my understanding, yes, sir.

Mr. SANDERS. OK. My last question, Dr. Kizer, would be, if you have physicians who are already within the VA system who have treated people under the diagnosis of multiple chemical sensitivity—and my strong understanding of their therapeutic approach to the treatment is that it does not have side effects, it is good diet, trying to get people away from toxicity; it's not going to make you worse; it is not like using an experimental drug—why aren't you—you made a good point, you don't want to see veterans being guinea pigs, but if we have a treatment that is nontoxic, it doesn't make people sicker. You have some physicians who have treated tens of thousands of people that way with good results. We have names of

people today who are successfully treating people who are over in the Persian Gulf. Why aren't we moving faster in that direction?

Dr. KIZER. Well, I think the point you are addressing is whether—with regard to Dr. Shayevitz, whether her study was funded or whether as part of treatment these things are being done. And her study was not funded, as I think you know. We have hired a—what might be called a methodologist, someone to help her design a study that will provide the most reliable results to help her develop an investigative protocol——

Mr. SANDERS. She is no longer with the VA; I think she gave up on that.

Dr. KIZER [continuing]. That could be funded.

The issue of whether patients are being encouraged as far as changing their diet, stress reduction, or any number of other things, that is occurring in lots of places throughout the VA as part of treatment.

Mr. SANDERS. I guess what I am suggesting is, science is a funny thing; 30 or 40 years ago doctors were on television advertising the cigarettes they smoked; breast feeding was thought to be a terrible thing for mothers and babies; and many physicians out there are treating civilians who are overdosed by toxins in our air, food, and so forth and so on.

It is a nondangerous form, the treatment. Maybe it is wrong, but it would seem to me, on behalf of thousands of Gulf war veterans who are suffering, not to allow them to take advantage of this nondangerous type of treatment is unfortunate. Can you give me some assurance that we will be looking at that approach?

Dr. KIZER. As I said, those sorts of things are occurring to varying degrees. As far as investigative studies that would look at whether that should become a standard part of treatment, those studies need to be looked at as far as methodology that would give us a good answer.

Mr. SANDERS. See, one of the problems where serious physicians get discouraged; they bump into walls like that. You can defeat any proposal you want by saying it is not peer reviewed, and there are people who have a different approach, and I would hope, on behalf of thousands of people who are sick, we will overcome that resistance.

Mr. SHAYS. Mr. Horn.

Mr. HORN. Thank you very much, Mr. Chairman. I commend you and the ranking member for this series of hearings and I have found the exchange this morning very fascinating.

Just to get this out, I am not going to pursue it, but I have a tendency to write down conclusions as I listen to testimony, and Dr. Kizer's testimony—tell me if I am right or wrong—with some exceptions, the VA was not as focused as it should have been based on the DOD history which it received. Is that a fair statement?

Dr. KIZER. I think what you are alluding to is, the priority given to researching the exposure to chemical warfare agents was not given as high of a priority as it might have been given if different information would have been provided.

Mr. HORN. It seemed to be a nonproblem coming out of the Pentagon during the early years after the war. Is that what you have concluded?

Dr. KIZER. The answer is yes. They said this is not a problem. Indeed, referring back to comments I had made and others had made, when we questioned that, we were very strongly apprised that that was not the case, and I think as were a number of other groups that looked at this. And so the research specifically into the exposure side was given lesser priority, and I think that is what you are saying.

Mr. HORN. As I listened to this testimony, I wanted to find out, what is the extent of the VA data base on its patient clientele? Is there a national data base where all the veterans' hospitals input data as to symptoms and the rest?

Dr. KIZER. Yes, that's correct.

Mr. HORN. There is a national data base.

Dr. KIZER. There is. We also get the data from DOD as well.

Mr. HORN. Now, as I look at the symptoms on page 3 of your testimony, those are pretty general symptoms. As you describe it in paragraph 2, a diverse array of symptoms including fatigue, skin rash, headache, muscle and joint pain, memory problems, shortness of breath, sleep disturbances, gastrointestinal symptoms, and chest pain. I think everybody feels they have had that going through college almost, one or the other, two or three or four, depending on how nervous they get before a test.

Dr. KIZER. Certainly you get them before appearing before this committee.

Mr. HORN. They are pretty general. Yes, the administration witnesses and sometimes Members on the other side of the table.

Were any tests run on your data base as to symptoms of those that served in the Persian Gulf war, those that were in the affected area? Because we didn't know what the affected area was until more recently, and those in the military or those veterans of the Second World War, the Korean and Vietnam wars, where your data base showed these symptoms, one, two, three, four, or more, was there any analysis like that done? Could there have been any analysis like that done, which would focus in on where you were in the Persian Gulf war, if they knew where they were in a vast desert?

Dr. KIZER. Well, you raise three questions, if I might address them. One, the listing that is given to you is a compilation of many specific diagnoses, and we've tried to lump them into categories.

If you went back and looked at that 14.4 percent of this and 15.1 percent, whatever, you would find lots of specific diagnoses. So that is, I just want to make sure that you understand, as I suspect you do, that there is much greater specificity within those categories.

The issue about whether these symptoms are the same as might have been experienced with Vietnam or the Korean Conflict or World War II veterans, the degree of data and rigor that is available from earlier times is not as good, and we have to rely on that historical base.

But on comparing the grouping of diagnoses among Persian Gulf veterans compared to, say, Vietnam veterans, there are differences, and those have been noted, and things have previously been provided to this committee and other committees as well where there are some of those differences.

For example, fatigue is much more commonly expressed among our Persian Gulf veterans than it was as a symptom in Vietnam veterans.

The third point——

Mr. HORN. OK. Go ahead.

Dr. KIZER. The third point, and it really is a very important one that I've testified about on numerous occasions before other committees, is the potential of having the specific information you noted.

If we note that veterans in the aggregate have specific symptoms, what we really need to know is—and it goes back to part of what Mr. Sanders was asking—where were they at a particular time? And then we can try to connect the exposure, oil well fire or depleted uranium, of any of those other things, with their specific symptomatology and do those sort of comparisons.

Again, this is an area where we have to rely on the Department of Defense to provide us that data, and, to date, they have not been able to provide us with the geographic locator study pinpointing exactly where individual veterans and units were at a point in time so we can do that sort of symptom and site potential exposure assessment that ultimately does need to be done.

Mr. HORN. Well, if you are using a national data base and you said, OK, let's search for data where one person has four of these nine symptoms or seven of these nine symptoms early on in this, how many people coming into a VA hospital would it take before it started triggering some real concern that we've got a certain group here that has four of these symptoms, seven of these symptoms, whatever, and then we work backward and know we've got a problem coming through the door? This is a client analysis, if you will. Was that done before 1995 in any way?

Dr. KIZER. Yes, indeed, it was done. In fact, a Registry examination, designed as a health access vehicle, was designed in 1991 and implemented in early 1992, and that was the first—I forgot the word that you used, but it was the first program put in place by the VA to help our veterans gain access to the system where those diagnoses could be made, treatment could be rendered, and that sort of analysis that would be a basis or a platform upon which more rigorous analysis could be done.

Mr. HORN. What is the earliest the VA knew there was a problem here even if the Pentagon said there wasn't a problem? What is the earliest your data says we have got 100, we have got 500, we have got 1,000? Were there any numbers of that size? I am interested in something in the future, not making the same mistake.

Dr. KIZER. Having not been with the Department at that point in time, I can't speak from firsthand experience. It was my understanding that shortly after the Registry started to be done, there was a recognition there was a problem, albeit ill-defined at that time.

Mr. HORN. I note that you noted in the committee's recommendations a computerized central data base is important. Now, are you referring to the VA or the Pentagon data base? And to what degree did your committee examine what the data base was in the Pentagon in terms of the medical services? And again, can that flow in from the various medical facilities of the relevant services?

Dr. CUSTIS. I will refer to Ms. Gwin, but to my knowledge there was no data base available to the committee prior to 1995 when all parties started to become more concerned about having ignored the possibility of low-level exposure.

Mr. HORN. Well, was the committee referring to the VA when it said a computerized central data base is important, or were they referring to the services?

Ms. GWIN. What we hope to see eventually is a centralized data base that would enable a sort of transparent exchange of records between the military services and the VA, so that people's health records are available throughout their tenure in the Government health services systems.

Dr. CUSTIS. I am sorry, I misunderstood your question. The computerized data base is now under development and is not a finished product.

Mr. HORN. In the Department of Defense.

Dr. CUSTIS. A data base that is common to both the Department of Defense and the VA, so that it is mutually interchangeable.

Mr. HORN. OK. In the committee's deliberations, did they interview any of the doctors who were in the field, and how close were M.D.'s to the action that we know that Khamisiyah occurred?

Dr. CUSTIS. In addition to full committee meetings and panel meetings, there were also site visits to VA hospitals and military hospitals, and at the time of those site visits, there were numerous interviews with physicians involved in doing the examinations. It was the impression of those of us——

Mr. HORN. Well, excuse me; examinations at what point? I mean, did anybody have these symptoms during the Persian Gulf war? Realizing it was 100 days and all that, when did they actually first know in terms of the medical staff of, let's say, the Army, and how close were they to people who might have been exposed to this situation while the aftermath of the war, the oil fumes and all the rest, were being cleaned up?

Dr. CUSTIS. I can only respond to your question in a general way. As to specifically how many were aware of symptoms during the Persian Gulf, others might be able to answer that. It's my impression that few, if any, were sick at that time. This is a delayed onset illness characterized as veterans' so-called syndrome.

Mr. HORN. So your committee did interview some of the medical personnel who were in the area.

Dr. CUSTIS. No; the medical personnel were conducting the examinations of veterans who were registering, who were being admitted to the Registry.

Mr. HORN. See, I am talking about military medical personnel in field hospital.

Dr. CUSTIS. We also did that. I remember quite vividly Dr. Dunn's testimony, who was the physician who recognized——

Mr. HORN. Something is wrong.

Dr. CUSTIS [continuing]. In the soldier who had been exposed to mustard gas.

There were other physicians who had served in the Gulf who came before the committee and testified.

Ms. GWIN. We did both take testimony from and conduct independent interviews with medical personnel who were in the field during the war.

Mr. HORN. You mentioned in your testimony, Dr. Rostker, about the Czech masks being better than our masks in terms of detection and protection.

Mr. ROSTKER. No; what I said——

Mr. HORN. Did I hear you wrong? You said Czech detectors were more sensitive than United States equipment, which may explain why we could not confirm——

Mr. ROSTKER. That is correct.

Mr. HORN. And this is not masks, just other equipment in the field.

Mr. ROSTKER. The Czechs were actually hired by the Saudi Arabis to provide detection. They had equipment that had been developed for use by the Warsaw Pact. I once called it sophisticated, and I was corrected. It is much more sensitive but not very sophisticated equipment. And they did make detections which we believe are valid detections. When we sent FOX vehicles out, the detection equipment would, and this would occur several hours later. The equipment we had was not as sensitive as the Czech detectors. So at the low levels, we may well have missed something that the Czech detectors had found.

Mr. HORN. Has the Department of Defense remedied their inferior problem and bought Czech equipment?

Mr. ROSTKER. Well, we haven't bought Czech equipment, but we have been looking at the equipment we use and improving their sensitivity.

I think an open question which we are prepared to address is the issue of low-level chemical monitors on the battlefield, and, in that regard, I would point out that, as best we know, the Czech detectors went off over a limited number of days in January and then did not go off again. We're going to work with the Czechs to make sure that that statement is correct.

But as a low-level chemical detector, the Czechs certainly had the most sensitive equipment on the battlefield, that's correct.

Mr. HORN. I think Members of Congress tell their constituents and pride themselves that our Army is the best equipped in the world. Would you say this is a weakness in this area that needs to be remedied?

Mr. ROSTKER. Yes, I would. The detectors that we had were sensitive to lethal doses. The famous M8 alarm was sensitive to lethal doses of sarin. The replacement alarm is sensitive to not only sarin but mustard gas.

So we have a concerted effort which will be expanded through my efforts to make sure we learn the lessons and we put in place that equipment that is necessary to protect our troops in the future.

I might add that in general the degree of environmental monitoring that, for example, is going on in Bosnia today is much superior to what went on in the Gulf, and yet we can make further improvements and we are learning lessons even from Bosnia.

Mr. HORN. Mr. Chairman, if I could suggest the staff to followup with the Department of Defense and make sure the equipment is being ordered in the current fiscal year, not waiting for the next

fiscal year, that we program the necessary funds to have the detectors should they be called on to be used somewhere around the world.

Mr. SHAYS. Thank you.

I now call on the ranking member, Mr. Towns.

Mr. TOWNS. Thank you very much, Mr. Chairman.

Let me begin by saying something I said in the last Congress, that we view this as a very important issue, and we are not going to go away, we are going to stay here, we are going to deal with it.

I made the comment then that I would return and would continue to pursue this issue, and we are going to continue to pursue it. I would hope that we would recognize that this is a problem we all must work together to solve, which means that we must be open and honest with each other. We must share because there might be some things that we need to do on this side, and we want to do that to make certain we have the answers.

Let me begin with you, Dr. Rostker. In your testimony you stated that the Department of Defense has expanded its task force from 12 to 110, which seems to be a lot. Why so many?

No, that is not really my question. Can you tell me what these additional people would be doing?

Mr. ROSTKER. Sure. Let me first say the team that was in existence, the 12, were completely overwhelmed by the reality of Khamisiyah. They were bogged down in the administrative details of writing testimony, of responding to congressional inquiries, and responding to the press. They were so bogged down, they were unable to examine anything about Khamisiyah, and even Khamisiyah not as robustly as they should have. I think that is a conclusion that the PAC will come to, and it is a conclusion we basically share.

It was in September that Secretary White asked me to assess everything we were doing, because we had come to the uncomfortable realization that the efforts that were being put forth were clearly not appropriate, and it took a short while for me to come to him, in fact well before the PAC issued their interim report, and to say that the effort we've had was understaffed, poorly focused, and inadequate to the job.

If you look at the organization which I've put together, it allows us to truly meet the President's promise of leaving no stone unturned. We have much expanded the investigative team. We've provided, as the PAC has so wisely suggested, for a risk communication program with outreach to our veterans, with outreach to veterans' service organizations. I make myself available to them and to the press as well as, of course, to the committee.

It takes people to do that, and we're prepared, the Defense Department is prepared, to put in place those resources necessary to get to the bottom of what is causing our people to be sick.

Mr. TOWNS. I am glad to hear you say that.

I note that much of your testimony concerns efforts to expand communications with the active duty personnel about their Gulf war experiences. I am concerned that many veterans will not want to increase communication with the Department of Defense. Why would you think they would want to increase their communication

with the Department of Defense? Let's be open. The perception is that you are the problem.

Mr. ROSTKER. I understand that, and the only way I can work that perception is to work hard and tell the truth and open up the process, and that is what we have done.

It was quite clear, for example, that when a veteran called in and we took a short statement from him or her, that that was inadequate. It was inadequate for our own purposes, but it was inadequate in terms of just a human response to somebody who was hurting.

On December 13, we completely changed that procedure. So now we establish a one-to-one contact; we debrief the veteran and make sure that that information is incorporated into our inquiry. And I trust that as we work and demonstrate that type of commitment to individual veterans, to this committee, to the veterans' service organizations, we will be able to repair the unfortunate perceptions of not caring. We care, but we really did not understand the dimension of the problem and our response was totally inadequate.

Mr. TOWNS. The chairman asked a question at the beginning: Did you disagree on anything that was said by anyone else? And I think it was Dr. Custis who said that DOD mishandled this problem. Do you agree?

Mr. ROSTKER. Absolutely. We have said so. I had come to that conclusion and shared that conclusion with the Deputy Secretary before the PAC reported, and John White said to me, "Don't give me a recommendation, go fix it," and he gave me the resources to do just that.

So frankly, the PAC got it right, and I am sorry that I have to say that, but that is reality, and we have to build from that to repair the damage that may have been done. It was not intentional, but it was not an adequate job. We understand that, and, as I said, we've put the resources to bear on this issue so that we can get to the bottom of it.

It is very important we do this for today's veteran, but I want to stress how important it is that we learn from this experience so that we put in place those procedures and equipment and policies that will allow us to protect our forces in the future. We owe it to them, and we owe it to today's veterans.

Mr. TOWNS. Thank you.

There have been some reports in the press concerning missing operational logs. It would seem that you need these logs to reconstruct events and to compare them with accounts provided by the soldiers. What can you do or have you done to reconstruct these missing logs?

Mr. ROSTKER. First of all, let me tell you that most people have an image of the logs being a series of printed forms that people wrote in and a book that would be certainly hard to explain why pages have been removed. But we know, in fact, that the logs were actually a computer form and a hard drive of a computer that was in Riyadh.

We have tried through many channels to see if there are, in fact, pages that we may have lost. But I have also initiated an effort with two lawyers to trace the accountability of those computer hard drives and any floppy disks that were produced from Riyadh, all

the way as far as we can do it. And I've done this not just with interviews but with verbatim testimony from the people who had access, so you and the PAC and others can see the exact questions we asked and the exact responses that we got.

I am not at all certain that the pages that are not there were ever printed out, but I can't tell you that for sure, and we're trying to reconstruct the chain of accountability for whatever floppy disks existed and the hard drives as they came out of Riyadh and moved to Tampa and went forward.

If I might, we focus on the missing pages, but the 36 pages which exist are extremely interesting, and part of what I quoted this morning were from those pages. We can find the major events, some of the major events like the Czech detection, like the Marine breaching operation; we can corroborate Lenny Grass's testimony; we can do all of that in the existing logs. So they are, in fact, very useful and corroborate other reports that we have.

Mr. TOWNS. Thank you very much.

Dr. Custis, what enforcement mechanisms are available to the committee in the event you found out that an agency is not being forthcoming?

Dr. CUSTIS. That sounds like a legal question, and I will defer to my lawyer.

Mr. TOWNS. Sure.

Ms. GWIN. We have found just the opportunity to bring the agencies forward on a regular basis in open meetings to be a fairly effective enforcement tool to make them answer questions about progress.

Mr. TOWNS. If you feel they are stalling, what other action can you take as a committee? Eventually, if you find out that the agency is not forthcoming with information that you know exists and you are convinced it exists, what actions can you take? That is the question.

Ms. GWIN. Well, we are an advisory committee. We don't have particular authority to sanction anybody, but, again, I will say, just raising the existence or presumed existence of information publicly has a strong enforcing effect to make that information become public.

Mr. ROSTKER. I think it is only fair to say that the committee found DOD, VA, HHS, all very cooperative. The problem came in DOD themselves not recognizing the need to acquire certain data or pursue certain data. But as far as any lack of cooperation or attempt at hiding, I don't believe the committee experienced anything like that.

Mr. TOWNS. Thank you. I am happy to hear that.

Let me just say that, you know, I might as well say this openly. You know, DOD, I am happy to hear the comments coming forth at this particular time, because I think that many people feel that the reason we are in this mess, the reason we haven't been able to move a lot faster, is that DOD did not cooperate. And as I listen to some of the questions that were directed to Dr. Kizer, you know, I think that the reason some of those questions were directed at Dr. Kizer is because of the lack of participation on the part of DOD.

So I think that inasmuch as I understood the questions and felt that they should be directed, but I think that some of them came about as a result of DOD not participating.

So I just sort of want to share that, and I am hoping that from this point on, in terms of your comments, that you will be at the table and continue to participate, because there is a very serious problem out there. I am convinced, there is no doubt in my mind, that it is out there, and it is going to require all of us to come together to be able to solve the problem. People are suffering. They want to make certain we are working on it. That is what they want.

So let me thank you, Mr. Chairman, for sticking with this, and I think you should, and I think we should go on and on and on until we get to the bottom. So some of these witnesses will need to come back as we seek additional insight into the issue.

Mr. SHAYS. Thank you, Mr. Towns.

Dr. Curtis, what would you say the major mistakes were made by the VA? And give me the top two, as relates to any Gulf war syndrome, both the DOD and VA. What mistakes do you think each of those Departments made in your extensive research?

Mr. ROSTKER. I think probably the main problem that has complicated the whole process is the inadequacy of medical records. It is understandable that medical records have never been good in the environment of acute combat.

Mr. SHAYS. Would that relate to the DOD or both the VA and DOD?

Dr. ROSTKER. No; I am talking about military records, the records in the field. I think we were impressed with DOD's determination at the present time to correct that and to also pursue how, in the future, any future conflicts, there will be acquired a base line of information before troops are ever sent to a field, so that epidemiological studies can be facilitated by such base line data.

I think probably there are other things in retrospect better pursued. For example, risk communication, making our troops aware of the risks that they were going to be exposed to, left quite a bit to be desired. The risk involvement and the lack of data in terms of——

Mr. SHAYS. I never realized how long it was.

Mr. ROSTKER. I think of a specific example, that the record is very poor regarding who exactly took pyridostigmine; the lack of site location of individuals and units.

Mr. SHAYS. Before we get to site: if a soldier was told that taking the PB tablets would be harmful, if they felt the shots would be harmful, would they have a right not to take them? If they were told to go into a tent and, you know, use lindane to spray the troops all day long without ventilation, would they and should they be given the right to refuse to follow that order?

Mr. ROSTKER. In my own career I would answer that question, they had no such right. They could well be guilty of an infraction that would cause a court-martial. I am at least confused at the present time. That seems to be the culture of our society seems to be to challenge that. So I frankly don't know how to answer your question as of today.

As far as pyridostigmine is concerned, there was no real concern or evidence that anything harmful would result from taking that medication. It has been used in large doses for many years for individuals with myasthenia gravis, with no appreciable side effects. It has been known, however, in a very, very small percentage of patients that they are somewhat intolerant of pyridostigmine.

I am mindful of recently, for example—it is not unrelated to your question—two individuals in the armed forces were court-martialed for refusing to have serum drawn for a serum bank that DOD is interested in. They were awarded disciplinary sentences, whereas it seemed to me that it could have been handled better. But it seems to me that our society seems to be changing their opinion about such things.

Mr. SHAYS. The question responding to that, mistakes the DOD made, you have given me a few. Would you be able to focus in on mistakes you feel the VA made, or did you focus primarily on the DOD?

Mr. ROSTKER. One thing that comes to mind as a result of some of our site visits to VA hospitals: There was some evidence that, whereas the education of how to handle the veterans reporting for the Registry and for examinations in the Registry was well done in terms of those who were dealing with those veterans, doctors who were not in direct contact and were in many cases ill-informed about how to proceed in the process, I suspect that early in the game the VA might have—I think early in the game—that is, early, right after the war, right after the Gulf conflict—there was something less than good communication between DOD and VA, and I would find VA somewhat at fault in not insisting that better communication be established with DOD. That, however, is more hearsay than anything else. I am not sure that that can be documented.

Beyond that, I find no fault with what the VA has done in the way of performance. I think VA is to be complimented, along with Congress, for having established the legislation for compensation, even though some of these problems have not found their ultimate solution. That alone, I think, proved a remarkable advancement in what the soldiers and sailors have experienced in past conflicts.

Mr. SHAYS. Dr. Kizer, you suggested that Dr. Murphy might be able to answer some questions, so I think it might be appropriate to just have her come up and be sworn in so we could assist you.

Mr. SHAYS. If you would stand, Dr. Murphy.

[Witness sworn.]

Mr. SHAYS. I would like to say for the record as we start this year, it was my hope and aspiration that we would just get a certain level of understanding and from that point we could iron out our differences.

This Government Reform Committee has 360-degree jurisdiction on waste, fraud, and abuse. This subcommittee does not have direct jurisdiction, Dr. Rostker, of the DOD, and we appreciate your being here. We do have jurisdiction, in the chairman and I think ranking member as well, that we will have the authority to invite to come before the committee, and I am sure you will agree.

Mr. ROSTKER. Absolutely.

Mr. SHAYS I thought I would be able to pursue some questions with you, and I am not even at that level yet. I just need to get to the level where I can even ask you a question.

Dr. Murphy, we had two issues at your last hearing, one of them related to the whole issue of registry and when the field actually got the message of chemical exposure. And in my own simple mind, I felt that it was reasonable to make an assumption that the DOD wasn't providing you information of exposure. You would have no reason to think it other than to listen to some of your own troops and what they were saying.

So I just want to ask you the two areas of questioning: one of which is the number of doctors in the VA that were exposed. I assume you have expertise in chemical exposure and so on. And the other issue was of the Registry, and how it related directly to Dr. Kizer's point that we just simply never communicated on.

I wanted to know when we started to revise the questionnaire and the form. And you said the form was published in September 1995, and the instructions were changed in 1993 or 1994. So when did the protocol begin in earnest? The original protocol began in 1992. That is what you said. It was revised in 1993, then again in 1995. Was the revision in 1993 a revision that was dealing with the chemical exposure, or was it another exposure?

Dr. MURPHY. In 1993, at the Washington, DC, VA, we developed the uniform case assessment protocol. The reason people are having so much difficulty telling you exactly when VA changed its message is that chemical weapons exposure was never taken off the table. And in the public statements by——

Mr. SHAYS. It was put on the table?

Dr. MURPHY. In public statements by Secretary Brown and when Dr. Kizer joined us, it was always a consideration.

Mr. SHAYS. Let me just say——

Dr. MURPHY. And, in fact from the beginning, our physicians were instructed to take complete occupational and military exposure histories.

Mr. SHAYS. It is always on the table, we are always open, we are all concerned.

I want you to show me. So I don't deny that you were always open, you were always concerned, and it was always on the table, but I am just trying to get at some basic facts. And the next time I won't inconvenience our other two witnesses and have them share in this process. I will just invite the two of you, which I have the authority to do.

And, Dr. Murphy, I will say, you have been here all the time, and you have been a very willing witness in terms of being here.

Dr. Kizer, I was hoping I wouldn't have to keep you before the committee; once, and that would be it. And you will be coming back quite often until we get to the bottom of it.

I understand you are open and concerned, and it was always on the table. I just want some real facts. The fact is that in 1993 you were not specifically in your Registry asking troops about chemical exposure. It was not part of the protocol.

Dr. MURPHY. The protocol included instructions to physicians to take a complete occupational and military exposure history. The information, the data fields that were coded at that point did not in-

clude a specific coding of a question that asked about chemical warfare nerve agents and mustard gas.

Mr. SHAYS. I understand, and that is the fact. But in 1995 it started to have that coding; is that correct?

Dr. MURPHY. That is correct.

Mr. SHAYS. Pardon me?

Dr. MURPHY. That is correct, sir.

Mr. SHAYS. You basically said 1995 is when you started focusing on chemical exposure and your response—by the way, this is the hearing dated December 11—was actually the focus began on chemical exposure much earlier than that. As we have just said, sir, the questionnaire was not published until then. The instructions to the field about how they should clinically evaluate these individuals actually began as soon as we had a number of veterans who came back to us.

Then I said, how would those instructions be disseminated? You are saying it did not, in fact, happen in 1995, but years ago. I want to know what document made that known to your doctors in the field.

Your answer: These were training programs, training videotapes, training audio conferences.

My response: You can supply a video to this committee that will say that you expect an exposure, a chemical exposure, and therefore the doctors should proactively seek this out?

Your response: In conjunction with a whole list of other exposures that we still believe are important to ask about.

Then my point: I am not asking you about other things, I am just focusing on the chemical exposure. And you are before a committee of Congress who is simply trying to know the truth, and whatever the truth is is fine. I just suspect that what you are telling me is not really, frankly, a precise presentation to the committee. I want to know what document you sent to the field that let them know that you suspect the chemical weapons might have been used in the field, and therefore they should check for chemical weapons.

Your response: We will provide you documentation.

Have you done that yet?

Dr. MURPHY. I am not aware that we have.

[The information referred to follows:]

**(Subsequently, the Department of Veterans Affairs provided the following information:)**

In response to Congressman Shays' question about the number of doctors at the Birmingham Department of Veterans Affairs (VA) Medical Center, a list containing that facility's physician staffing as of February 1997, is attached.

The Birmingham VA Medical Center's "Persian Gulf Pilot Program" was initiated in 1993, in response to reports VA received from veterans about their possible exposure to chemical warfare agents in the Persian Gulf. The initial examination for the pilot program focused on Persian Gulf veterans who were members of reserve units from Alabama and Georgia presenting possible neurological conditions, individuals who had participated in the Persian Gulf Registry at the Birmingham facility, and local veterans with symptoms of concern. Although there was no conclusive evidence from the Department of Defense (DoD) at that time about the use of chemical weapons, a review of the scientific literature showed that people may experience long-term neurologic problems after exposure to certain chemical warfare agents. In direct response to these veterans' concerns, VA developed a specialized examination protocol for the "Persian Gulf Pilot Program" which included an extensive battery of neurological tests designed to detect the kind of dysfunction and neurological effects that would be expected after exposure to certain chemical weapons agents. Unfortunately such testing cannot confirm whether an individual has been exposed to any particular agent. However, the pilot program's specialized examination could detect the types of disabilities that may result from such an exposure and perhaps provide clues about the cause of the symptoms.

The Birmingham VA Medical Center entered into a contract with the University of Alabama at Birmingham's School of Medicine (Department of Family Medicine) which provided two physicians to evaluate members of the Alabama and Georgia reserve units who presented possible neurological symptoms. The two university physicians that conducted the examinations were Board Certified in Occupational and Preventive Medicine. There were no toxicologists involved in the patient examinations, because although toxicologists study the detection of poison and the treatment of poisoning, they are not clinicians, nor are they qualified to render direct patient care. The Persian Gulf Pilot Program physicians possessed toxicological expertise as part of their background and training in Occupational and Preventive Medicine, and also had the clinical expertise to diagnose exposure to certain environmental hazards.

All of the patients received thorough medical examinations and write-ups. Because of the nature of the symptoms and concerns of individuals from the Alabama and Georgia reserve units, the examining physicians were specifically instructed to look for

signs of Multiple Chemical Sensitivity (MCS). None of the veterans were diagnosed with this condition.

**ATTACHMENT**
Insert at Page #95, Line 2222

(Subsequently, the Department of Veterans Affairs provided the following information)

BIRMINGHAM VAMC PHYSICIAN STAFFING AS OF FEBRUARY 1997

Anesthesiology - 23 WOC, 3 contract, 6 paid
Dental - 2 WOC (oral surgeons), 8 paid (one of which is oral surgeon), 9 paid consultants (2 dental endodontics, 5 gen. dentists, 1 orthodontic, 1 prosthodontics)
Medical:
- Cardiology - 5 paid, 18 WOC
- Dermatology - 4 WOC, 3 paid
- Endocrinology - 6 WOC, 5 paid
- Emergency Room (AOD) fee basis 95
- Family Medicine - 1 fee basis
- Geriatric Medicine - 3 WOC, 4 paid
- Gastroenterology - 13 WOC, 4 paid
- General Internal Medicine - 7 WOC, 11 paid
- Hematology Oncology - 12 WOC, 4 paid
- Infectious Disease - 10 WOC, 6 paid
- Internal Medicine - 8 WOC
- Nephrology - 8 WOC, 4 paid
- Nutrition - 1 WOC, 1 paid consultant, 1 paid
- Pulmonary - 7 WOC, 7 paid
- Rheumatology - 5 WOC, 6 paid

Neurology - 13 WOC, 5 paid
Nuclear Medicine - 1 WOC, 4 paid
Pathology:
- Anatomical - 1 WOC, 1 paid, 3 contract
- Clinical - 1 contract
- Dermatopathology - 1 contract
- Pathological Hematology - 1 contract
- Pathology (no subspecialty listed) 7 paid, 15 contract

Physical Medicine - 1 paid
Psychiatry - 10 WOC, 7 paid
Radiology - 1 paid, 33 contract
Radiation Oncology - 5 contract
Surgery:
- Cardiovascular - 5 WOC, 3 paid
- General Surgery - 8 WOC, 7 paid

Gynecological Surgery - 1 paid, 2 paid consultant
Cardiothoracic Surgery - 1 paid consultant, 1 WOC
Neurological Surgery - 6 WOC, 1 paid
Ophthalmology - 26 WOC, 8 paid
Orthopedics - 6 WOC, 3 paid
Otolaryngology - 7 WOC, 1 paid
Plastic Surgery - 3 WOC, 2 paid
Otolaryngology - 1 paid
Surgical Oncology - 1 paid
Urology 7 WOC, 2 paid
Vascular Surgery - 1 WOC

Mr. SHAYS. For the record, we don't have any documentation.

Let me just get to another question. I asked you the number of doctors who had chemical expertise. Correct me if I am wrong, it is my understanding that we don't really have the ability to detect chemical exposure, and we don't really have the ability to treat chemical exposure. This is not a medical science that is particularly advanced. Is that accurate, or would you want to elaborate?

Dr. KIZER. At risk of appearing to be less than responsive, let me just ask the question when you say "chemical," are you referring to a particular type of chemical? Because there are lots of chemicals that we have very good antidotes and very good treatment for.

Mr. SHAYS. That is fair. Sarin, the nerve gas agents.

Dr. KIZER. And again, the—if one is exposed to this category of chemicals, organophosphates, carbamates, these types of chemicals, and there is acute symptomatology, there is a very good antidote, atropine, that is used when exposure of this occurs in other places, with agricultural workers, et cetera.

As far as the delayed or long-term effects or effects that might be caused when there is no clinical manifestation, that is what we have said here and elsewhere, that there is no diagnostic test for that particular type of exposure.

Mr. SHAYS. Or treatment?

Dr. KIZER. Or treatment, since one doesn't know that the exposure caused the symptoms.

And let me, again, try to be as complete and responsive as possible, that for neurologic injury in general, depending on the degree of insult, there may or may not be any treatment for it. When one has a stroke because of a blood clot that causes damage to the brain, there is no recovery of that part of the brain that has been killed. So that is a general phenomenon that occurs to the central nervous system regardless of the inciting insult.

Mr. SHAYS. What are the types of skills or specialties that you have in the VA to deal with chemical exposure? Do you have a Ph.D. in toxicology?

Dr. KIZER. No, I do not. I think you may be confusing toxicologists with medical toxicologists.

Mr. SHAYS. Elaborate for me. I am confused.

Dr. KIZER. Most toxicologists oversee the care of rats and mice. That is what Ph.D. toxicologists do. Medical toxicologists, of which there are 210 board certified medical toxicologists in the United States, some of whom don't practice in the United States but in other countries, are often viewed or often characterized as the consultants' consultant. They are a very, very small specialty, most of whom are associated with poison centers or are doing investigations.

The bulk of toxicology care and—of course, hundreds of thousands of people each year are poisoned from either overdoses or industrial settings in lots of situations all the time, and that care is provided by internists, by occupational medicine physicians, by family physicians, by neurologists, by pulmonologists, by a host of other specialists.

Medical toxicologists, which is what I believe you are referring to, by and large don't do that much hands-on care. And, of course, with only 210 in the entire country, you can see why they wouldn't,

but most of those serve as consultants to other physicians who are actually taking care of those patients.

Mr. SHAYS. How many doctors do we have in the VA system?

Dr. KIZER. To clarify, full-time physicians or——

Mr. SHAYS. Yes, let's take full-time then part-time.

Dr. KIZER. Full-time and part-time, it is around 15,000.

Mr. SHAYS. And of the 15,000—and break down full-time equivalent—if you do it that way, so maybe it is not 15,000 full-time equivalents, is it 15,000 or 10,000? When you teach at a university or you work for the government at the State level, you would have a full-time equivalent. If two people work part time, we call them one full-time.

Dr. KIZER. I am sorry, I was looking for the exact number, which I have somewhere in here, and I missed part of your question.

Mr. SHAYS. I understand. You approximately had 15,000, give or take, and that is acceptable. Some of them are not full-time physicians for the VA.

Dr. KIZER. Probably half of them are not.

Mr. SHAYS. How many of those would have expertise in dealing with poisons and chemical exposures?

Dr. KIZER. Again, if I can find the sheet, I can tell you. Internists, which are the largest single group of physicians that we have, receive as part of their training exposure or education in dealing with overdoses and other chemical exposures. And those are, of course, the type of physician that provides the bulk of this care in the country.

The occupational physicians, which, by the way, I do not feel the VA has as many as they should have, and we are taking steps——

Mr. SHAYS. How many do you have of those?

Mr. KIZER. Of occupational medical physicians? Again, I don't have that number at the tip of my tongue, but we certainly can get that for you.

[The information referred to follows:]

THE SECRETARY OF VETERANS AFFAIRS
WASHINGTON

FEB 11 1997

The Honorable Christopher Shays
Chairman, Subcommittee on Human
Resources and Intergovernmental Relations
Committee on Government Reform and Oversight
U.S. House of Representatives
Washington, D.C. 20515-6143

Dear Mr. Chairman:

This is in response to your February 5, 1997, request for information related to Department of Veterans Affairs personnel. The Veterans Health Administration (VHA) has provided the enclosed information in response to the four specific items you requested.

Your letter also raises a number of other issues related to Dr. William Baumzweiger, which we will address in a follow-up letter by February 25, 1997.

If you have any questions about the enclosed material, please let us know.

Sincerely yours,

Jesse Brown

Jesse Brown

Enclosure

JB/th

*Putting Veterans First*

**Department of Veterans Affairs (VA)**
**Veterans Health Administration (VHA)**

**Responses to Information Request from Chairman Christopher Shays**

**1. The results of a survey of each VA medical center to gather specific information on specialized professional and research credentials of VA medical personnel.**

We were aware of your earlier requests for information related to the number of toxicologists and other specialists on VA medical staff and were in the process of assembling it. Based on our employment records, we have found four toxicologists on the research rolls. However, the toxicologists do not treat patients. Persian Gulf veterans are treated by licensed medical doctors who are internists or primary care providers supplemented by specialists. As of Dec. 31, 1996, the following number of specialists were on our rolls (note that occupational medicine is not a physician specialty category):

| | Full-time | Part-time |
|---|---|---|
| Neurologists | 181 | 299 |
| Pulmonologists | 175 | 134 |
| Oncologists | 46 | 54 |
| Infectious Disease | 94 | 109 |
| Rheumatologists | 33 | 92 |
| Gastroenterologists | 122 | 178 |
| Dermatologists | 31 | 160 |
| Toxicologists (non-physician) | 4 | 0 |

**2. The name, title, work address and telephone number of the author of the document entitled "Action Plan for Media Contacts regarding Dr. Baumzweiger".**

Janice M. Boss, M.S., CHE
Network Operations Director
VISN 22 Network Office (10N22)
5901 E. 7th St.
Long Beach, CA 90822
(310) 494-5963

**3. The name, title, work address and telephone number of all persons, both inside and outside the VA, who received a copy of the document from any VA employee.**

To the best of our knowledge, the following persons have received a copy of this document:

Terry Lynn Padilla, Public Affairs Officer, Los Angeles VA Outpatient Clinic

Dean S. Billik, FAAMA, Acting Clinic Director, Los Angeles VA Outpatient Clinic

William E. Baumzweiger, M.D., Neurology Fellow, Los Angeles VA Outpatient Clinic (we include Dr. Baumzweiger because in a January 13th letter to the Secretary, Department of Veterans Affairs, Dr. Baumzweiger stated, "I was given a copy of this action plan.")

These staff can be reached at:
351 East Temple St.
Los Angeles, CA 90012
(213) 253-5000

Susan Fishbein, Public Affairs Specialist, VA Regional Office of Public Affairs, Los Angeles

David S. Bayard, Director, VA Regional Office of Public Affairs, Los Angeles

These staff can be reached at:

P.O. Box 84041
Los Angeles, CA 90073
(310) 268-4207

Terry B. Hobbs, Health Systems Specialist, Veterans Health Administration, Network Support Office (phone: 202-273-5868)

Jule D. Moravec, Ph.D., Chief Network Officer, Veterans Health Administration (phone: 202-273-5826)

Douglas E. Dembling, Congressional Relations Officer, VA Office of Congressional Affairs (phone: 202-273-5615)

Fran M. Murphy, M.D., M.P.H., Director, Environmental Agents Service, Veterans Health Administration (phone: 202-273-8580)

These staff can be reached at:

Department of Veterans Affairs
810 Vermont Ave. N.W.
Washington, D.C. 20420

**4. The name, title, work address and telephone number of each member of the Board of Investigation empaneled with regard to the activities and conduct of Dr. Baumzweiger. Please identify specifically which member of the panel, pursuant to Director Billik's January 8, 1997 memo, is designated as the 'Gulf War Syndrome Expert.' Please also provide a current *curriculum vitae* for each member of the board.**

Arnold S. Brickman, M.D., Chairperson, Associate Chief of Staff/Education, VAMC Sepulveda

Basil R. Clyman, M.D., Staff Physician, General Internal Medicine, Medical Service, VAMC West Los Angeles (expertise on illnesses of Persion Gulf War veterans)

Leonard Kram, M.D., Chief, Psychiatric Emergency Service, VAMC West Los Angeles

Claude G. Wasterlain, M.D., Chief, Neurology Service, VAMC Sepulveda
Richard Weisbart, M.D., Chief, Rheumatology Section, Medical Service, VAMC Sepulveda

Carol Jellison, Assistant Chief, Human Resources Management Service, VAMC Sepulveda

Douglas A. Stewart, Chief, Human Resources Management Service, VAMC Sepulveda

Norma Swanson, R.N., Director of Performance Improvement, Southern California System of Clinics, available at LAOPC and VAMC Sepulveda

The address and phone number for the Los Angeles Outpatient Clinic was listed earlier.

For the members from VAMC Sepulveda, the address is:

16111 Plummer St.
Sepulveda, CA 91343
(818) 895-9308

For the members from VAMC West Los Angeles, the address is:

11301 Wilshire Blvd.
Los Angeles, CA 90073
(310) 268-3132

Information on the professional qualifications of the five physicians on the board of investigation is attached. The sources for this information are:

American Medical Directory, 32nd edition (1996)

The Official American Board of Medical Specialties Directory of Board Certified Medical Specialists, 28th edition (1996), Volume 1

Brickman, Arnold S.
(Born: 1941; Toledo, OH)

CERTIFICATION(S):
Internal Medicine (1974; Curr Cert.: Y)

EDUCATION:
USC Sch Med (1967, MD)

CAREER:
Hospital Appointments:
Cur Hosp Appt. Sepulveda VA Med Ctr., CA

Academic Appointments:
Prof Med. UCLA Sch Med.

Training:
Nephr&Metab. Fell. Wadsworth VA Hosp Ctr. Los Angeles, CA (71-76)
Res. Wadsworth VA Hosp Ctr. Los Angeles, CA (68-71)
Int. USC-Los Angeles Co Med Ctr. (67-68)

TYPE OF PRACTICE:
Academic Faculty FT. Veteran's Administration Practice FT.

MEMBERSHIP(S) [Best efforts used to define physician provided acronym]:
Amer. Federation for Clinical Research
Amer. Soc. of Nephrology
WSCR

ADDRESS (Mail, Primary):
Sepulveda VA Med Ctr MC111
16111 Plummer
Sepulveda, CA 91343-2036 (Los Angeles County)

818-891-2353

Clyman, Basil Bertram
(Born: 06/07/1932; Toronto Canada)

CERTIFICATION(S):
Internal Medicine (1976; Curr Cert.: Y)

SUBCERTIFICATION(S):
Sports Medicine (1995; Curr Cert.: Y; Exp: 2005)

Geriatric Medicine (1988; Curr Cert.: Y; Exp: 1998)

Rheumatology (1980; Curr Cert.: Y; Exp: Lifetime)

EDUCATION:
Med U of Geneve (1960, MD)

CAREER:
Hospital Appointments:
Cur Hosp Appt. VA Med Ctr. West Los Angeles, CA

Academic Appointments:
Clin Prof Med. UCLA Sch Med.

Training:
Rheumatology. Fell. UCLA. Los Angeles, CA (66-67)
Internal Medicine. Res. Cedars-Lebanon Hosp. Los Angeles, CA (62-63,65-66)
Int. Cedars-Lebanon Hosp. Los Angeles, CA (61-62)

TYPE OF PRACTICE:
Salaried Hospital/Clinic FT. Academic Faculty FT. Veteran's Administration Practice FT.

MEMBERSHIP(S) [Best efforts used to define physician provided acronym]:
Amer. Coll. of Physicians (Fellow)
Amer. Coll. of Rheumatology (Fellow)
Amer. Medical Association

ADDRESS (Mail):
Los Angeles, CA 90035 (Los Angeles County)

ADDRESS (Secondary):
VA Med Ctr
West Los Angeles, CA 90073 (Los Angeles County)

310-478-3711
FAX:310-553-6008

#

Kram, Leonard William
(Born: 04/15/1945; New York, NY)

CERTIFICATION(S):
Psychiatry (1979; Curr Cert.: Y)

EDUCATION:
SUNY Buffalo (1971, MD)

CAREER:
Hospital Appointments:
Cur Hosp Appt. Santa Monica Hosp., CA
Cur Hosp Appt. St Johns Hosp., CA

Academic Appointments:
Asst Clin Prof. Dept Psych&Beh Sci UCLA.

Training:
Psyc. Res. So Cal. (74-77)
Int. Miami. (71-72)

TYPE OF PRACTICE:
Veteran's Administration Practice FT. Private Practice Solo PT.

MEMBERSHIP(S) [Best efforts used to define physician provided acronym]:
Amer. Psychiatric Association

ADDRESS (Mail, Primary):
18407 Clifftop Way
Malibu, CA 90265 (Los Angeles County)

310-459-9199

#

Wasterlain, Claude G.
(Born: 04/15/1935; Courcelles Belgium)

CERTIFICATION(S):
Neurology (1977; Curr Cert.: Y)

EDUCATION:
U Liege Belgium (1961, MD)

CAREER:
Hospital Appointments:
Cur Hosp Appt. VA Med Ctr, Sepulveda CA.

Academic Appointments:
Prof. UCLA Sch Med.

Training:
MolBiol. Fell. U Brussels. (67-69)
Neur. Res. NY Hosp-Cornell Med Ctr. New York, NY (64-67)
Int. Middlesex Meml Hosp. Middletown (63)

TYPE OF PRACTICE:
Academic Faculty FT.

MEMBERSHIP(S) [Best efforts used to define physician provided acronym]:
Amer. Acad. of Neurology
AEpiS
Amer. Neurological Association
ASN
International Soc. for Neurochemistry

ADDRESS (Mail, Primary):
VA Hosp
Neur Svc 127
16111 Plummer St
Sepulveda, CA 91343-2099 (Los Angeles County)

#

Weisbart, Richard H.
(Born: 10/19/1939; Los Angeles, CA)

CERTIFICATION(S):
Internal Medicine (1974; Curr Cert.: Y)

SUBCERTIFICATION(S):
Rheumatology (1974; Curr Cert.: Y; Exp: Lifetime)

EDUCATION:
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CAREER:
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Academic Appointments:
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Training:
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71-73)
Res. Wadsworth VA Hosp. Los Angeles, CA (66-69)
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TYPE OF PRACTICE:
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MEMBERSHIP(S) [Best efforts used to define physician provided acronym]:
Amer. Assoc. of Immunologists
Amer. Federation for Clinical Research
Amer. Coll. of Rheumatology
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ONE HUNDRED FIFTH CONGRESS

# Congress of the United States

## House of Representatives

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

SUBCOMMITTEE ON HUMAN RESOURCES
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February 5, 1997

The Honorable Jesse Brown
Secretary
Department of Veterans Affairs
810 Vermont Avenue, N.W.
Washington, D.C. 20420

Dear Secretary Brown:

In the course of our oversight of the Department's (VA) approach to Gulf War veterans' illnesses, the Subcommittee has sought to determine whether the VA medical system is structured and staffed to meet the unique diagnostic and treatment needs of those veterans. In particular, we are concerned that toxicological, neurobiological and occupational medicine expertise is lacking or underutilized in a VA medical system organized around, and dominated by, other disciplines.

The Subcommittee has twice asked for a list of VA physician specialties relevant to the diagnosis of neurotoxic damage. At a hearing on December 11, 1996, the VA witnesses could name only one neurotoxicologist on the VA medical staff, but offered to provide a more comprehensive list. On January 21, 1997, VA witnesses informed the Subcommittee that the Department did not even keep data on the specific research specialties of VA medical personnel.

One specific case illustrates our concern that the current VA structure and staff may not be as open as possible to the emerging diagnosis and treatment options that many believe must be considered in the care of Gulf War veterans. Last September, the Subcommittee heard testimony from Dr. William Baumzweiger, a neurologist and psychiatrist serving in a VA fellowship program. Dr. Baumzweiger testified that, as a result of his work with Gulf War veterans, he concluded many were suffering from Organo-Phosphate Induced Delayed Neurotoxicity (OPIDN). We found his testimony of great interest and worthy of further analysis.

Apparently the VA did not. It appears Dr. Baumzweiger has been, and remains, the subject of unusual bureaucratic scrutiny as the result of his voicing an opinion not favored by the VA medical establishment. I refer to a document captioned "Action Plan for Media Contacts Regarding Dr. Baumzweiger" recently forwarded to my Subcommittee office. This unsigned action plan provided talking points for VA personnel regarding Dr. Baumzweiger's work and status with the Department. The document appears to predate, and prejudge, any ongoing official VA inquiries into Dr. Baumzweiger's performance in his current fellowship position.

The action plan goes to considerable length to discredit Dr. Baumzweiger's clinical observations for want of peer review or clinical validation. However, the Journal of the American Medical Association (JAMA, 1/15/97) recently published research by Dr. Robert Haley concluding that some Gulf War illnesses could be manifestations of OPIDP, Organo-Phosphate Induced Delayed Polyneuropathy. That was Dr. Baumzweiger's conclusion more than four month ago.

Is the VA medical system so well staffed in neurology, psychiatry and environmental medicine that you feel you can summarily dismiss a doctor whose insights were months ahead of the most current research trends? Based on the limited number of such specialists VA witnesses have to date been able to identify, that was not my impression. Again, I look forward to the receipt of additional data on VA staffing in these specialized areas.

The document also instructs VA spokespersons to say "No Congressional intervention occurred regarding Dr. Baumzweiger's position or the RIF/SA action." Yet on September 11, 1995, I wrote to Dr. Shri Mishra, Chief of the Neurology Service at the Los Angeles VA Outpatient Clinic, to clarify that the Subcommittee sought Dr. Baumzweiger as a witness based on his professional credentials and personal views, not as an agency representative. In that letter I expressed my expectation "that his testimony would not have any implications for his position with the VA." The express purpose of my intervention was to protect a congressional witness from retribution. Why has the VA advised its spokespersons to deny this exchange even took place?

To facilitate our oversight, the Subcommittee hereby requests the following:

1. The results of a survey of each VA medical center to gather specific information on specialized professional and research credentials of VA medical personnel.

2. The name, title, work address and telephone number of the author of the document entitled "Action Plan for Media Contact regarding Dr. Baumzweiger."

3. The name, title, work address and telephone number of all persons, both inside and

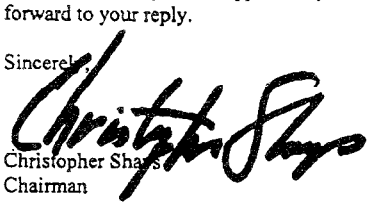
outside the VA, who received a copy of the document from any VA employee.

4. The name, title, work address and telephone number of each member of the Board of Investigation empaneled with regard to the activities and conduct of Dr. Baumzweiger. Please identify specifically which member of the panel, pursuant to Director Billik's January 8, 1997 memo, is designated as the "Gulf War Syndrome Expert." Please also provide a current *curriculum vitae* for each member of the board.

These inquiries are made pursuant to the Subcommittee's oversight authority under House Rule X, clause 2(b) and clause 4(c). Please provide a written response, accompanied by any source documents referenced in your reply, as soon as possible, but in no event later than 5:00 p.m Tuesday, February 11, 1997. Should you anticipate difficulty providing a complete response by that date, please so advise Mr. Lawrence Halloran, Subcommittee Staff Director and Counsel, by phone and in writing no later than Friday, February 7. Please indicate at that time the nature of the problem and the exact date when your response will be provided. Absent that communication, we expect receipt of a complete response on or before February 11.

As in the past, we appreciate your attention to the Subcommittee's request and we look forward to your reply.

Sincerely,



Christopher Shays
Chairman

INFORMATION for SECRETARY's RESPONSE to REP. SHAYS
Congressman's Letter Dated February 5, 1997

The Congressman's letter raises several issues and concerns, and specifically requests four pieces of information. These four items are:

1. "The results of a survey of each VA medical center to gather specific information on specialized professional and research credentials of VA medical personnel."

VHA HQ personnel are gathering this information for the Secretary's response.

2. "The name, title, work address and telephone number of the author of the document entitled "Action Plan for Media Contact regarding Dr. Baumzweiger."

Ms. Janice M. Boss, M.S., CHE
Network Operations Director, VISN 22
VISN 22 Network Office, c/o (10N/22)
5901 E. 7th St.
Long Beach, CA 90822
(562) 494-5963

3. "The name, title, work address and telephone number of all persons, both inside and outside the VA, who received a copy of the document from any VA employee."

To the best of our knowledge at this time (addresses, etc., on attachment):

Ms. Terry Lynn Padilla, Public Affairs Officer, LAOPC
Mr. Dean S. Billik, FAAMA, Acting Clinic Director, LAOPC
William E. Baumzweiger, M.D., Neurology Fellow, LAOPC

(We include Dr. Baumzweiger because in a January 13th letter to the Secretary, Department of Veterans Affairs, Dr. Baumzweiger stated, "I was given a copy of ... " We do not know if he does have a copy and, if he does, how he received it and what, if anything, he may have done with it.)

Ms. Susan Fishbein, Public Affairs Specialist, VAPARO, LA
Mr. David S. Bayard, Director, VAPARO, LA
Mr. Terry B. Hobbs, Health Systems Specialist, VHA HQ
Jule D. Moravec, Ph.D., Chief Network Officer, VHA HQ
Mr. Douglas E. Dembling, ?/o title, Congressional Affairs, VHA HQ

Mr. Lawrence Halloran, Rep. Shays's Subcommittee

4. "The name, title, work address and telephone number of each member of the Board of Investigation empaneled with regard to the activities and conduct of Dr. Baumzweiger. Please identify specifically which member of the panel, pursuant to Director Billik's January 8, 1997 memo, is designated as the 'Gulf War Syndrome Expert.' Please also provide a current *curriculum vitae* for each member of the board."

(Addresses, etc., on attachment; curriculum vitae are attached)

Arnold S. Brickman, M.D., Chairperson, Associate Chief of Staff/Education, VAMC Sepulveda

Basil R. Clyman, M.D., Staff Physician, General Internal Medicine, Medical Service, VAMC West Los Angeles (PGWI expertise)

Leonard Kram, M.D., chief, Psychiatric Emergency Service, VAMC West Los Angeles

Claude G. Wasterlain, M.D., Chief, Neurology Service, VAMC Sepulveda

Richard Weisbart, M.D., Chief, Rheumatology Section, Medical Service, VAMC Sepulveda

Carol Jellison, Assistant Chief, Human Resources Management Service, VAMC Sepulveda

Douglas A. Stewart, Chief, Human Resources Management Service, VAMC Sepulveda

Norma Swanson, R.N., Director of Performance Improvement, Southern California System of Clinics, available at LAOPC and VAMC Sepulveda

Mr. SHAYS. I am not going to hold my breath, and I sound a little sarcastic because that is the same question we asked of Dr. Murphy last time. I asked her the question, I think it is telling that you cannot name one person in the whole Department the only name she gave me was Dr. Spencer, and that was a neurotoxicologist, so some of them can be by definition. But I fully expected I would get a response from Dr. Murphy to straighten me out. She said, we can, of course, provide that for the record if you are interested. We wanted to know the people involved, and I said I would definitely like it for the record. And, Dr. Murphy, have you provided me that information? I am asking the question, have you provided that information yet?

Dr. MURPHY. We went back and searched our VA data base——

Mr. SHAYS. No, that is not the question I asked. I am allowed to ask honest questions and get honest answers to the question. Have you yet provided me that information? I am sorry?

Dr. MURPHY. No, sir, we did not.

Mr. SHAYS. Do you have that information now?

Dr. MURPHY. In searching our data bases, the VA personnel files, we found that the research Ph.D.'s that we have in VA were not broken down according to those categories. They are called research chemists, research health science specialists, physiologists, microbiologists. And I have those numbers here today. We will need to go out and actually query each of our medical centers for——

Mr. SHAYS. When do you think you can provide that information?

Dr. MURPHY. We can do that.

Mr. SHAYS. When will we get that information?

Dr. MURPHY. It will take several weeks.

Mr. SHAYS. Dr. Kizer.

Dr. KIZER. I apologize for the delay here, but the numbers I was looking for a moment ago in response to your question, the VA has at least, according to the numbers I was given at the end—for the end of December 31, 1996, we had 7,932 full-time physicians and 7,745 part-time physicians.

Mr. SHAYS. Thank you.

Dr. Kizer, when I went to the West Haven facility, they were specifically asking questions about chemical exposure, and the reason was that they had physicians from Yale University who had expertise in environmental exposures. And so they had the expertise to think to put it in their questions. They did it early on.

We have a big disagreement on this issue. My view is that the soldiers were basically crying in the wilderness, and the one mistake I think the VA made was to listen to the DOD and not our soldiers. That is my view of the six hearings I have had.

We have tried to document at every hearing by bringing in veterans who will testify to the fact that they feel they were voices in the wilderness. And one of my theories if, in fact, that ultimately is found to be true—because we will find the truth to it, because whether it is true or not, we will know one way or the other eventually—was that they basically felt that the doctors that were treating them had no background or expertise in chemical exposures, whether they were everyday chemicals or chemicals of war. And the theory is, and it is one that I think is plausible, is that

they basically were constantly being discounted because we didn't have doctors who had that expertise.

I would like to ask, Dr. Custis, if you think that is a possibility, if that ever showed up in your radar screen, or, Ms. Gwin, if that ever showed up in your radar screen. And that was the issue: Does the VA have people trained in chemical exposure? Then I will ask you to respond, Dr. Kizer.

Dr. CUSTIS. Not beyond the internist who has the ability to address problems regarding different chemical exposures. You talk about speciality, you are talking about a physician who goes beyond that point and goes into great depth on specifically exposure to chemicals. For example, ophthalmologists have different categories of specialization. There are general ophthalmologists who are perfectly capable of handling cataracts, for example. There are also a subspecialty of ophthalmologists who do nothing but cataract surgery.

I think, to answer your question, I am not aware of the VA having any physician who is beyond the 200 and some who can—as referred to, any one of those being in the VA. I can't imagine the VA having any need for that level of subspecialty expertise.

Mr. SHAYS. Let me just say to you in response to that—then I'm going to call on Mr. Sanders, and, Mr. Rostker, believe it or not I do have a question for you. And I am happy, Mr. Rostker, to have you comment on anything you have heard as long as you want—I find your answer really surprising because we have had doctors from the private sector come and testify that the VA basically wasn't listening to our area because they don't really respect it. That is their view. It may not be true. We have soldiers who were continually saying, I was describing symptoms that didn't seem to be anything that they could relate to.

And it would strike me that we know that after World War I, the DOD said, that no one had acute symptoms on the spot; therefore, chemical exposure was not a problem. We still have General Schwarzkopf saying that, and others saying if they didn't die on the spot, basically chemical exposure wasn't a serious issue.

It strikes me that we knew after World War I that some soldiers came home after the war with no acute symptoms, later developed symptoms and died. We knew after the radiation that we are exposed to it. We know after Agent Orange; it was years later. And it would seem to me that somebody's radar screen would say, we need people with expertise in these areas. This is war, and they use chemicals. It does strike me as kind of amazing that we wouldn't have people with that expertise in the VA, but you basically don't seem to be surprised by that.

Dr. CUSTIS. At the time that active duty personnel were exposed to radiation, there was a general ignorance of what long-term exposure would amount to. We know better today.

Mr. SHAYS. I wonder if we know better. I wonder if we do.

Dr. CUSTIS. Medical science is much more informed about the dosage that will cause a disease in terms of radiation exposure than they were at the time when so many active duty people were exposed in the South Pacific.

That same thing will be true, I predict—I think all of us feel that the problem of low exposure to Sarin and chemical warfare agents

tomorrow will be much better understood, and there will be much more expert knowledge.

I think you have touched upon a very real reason why DOD was so slow in appreciating that this was a problem, namely that the literature at that time would indicate that unless there were an acute manifestation of chemical warfare agent exposure, that there was no knowledge of any long-term ill effects.

DOD took that information from researching the literature at face value and didn't get particularly excited about it until there was more and more concern about are we wrong? Is there such a thing as a long-term effective low exposure?

I think it is a matter of how soon science and information catches up with the medical profession.

To go back to your challenge regarding whether or not the VA should have chemical experts, I think the need for chemical experts can be satisfied through consultation, as Ken Kizer has just described.

Mr. SHAYS. Let me call on Mr. Sanders. Dr. Kizer, you will have a chance to respond to that question.

Mr. SANDERS. Mr. Chairman, I appreciate your line of questioning, and I think this is what the problem may be: I think we have people up there who are extremely well-intentioned. I do not have the slightest doubt that they are working night and day trying to resolve this problem.

I think the thrust of your questioning is whether they, in fact, have the background and understanding and the training, in all due respect, to approach a new type of problem dealing with chemical sensitivity. I think your line of questioning is, how many physicians do you have; and maybe that you don't have the proper resources.

Let me give you an example, picking up on the chairman's questioning. There is a medical association called—I believe I have it right—the American Academy of Environmental Medicine. To the best of my knowledge, they have treated mostly civilians, some 25,000 people, over the last 20 years who have been made ill not by swallowing a toxic—that is where the problem is. We are talking toxicology versus environmental medicine. What is the difference? They have wonderful physicians who, if you overdose on something, you swallow something, they know how to treat it. And I am absolutely confident they could diagnosis and treat it well.

Where, I believe, they do not have the background is the overall area of what we call environmental medicine, the combination of factors that make people sick. That is not a criticism. That is a contentious and debatable diagnosis in modern medicine today.

I would suggest to you—and this is what gets me a little concerned. And no one is here criticizing. We know you are trying your best. But instead of saying, gee, we don't have the background here, let's go to those people who may have the background.

If I were to tell you—if, as a common-sense observer out there saying, gee, we have folks treating 25,000 cases of people, treated, treated, why aren't we running to those people and bringing them in? I could list you names. Have you just—let me do this, picking up on the chairman's line of questioning—have you over the years been in formal contact and asked for the advice of the American

Academy of Environmental Medicine, have you done that, who have treated 25,000 people who have been made ill by chemical exposure?

Dr. MURPHY. We actually have two MCS specialists on our VA Persian Gulf expert committee, which is a federally chartered advisory committee that would give us advice on a routine basis.

Mr. SANDERS. But you didn't answer my question, Doctor. Have you brought those people—have you implemented any of the treatments that they are working on? There is treatment out there. Have you? Yes or no.

Dr. KIZER. I will defer in part to Dr. Murphy, but I would underscore part of what you said or alluded to is that much of the treatment that is advanced is highly controversial as to both its efficacy and in some cases its safety.

Mr. SANDERS. I beg to differ with you. Give me any evidence that there is any safety element in this treatment. There has never been any evidence of that. This is a low-tech type of treatment.

Dr. KIZER. You are referring to part of the treatment that has been advanced by some of the members of that group. There are others who have advanced other types of treatment that belong to that group that does have safety implications, whether it is using things like ads, which is concentrated bacteria, chelation therapy. There are coffee enemas, a variety of other things. I think what you are referring to is a portion of it, so I think you have to make that distinction. In the aggregate there are concerns both about safety and efficacy.

As far as the dietary treatment and things like that, that is something that again we would remain open to. I think part of the questioning there is that if we are going to fund the treatments, pay for treatments that are not proven or that haven't been shown to be efficacious, then that means that somebody else may not be treated because of limited funds. We have——

Mr. SANDERS. That is exactly what the problem is here. You are talking about different approaches to science. I think you don't know, in all due respect. I think there is an area of work—let me give you one example, if I can, Mr. Chairman, and I will explain how I got involved in this. Be patient with me here.

As Members of Congress, we get a lot of strange calls. I got a call from a woman in Montpelier, VT. She said to me, "Mr. Congressman, I installed a new carpet in my house. You are not going to believe this, but I became very ill, and my kids became very ill." And you know what I said? I said, lady—I didn't say this, but this woman is crazy. I never heard of such a thing, getting a carpet in your house and getting ill. What kind of nutty stuff is this?

We did a little research. You know what we found out? Twenty-six attorneys general throughout the United States of America were pressuring the EPA and the Safety Products Committee here in Washington to do something about it. This was a problem.

Well, we got into it, and the late Mike Synar of this committee did a wonderful job, did a big hearing on it. We had the EPA up here. The EPA said, yes, we know there is a problem. The EPA itself, you might remember, Mr. Chairman, removed carpet from their own building, you remember that, and they said, yes, we

know there is a problem, but we don't fully understand the problem.

It turns out there are physicians all over the country who treat for this and who wrote to us. We got all kinds of letters that say we are treating kids, adults made sick by chemicals in carpets. We had the EPA up in a hearing similar to this. Their line of reasoning, not dissimilar to yours is yes, we know there is a problem, but we don't know how to treat it and think there may be a problem. I asked them, have you talked to one physician who treated one patient made ill by a carpet? I never forgot their answer: No, we haven't.

Essentially you are saying the same thing. You are saying there are people out there, there are physicians out there, and while you may be right that there may be some experimental and potentially dangerous types of treatment, there are other treatments, as you well know, that do not have dangers. It is amazing to me that you are not begging to bring in those people who are providing low-tech, nondangerous treatments and see if they are efficacious or not.

Dr. KIZER. I think we would welcome that, if I understand your question, and I want to come back also to respond to a comment that the chairman made. If those individuals are willing to look at this, and it doesn't have to be a long, drawn out study, but to look at the efficacy of that treatment under accepted protocols or techniques that will give us a reliable answer, we are very willing to look at that.

Let me put an offer on the table, because I think that in some ways there is a good parallel example in the issue of silicone breast implants, and the decision that was made by the judge in Oregon in this case that—and because this also is an area of some contention—that if you want to name some experts that have nothing to do with Persian Gulf, and we will name some experts and we will put them together to agree on what the methodology, what the criteria should be for accepting the data, then we can do that.

And I think that is what was done in the case in Oregon; that because of the proponents of different schools and different rationales as far as whether the silicone breast implants were causing the alleged array of diseases, so the judge took noninterested individuals, who said these are the criteria that the evidence the data should meet, and we have no vested interest in this whatsoever because this it not our area, but that is what sound science, sound methodology, sound investigative principles would suggest——

Mr. SANDERS. Let me ask you a question. I mentioned to you before that you had a physician. Your own physician in Northampton, MA was treating people with some success. Have you contacted those patients? One of the things common sense would dictate if somebody is treating somebody, is that you might want to ask, hey, Sergeant, was that treatment successful? How did you feel before you went in? How did you feel after you went out? If you had 50 people saying, you know what, I don't know why, but this treatment seemed to have worked, if I were you, I would be on the first plane to talk to that person and find out what is going on.

Dr. KIZER. We even did more than that. What I suggested in that case was that we hire a methodologist at VA expense to help the

doctor put together the study that would show if, indeed, there was. And I think, as you well know, in some cases people feel better despite of or because of the treatment they receive. And I think what we need is, again, the agreement on what are the principles, how the data should be viewed, and we certainly have made offers and made the services of methodologists available to them.

Mr. SANDERS. One thing to be in a committee, but in the real world the end result was you had somebody who was before the House subcommittee in 1993, went through all of the hoops, did a lot of work. I think this was in addition to a normal service as a VA physician. She did this on her own. And it took years before this thing was dealt with, she apparently felt, for whatever reason. You are saying one thing, but the end result was she felt, hey, they are not interested.

And I guess I would hope that we have broad enough egos to understand that none of us know everything, and I hope that we are open to various forms of treatments. Frankly, I don't think you have been, and I hope that you will be. I think it is a very important issue.

Dr. KIZER. I can't comment on 1993, since I wasn't associated with the Department.

Let me respond to something that the chairman proposed. Forgive me, I don't remember the exact question, but the point that I wanted to make was that I, as someone who has been a consultant in the area of toxicology and worked with it, I think my index of suspicion and concern for chemical causation may be higher than some others. And indeed, coming into the VA, my observations in this regard is that the VA community is no different than the regular medical community or the rest of the medical community in having perhaps some lesser sensitivity at times than they may have. At least they are exploring the potentiality, not necessarily that there is a cause-and-effect relationship.

That is one of the reasons why we are establishing a number of new fellowships in the VA; this summer 12 new fellowships in medical toxicology will be supported, as well as funding additional physicians in occupational and environmental medicine. We will have 25 new physicians this summer and hopefully double that the coming year.

One of the concerns that I might just mention, though, in the area of medical toxicology is that the training programs have had a shortage of individuals applying for those positions since it is not something that there is necessarily a demand for in the private sector.

Mr. SHAYS. I appreciate your response to that. I do think that that will be very helpful.

Dr. Rostker, I don't know if I am going to be waking you up or——

Mr. ROSTKER. Here to respond to your questions, sir.

Mr. SHAYS. I was feeling a little uneasy that we invited you, and you are just having to sit and listen to this dialog, but somehow maybe there is some good to come from it.

I have been concerned that the DOD, basically given the history after World War I, given the history basically with radiation and Agent Orange, that the DOD would have an attitude different

than, "if we don't see acute symptoms, we don't think there is a problem." That is one concern I have, and I would like you to respond to that.

The other concern I have is that—and obviously since I am not a physician, I could just be totally off base, but someone in Connecticut served in Persian Gulf. His job was to spray the troops with lindane. He was in a confined area. I am told by occupational environmentalists here that there are certain chemicals that you would simply make sure if they were using, there would be ventilation and so on. This individual ended up dying with pancreas cancer, and I remember one doctor saying there can't be any connection between lindane and pancreas cancer.

But the bottom line is we know how chemicals are stored on bases. We also know that we are not shutting down some bases because there are such chemical challenges in some of them, because if we did, the cleanup would be immense. I think you get my drift.

What are you doing to look at the practices of the Department as it relates to the use of chemicals, not just defensive and offensive, but chemicals in general?

Mr. ROSTKER. First, let me just state for the record I am not a physician, I am an economist, and after hearing this discussion, I thank my lucky stars that I went to graduate school in economics and not medicine.

Mr. SHAYS. Because that is such a pure science, right?

Mr. ROSTKER. Absolutely.

As you know, or may know, the Department of Defense did fund in the 1970's some research on low-level chemical exposure. The subjects were workers at chemical weapons plants who were inadvertently exposed to chemical—low-level chemical exposures. And that research, unfortunately, was not pursued as far as it could have gone. You are absolutely right that we had the presumption that all we had to worry about was acute poisoning from chemical weapons.

I don't think it is fair to characterize General Schwarzkopf or the other leaders as waiting for people to drop dead before we had a concern for chemicals. That there is——

Mr. SHAYS. It isn't fair, so let me clarify, since they saw no acute symptoms, and there was some reference to nobody dying.

Mr. ROSTKER. If I might, the Gulf war is probably the major, the most significant concern for chemicals that we have had since World War I because we did know that Saddam Hussein used chemicals both on his own people and on the Iranians. So the extraordinary precautions that were taken almost bordered on the hysterical.

The out borders are replete with references to protecting the troops, to training, to making sure that we had the best chemical gear that we could have at the time. And, in fact, as you know, when we went into the offensive part of the war, the troops were not in their normal utilities, but were in their MOP suits. And the examples——

Mr. SHAYS. That is the protective gear?

Mr. ROSTKER. The protective gear, exactly.

And invariably where we have even the slightest indication that chemicals may have been present, there is also a recording in the

records that are available to you and to the public, the comment that the troops——

Mr. SHAYS. According to?

Mr. ROSTKER. According to the logs and accounting of operations.

Mr. SHAYS. My understanding is that more than 50 percent of those logs are not available.

Mr. ROSTKER. The ones that we do have are replete with the troops moving into MOP 4 and further action being taken.

Mr. SHAYS. I don't know what you mean by "further action being taken."

Mr. ROSTKER. A test, confirmational test, doing a 256 kit test.

So I think the record will sustain the fact that, as one of the out borders said, the safety of the troops were paramount.

But it is true that we did not appreciate the possibility of effects from low level that might persist over time, might manifest itself not immediately, but years later. We are prepared to undertake that research necessary to fill that knowledge gap so in the future we can be more responsive.

Mr. SHAYS. Do we have any record of Iranian civilians having health problems as a result, potentially, of chemicals?

Mr. ROSTKER. In the timeframe of the war?

Mr. SHAYS. And since then, and—Iraqi, not Iranian. Let me restate the question over again. I misstated.

Does the DOD have any knowledge, do you have any knowledge, does the DOD have any knowledge that we would be able to see of health care challenges that Iraqi civilians have as a result of the war?

Mr. ROSTKER. There were some accounts near Basra, as the Republican Guard was retreating, of some possible exposures, but that is the extent that I know of. I believe we have asked the question of the Kuwaitis, and they have indicated that they have none. But that is the extent of my knowledge.

Mr. SHAYS. Your testimony is you have no knowledge of Iraqi civilians not being exposed, but having serious symptoms? You have no knowledge of symptoms similar to the U.S. soldiers and the allies?

Mr. ROSTKER. Not that I have.

Mr. SHAYS. Could I ask you to check your records?

Mr. ROSTKER. Of course.

Mr. SHAYS. Since I need to be very definitive here, we have two requests on the table, Doctor. One of them will be the request you are going to show me from 1993 to 1995 specific studies that you asked for dealing with chemical exposure, someone else asked for, because you were telling me there were studies. I wouldn't need it for the committee today since I wouldn't know what to do with them, but I will give a few weeks if you would get back to us with that, in addition to the two previous questions that we asked Dr. Murphy.

And, Dr. Rostker, if you would check the records to see if there is any evidence or concern on the part of the U.S. Government that Iraqi civilians may have some of the same symptoms that our allies have.

Mr. ROSTKER. We will do that in toto, but let me be clear that there were reports of civilians possibly exposed to chemical weap-

ons near Basra at the end of the war as the Republican Guards were retreating and as they were—as action in that city with the Shiites.

Mr. SHAYS. One of the interests that I have is that the CIA did projections of what would happen to the plumes when we blew up some of the depos and some of the chemical plants, and in every instance they would not come toward our troops. If they would not come toward our troops, there we have some question mark because they went somewhere.

One of the ironies would be if we could learn basically from our previous enemy that they are encountering some of these problems, that we may have a common interest in exchanging information.

Mr. ROSTKER. Absolutely.

Let me, if I might—we are in the process of distributing almost 22,000 questionnaires to servicemen who were near the Khamisiyah, within 50 kilometers of the Khamisiyah, and we will have a much better understanding of any anomalies that they saw or any possible health effects that they suffered around that explosion. And I hope that that analysis will be available in the month of February.

Mr. SHAYS. I just have basically three more questions here. I would like to know first off if—from you, Dr. Kizer—if the VA is sharing its health registry data with the DOD investigative teams.

Dr. KIZER. The DOD shares its data with VA. VA shares data in the aggregate with DOD. We have not provided individually—or data that would be linked to an individual largely pursuant to the feelings that have been expressed by individual veterans as far as providing that information back to DOD. But we certainly——

Mr. SHAYS. As a privacy issue, that you are not providing the registry information to the investigative teams; is that right?

Dr. KIZER. The aggregate data, the data that is not linked to individuals, has not been provided to DOD largely in response to the requests or the feelings that they expressed by the veterans.

Mr. SHAYS. How do we know how they request it? Did they say they don't want it provided? Is there a question in the protocol that asks that?

Dr. MURPHY. No. Our physicians talk to veterans every day. They call into our offices on the phone, and there is a feeling among veterans that—whether it is true or not—that if the registry health information was provided to DOD, it might have an impact on their career as a reservist or active duty member. So, yes, there are concerns. It doesn't impact our ability to deal with aggregate data. Because DOD sends the data as provided to the VA, we can do the analysis. It really is not an issue. We do provide aggregate data back to DOD with no personal identifiers attached. You can ask the veterans here today if they would like their personal data sent to DOD.

Mr. SHAYS. It might be wise to have that as part of the protocol, to ask if you are able to share that information for their own basic health.

Mr. ROSTKER. I would like to make it perfectly clear that we are not interested in the name or Social Security number of anybody who is registered, but if we are going to do the appropriate cluster

analysis, it would be extremely helpful to have the individual records at a unit level.

We believe we can safeguard the privacy of the individuals. We don't need health identifiers. We don't need rank. We don't need the name or Social Security number. I think we will be trying to work with the VA to resolve this issue.

Mr. SHAYS. Is that something that, Dr. Kizer, could be resolved based on that kind of request?

Dr. KIZER. I think we need to look at it and see exactly what that means. We are certainly open to it, and I would say two things: One, to date, Dr. Rostker recently has assumed his position and raised this issue very recently. Prior to that, Dr. Joseph and the folks from the Health Affairs were satisfied with not getting the individually linked data. I think first and foremost, though, we want to get some feeling from our Veteran patients as to whether this would be a problem for them.

Mr. SHAYS. How long ago was that request made?

Mr. ROSTKER. We had this discussion over the last month or so.

I would say that in terms of doing epidemiological studies, Dr. Joseph had, in fact, reached an accommodation with the Veterans Administration.

However, in terms of the kind of analysis that we would find most helpful to at least screen the possibilities of exposure, it would expedite our research and inquiries if the information were available with no personal identifiers.

Dr. MURPHY. I can guarantee you that VA will cooperate in all of those efforts as long as we can maintain the confidentiality of veterans.

Mr. SHAYS. It would seem to me there would be a way to maintain confidentiality. It seems to me a no-brainer.

Dr. KIZER. I am not sure it is an issue really.

Mr. SHAYS. That would be nice.

Dr. Rostker, is there any comment?

Ms. Gwin, you have been very patient here, and, Dr. Custis, do you have any closing comment you would like to make before this committee? I appreciate your patience and participation.

Dr. CUSTIS. No, I think not, Mr. Chairman. I think you have covered it very well.

Mr. SHAYS. I don't know how much we covered. You are gracious, but I am disappointed, frankly.

Dr. Rostker.

Mr. ROSTKER. Mr. Chairman, I would like to hear from those who served with us and those who continue to serve with us in active duty in our reserve components. As I have said in my statement, it is imperative that we get to the bottom of why so many people are ill. We owe it to them, but most importantly we owe it to the future soldiers, sailors and Marines and airmen who will be, I am sure, placed in harm's way in service to their country. We owe them no less.

Mr. SHAYS. I think we probably all agree on that.

Dr. Kizer, before I ask if you have any closing comment, and maybe Dr. Murphy, can you tell me what the analysis of VA registry of Khamisiyah tells us about the health effects of exposure to

low levels of chemicals? Have we learned anything from the VA registry in regards to Khamisiyah?

Dr. MURPHY. We have had long discussions on the usefulness of VA registry in the past, and I would like to preface my statements with all of the caveats that we have previously put on it. The registry is health surveillance data and does not give definitive answers, is clearly still true. I think it can be used as a tool to get a snapshot on a particular issue, and that is what we have done in searching the registry data base with the names of the 21,000 individuals that DOD tells us were within 50 kilometers.

In looking at the comparison between registry participants overall and Khamisiyah veterans, really there aren't dramatic differences between the two except in two areas. No. 1, the—both the individuals within 50 kilometers and those who were identified as part of the demolition team, are on your charts as being onsite, have—virtually all have symptoms, and that is different from the other 52,000 individuals that we looked at in the registry, 12 percent of whom have no symptoms.

The other difference is that those members of the demolition team have a higher percentage of musculoskeletal symptoms. It is 16 percent versus 28 percent. There doesn't appear to be a difference between the 50-kilometer group and the other group. The reasons for those differences are not entirely clear at this point but could be addressed by the epidemiologic research studies that are currently being requested. Protocols are being requested through an announcement that was released by DOD in December and are due in on February 19th.

Mr. SHAYS. Dr. Kizer, you said today that the Persian Gulf Registry was never intended to or designed to be a scientific research study. I infer from that that it is basically a helpful document, but it shouldn't prove or disprove any conclusions. Would you conclude with that?

Dr. KIZER. I think that is what the statement says, sir, that the Registry is first and foremost a health access program. Insofar as it provides, or can be hypothesis-generating, it may be useful in that regard, but in and of itself it is not a——

Mr. SHAYS. Do you have any closing comment you'd like to make?

Dr. KIZER. I would perhaps just reaffirm two points that I made before. One is that while we think the VA approach and program is a good one and a comprehensive one, we are continually looking for ways to improve it, and we certainly welcome the oversight and the scrutiny that this group and many other groups have provided in an effort to improve the program.

Second, I would just say that I would—I think at times in an effort to be precise in our statements and to ensure that we are communicating it, it may create an incorrect illusion that there is an attempt not to be responsive, and I certainly hope that is not the case. And through continued dialog it will be clear that we want to be as responsive as possible, but we feel the need to also be as precise in our responses as well.

Mr. SHAYS. Dr. Kizer, I will respond to that point. I think it is very important, especially your field, that we are being very precise. I just have to say to you that the difficulty I had in getting a dialog as to what the Registry was at one point was something

that I did not expect we would have that challenge in communicating. It tells me that rather than having Dr. Murphy before us, I think probably you should be conferring so we can iron out those differences.

I thank all of you for coming, and I thank all of you for your patience. We are going to recess, as there is a vote on the floor. Since it may be over in 15 minutes, but since I can't be certain, I am going to recess until 2 o'clock.

[Whereupon, the subcommittee recessed at 1 p.m., to be reconvened at 2 p.m. this same day.]

Mr. SHAYS. I will call this hearing to order and I apologize to our witnesses. This has been a momentous day in the history of Congress. Some of you have to be at 3:00—Dr. Haley, where do you have to be?

Dr. HALEY. Over in the Senate building, Russell Senate Building.

Mr. SHAYS. You have to be at the Pentagon at 3:00?

Dr. HALEY. I have to be there at 3:30.

Dr. DUFFY. I have to be at the Pentagon at 3.

Mr. SHAYS. Can you change it to 3:30? I will tell you what we will do. We will meet with you first. Since there is only one person asking questions, you may be able to answer them. We'll let you leave before the other panel starts up. I need to swear all of you in. Dr. Schwartz, I assume you do not have a timeframe.

Dr. SCHWARTZ. No.

Mr. SHAYS. All right. Thank you.

[Witnesses sworn.]

Mr. SHAYS. For the record, all three witnesses have responded in the affirmative. Our second panel is Dr. Robert Haley from the University of Texas Southwestern Medical Center; Dr. David Schwartz, University of Iowa Medical School; and Dr. Frank Duffy, Harvard Medical School: three distinguished practitioners and academicians. We are very grateful you are here. Dr. Duffy, since you have a 3:00 appointment, we'll let you go first and we'll get you out of here, and Dr. Schwartz, and we will get you out of here, by 15 of. Do you have a fast car?

Dr. DUFFY. Taxi.

Mr. SHAYS. OK. Maybe somebody can get a cab and have it waiting for him. So, Dr. Duffy, why don't you go first.

**STATEMENTS OF FRANK DUFFY, M.D., ASSOCIATE PROFESSOR OF NEUROLOGY, HARVARD MEDICAL SCHOOL; ROBERT HALEY, M.D., DIRECTOR OF EPIDEMIOLOGY, UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER; AND DAVID SCHWARTZ, M.D., PROFESSOR OF INTERNAL AND PREVENTATIVE MEDICINE, UNIVERSITY OF IOWA MEDICAL COLLEGE**

Dr. DUFFY. Thank you, Mr. Chairman. This presentation will review evidence that's actually been around a while, that low levels of exposure to the nerve agent Sarin can produce long-lasting effects. In fact, this began in the 1970's when the post surgeon at Rocky Mountain Arsenal noticed a symptom complex amongst workers there. Rocky Mountain Arsenal, as you know, is the Army facility charged with maintenance of nerve gas munitions. What he noticed is they were forgetful, there were problems with concentration, they were irritable and, in particular, they had problems in

sleeping, but with the peculiar twist that there was excessive dreaming. Also there was complaints of decreased libido, diminished sexual performance and, putting all that together, the main complaint, the presenting complaint was trouble with relationships and trouble keeping their jobs.

As you might imagine, workers who were demilling nerve gas, this was not prime employment so there was an overrepresentation of minority and immigrant workers. And Dr. Gaon initially thought that this was just a problem that one would associate with lower socioeconomic classes, but then he recognized that what was really going on was that these were the people he had actually seen with histories of exposure, on-the-job industrial exposure. So he took it to the Department of the Army, and it was at that point I became involved.

I was what was called an obligatory volunteer back at that time, and I was involved with the planning and implementation of the two-part project. The idea was it does seem kind of farfetched that people would have symptoms a year or so beyond exposure to organophosphates, so let's really nail this one, let's do it on primates, on monkeys.

So we had a project with rhesus monkeys at Edgewood Arsenal, and the idea was we would expose them to a range of Sarin, from an exposure that would require treatment to survive and a very low level where the animals didn't turn a hair, and look at them a year later, and not just look at their behavior but to do it objectively. So we put together a team of people to record brain electrical activity, EEG, and analyze it by computer, which was pretty good back then, a good approach. We still do this.

The results of the study were there were differences in the temporal lobes of the monkeys and they were not seen in the monkeys who were not exposed. That surprised everybody, but it was sufficient evidence to go ahead and look at the workers at Rocky Mountain Arsenal who had this history. There were some 77 of them. And we matched them with workers on the post who had never had an exposure and who their blood checks showed they had never had an incidental exposure. The workers—this will come to be important for a moment—had a documented exposure; there was an accident. They were working with the compound, they had physical findings, and a 25 percent reduction in their own baseline cholinesterase levels. So they had exposure.

We took as an outcome point 1 year after their last exposure. Some had only one exposure, a few had as many as six or seven, but we looked a year after their last exposure, and we found by computer analysis of EEG the very same findings we found in the monkeys. We took it a step further and I—on a double blind basis, I visually analyzed the EEGs and found out that their overall EEGs showed a pattern we would now call encephalopathy, that's out alpha was reduced and slowing was increased by visual inspection. So another thing we found.

But one of the more interesting things was their all-night sleep study showed an excess of the phase of sleep now known as REM, or dreaming sleep. We have a phase of sleep where we just lie kind of quietly and a phase where, usually occurring toward the morn-

ing, where the eyes move. And that's what you can see, and when you awaken someone in that period, they are dreaming.

Now, this population had an increase in dreaming sleep, which fit very well with their complaint of excessive dreaming, but there are very few compounds that actually increase REM sleep. Most compounds diminish it. Sleeping medications knock it out. The compounds that can do it is LSD, mescaline, some of the psychostimulants, but also the organophosphate anticholinesterase agents like Sarin will do this acutely.

So there we were with a monkey study and a human study indicating that 1 year after exposure there were differences that could be objectively measured on a double blind basis by computer and it seemed inescapable that the human brain responds adversely to exposures to organophosphate anticholinesterase, and in this case it's Sarin. One of the key issues—I might add that 6 months or so ago, or more, when I was aware of what might have been happening in the Gulf war, a couple of my companions——

Mr. SHAYS. Just so I have a sense of the timeframe, when did you begin the study on the monkeys?

Dr. DUFFY. This study was published—the dates are on the back of the handout, but I think the late 1970's, early 1980's. So this has been in the possession of the Department of Defense, paid for and managed by them and accepted by them completely. And what I wondered is why, when this all came up, and one of my buddies who is in the reserve said, Frank, they are going to call you up and why I never heard anything until the New York Times called me last December. So I was curious about that.

The other thing I wanted to sort of offer was my impression of how things worked back then when this incident came up. We were a group of physicians under the Army Chemicals Corps, the only physicians in the Army that didn't report to the Army Surgeon General. So when this came up and I went out to Rocky Mountain and looked into this and read the literature, it was perfectly clear that not only were people after Sarin exposure showing long-term effects, but it was widely accepted in the pesticide industry that exposure to related compounds like malathion and parrathion or the chlorinated hydrocarbon insecticides led to long-term consequences, widely known but not really played up.

Mr. SHAYS. I am just going to interrupt you, and this will help. Not widely made well-known because the industry didn't want to alert OSHA and the others——

Dr. DUFFY. It was not to their economic advantage to have it known. And I might add, there is extensive anecdotal literature on long-term exposure to malathion and parrathion, which are well known in the crop dusting industry and California has done some studies on this. But I brought it up to the Army and said, hey, this is bigger than us. There is a big public health issue of exposure to these compounds and their long-term effects. Don't you think that should be taken up to at least the Public Health Service Surgeon General's level and we should investigate not just our population, which was very nicely controlled, but we should include the pesticide facilities that were near? And the response was not only will we not take it up to the Public Health Service, it would not move out of the Department of Army and not even get up to the Army

Surgeon General until we had our ducks in a row. This Army Chemical Corps was going to take care of themselves.

Then over the years I have always asked myself the question why was I in charge of this program. I was right out of neurology residency and they pulled me out of the dream of draftees going over to Vietnam. Surely there must have been somebody in the Army better qualified than me to run this study and how did they know I could do it.

So unless things have changed a lot, my impression of the way the government, and at least what I know the Department of Army used to word is they take care of things themselves. And that may be one of the system problems that could be changed, where—I've heard today that now there is a joint commission between the Veterans' Administration, the Public Health Service and the DOD, but what happens if the expertise doesn't happen to lie there. There should be the ability to move out into the public sector and find expertise at universities and incorporate this and solve problems this way, without having someone lose face or someone being terribly worried that if they spend a little extra money they are going to be disadvantaged in promotion.

So that's a strong recollection I have. I mean, they pulled me kind of by accident rather than search the country for the most qualified person to do this. They solved this problem internally rather than call on the resources that they probably should have because it is a bigger issue than just organophosphates.

My final comment is that I agree with Bernie Sanders' comments that we have really got to get together and do something. I do think, however, that medical treatment is best targeted to disease that we understand, so that there is not only a treatment component, but there is an investigative component leading to more appropriate treatment. And why, if, say, EEG was so apparently useful in determining the population at Rocky Mountain Arsenal was exposed, has there not been an EEG project looking to see whether the same findings or similar findings are present and perhaps targeting those who might respond versus those who might not.

At Rocky, for example, complicating the issue, we discovered that only about two-thirds of the people who had significant exposure showed the EEG effects and about a third did not. So there is an idiosyncratic nature to this, just as you know in multiple chemical sensitivity issues, you put the rug in the office and 2 out of 12 people will come down with it, but 10 didn't. So it's complicated because it's idiosyncratic, so you need to target and you need to look for mechanisms, and I know we don't have time today, but the suspicion is there might be EEG findings in this syndrome akin to some work we've done in chronic fatigue syndrome which has surprised us in terms of its direction it's pointed us toward therapy. So there is a lot that can be done here, as well as I think, in a global sense, looking at how the government responds to these—the freedom the government has to respond to these kinds of crises.

Thank you.

[The prepared statement of Dr. Duffy follows:]

# EVIDENCE THAT MINOR EXPOSURES TO THE NERVE AGENT, SARIN, MAY LEAD TO LONG TERM DIFFERENCE IN BRAIN FUNCTION

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## BACKGROUND

At Rocky Mountain Arsenal (RMA) near Denver, an Army facility where nerve gas containing munitions were stored and decommissioned, the post surgeon, Dr. Maurice Gaon, noted an unusual number of employees presenting with a symptom complex including fatigue, sleep difficulties (often excessive dreaming), memory loss, trouble concentrating, irritability and loss of libido. He came to recognize that these symptoms were primarily found in employees previously treated for accidental, on-the-job exposures to the nerve agent, Sarin - an organophosphate (OP) anticholinesterase (AChE). He reported his clinical findings to the Department of the Army resulting in the projects outlined below which were designed to search for evidence of long term change in brain function following Sarin exposure. The overall research was known as Project LEACHE (long term effects of AChE exposure).

## ANIMAL (MONKEY) EXPERIMENTS

The goal was to determine whether controlled exposure to Sarin could induce long term changes of monkey brain electrical activity. Experiments on rhesus monkeys were performed at Edgewood Arsenal, MD, the Army Chemical Center. The design was to expose monkeys to OP nerve agents at two levels, one simulating a severe but treatable exposure and the other simulating a series of minor clinically insignificant exposures. The study outcome was determined one year following last exposure as the interest was to search for long term effects. Control monkeys were similarly treated but Sarin was withheld. Outcome measures were derived from spectral analysis (frequency analysis) of the EEG (electroencephalogram) recorded from electrodes permanently approximated to the brain. Results demonstrated that brain activity, one year after exposure, differed between the exposed and non-exposed monkeys. Findings were similar for both the monkeys exposed to a large single dose and to multiple small doses. Findings included increased EEG beta or fast activity, seen most consistently in the temporal lobes. It is important to point out that whereas the large dose animals experienced major brain electrical seizures (protected by paralysis and artificial respiration from anoxia) and might be expected to demonstrate brain change, the minor exposure group showed virtually the same results. These minimally exposed animals had demonstrated no

behavioral change following each Sarin administration. Thus, for monkeys, exposure at a level where no immediate effects could be observed was capable of producing EEG change detectable one year following their final exposure.

**HUMAN STUDIES**

Given the unexpectedly positive findings from the animal work, it was decided to search for change in brain electrical activity in subjects at RMA with histories of accidental, on-the-job, Sarin exposure. Entry into the study was limited to employees who (1) were involved in a clear-cut accident on the job that was likely to have resulted in an exposure, (2) who had appropriate symptoms and signs of exposure, and (3) whose chemical blood tests demonstrated lowered anticholinesterase levels. At time of evaluation, no subject could have a documented exposure within the previous year. Controls were taken from maintenance personnel at the same facility at no risk for exposure and with no history of same. These individuals approximated the same socio-economic classes and same working and living environment as the exposed population. EEG data were gathered and spectral analyzed in the waking state from traditional EEG scalp electrodes. Subjects were additionally studied not only awake but also during an overnight sleep period. Spectral analysis of EEG demonstrated an excess of beta activity in exposed compared to control subjects maximal in the temporal regions, similar to those findings from the monkey study. Subjects with more exposures had more abnormal EEG data than those with fewer exposures. Those whose exposure was more than a year from time of EEG had lesser findings than those whose exposure was closer to the year before EEG cutoff point. EEG during all night sleep studies demonstrated an excess or REM or rapid eye movement sleep. Very few pharmacological agents augment REM sleep but OP agents, such as Sarin, are one such class. The fact that these data were gathered at least a year after the most recent exposure indicates that humans also show evidence of long term alteration of brain function following Sarin exposure

**FURTHER BASIC ANIMAL STUDY**

It is believed that OP compounds produce their adverse actions upon the brain by reducing crucial AChE compounds. These important chemicals serve to remove any excess of the normal neurotransmitter compound, acetylcholine. If AChE is depleted by Sarin, acetylcholine builds up and seizures may result. A troublesome problem is that AChE, even if totally depleted by Sarin, should reconstitute after a few months, certainly well before a year. Thus the long term effects of OP AChE agents such as Sarin must stem from a secondary change induced by the period of low AChE (and high acetylcholine) levels and not by persisting low levels of AChE. One possible explanation is suggested by studies in rats which show that acetylcholine receptors in the temporal lobes appear to have a memory for past stimulation (which could reflect their participation in normal memory processes). For example the epileptic "kindling" phenomenon involves repetitive stimulation of the rat temporal lobe and demonstrates a gradually increasing electrical and behavioral response to the same stimulus as it is repeated. It has been shown that the initial cellular response during the kindling paradigm involves, in part, a selective augmentation of the sensitivity of acetylcholine receptors. Thus one explanation for late effects of Sarin exposure could be an unexpectedly long

augmentation of acetylcholine receptor sensitivity during the relatively shorter period of reduced AChE.

**CHRONIC FATIGUE SYNDROME**

Chronic fatigue syndrome (CFS), a medical problem of undetermined and probably multiple etiologies, shares many of the clinical features of both long term exposure to OP compounds and some forms of the so termed Gulf War Syndrome (GWS). It has recently been demonstrated (meeting presentation, work in progress at Harvard) that quantitative EEG (qEEG) analyses of CFS patients demonstrate a surprisingly cohesive pattern of (1) EEG sharp waves and (2) overall high EEG amplitudes involving the temporal lobes. Thus it is likely that qEEG studies could detect whether patients with GWS have brain electrical activity that differs from non-symptomatic, matched controls.

**GULF WAR SYNDROME**

It has been suggested that since Army personnel did not appear to suffer acute symptoms which could be clearly recognized as resulting from acute Sarin exposure that this explanation for GWS must be irrelevant. This is not necessarily a valid assumption. First, the low level exposure monkey group demonstrated no symptoms beyond annoyance at receiving injections. Second, most of the exposed Army personnel at RMA suffered relatively minor symptomatology. All RMA subjects knew, by circumstantial evidence that they had been exposed or were at risk for same. All were aware of the potential lethal nature of Sarin, and all were trained to seek immediate medical attention. Panic is commonly and understandably observed in individuals who know they have been exposed to nerve agents. However, should an equivalent level of exposure been suffered without the individual's knowledge, it is doubtful that very many could have identified the source of their discomfort if indeed they noted any symptoms at all. Thus it is quite possible to have a biologically significant exposure to OP compounds and not be aware of it acute exposure.

**SUMMARY**

Studies performed by or funded by the US Army in the past clearly demonstrate, for both monkey and man, that exposure to the nerve agent, Sarin, can produce long term alteration of brain function. Levels of exposure capable of producing such late effects may not be recognizable by subjects, acutely, especially if they are unaware of what is happening taking and/or are distracted by other activities. Furthermore, it is likely that new EEG studies of personnel afflicted by GWS could provide direct and unbiased evidence of brain change if present.

**RELEVANT ARTICLES**

Persistent effects of sarin and dieldrin upon the primate electroencephalogram. Burchfiel, J.L. and Duffy, F.H. Toxicology and Applied Pharmacology 35: 365-379, 1976.

Long term effects of an organophosphate upon the human electroencephalogram. Duffy, F.H. et al. Toxicology and Applied Pharmacology 47: 161-176, 1979

Organophosphate neurotoxicity: Chronic effects of Sarin on the electroencephalogram of monkeys and man. Burchfiel, J.L. and Duffy, F.H. Neurobehavioral Toxicology and teratology 4: 767-778, 1982.

Neuronal hypersensitivity to acetylcholine induced by kindling in rat hippocampus. Burchfiel, J.L. and Duffy, F.H. Science 204: 1096-1098, 1979.

Mr. SHAYS. Dr. Duffy, I am going to get you out at 20 minutes of, regardless, but I am going to suggest to Dr. Haley and Dr. Schwartz if you would like to comment or even ask Dr. Duffy a question; that would be instructive to us. So I am going to ask you to make a comment and have Mr. Sanders go, and then I will go. If you would just make a comment.

Dr. HALEY. Yes, we are very familiar with Dr. Duffy's studies, and we strongly agree that this is very important information that should be on the subject here. It raises the whole issue of how do you measure subtle neurological damage, subtle brain damage. As I am going to talk about in a moment, we found that a physician, in looking and doing all the tests a physician can do, a history, a physical exam, lab work, a physician cannot make the diagnosis of this in traditional medicine, and that's the reason you have so many people putting in a rug and you go to the doctor and the doctor says there is nothing wrong with you, I can't find a thing wrong. You do an objective test like this that's subtle, sensitive, and compare it to a control, normal people. In a control study you can say this group is abnormal compared to the normal, and that's right now sort of the state-of-the-art. So I think this is very important information that should be in the record and be the central part of discussion of this problem.

Mr. SHAYS. Dr. Schwartz, do you want to make a comment?

Dr. SCHWARTZ. Yes, comment first as a clinician and then as an investigator. My area of specialty is occupational and environmental medicine in terms of the clinical practice of that, so I see—in practicing medicine in Iowa, I see a fair amount of patients who have been exposed chronically to pesticides. These problems that individuals have that Dr. Duffy is describing is not uncommon in individuals chronically exposed to organophosphates, and they provide an incredible challenge and a lot of difficulty to physicians who have not seen this type of disease present itself in their normal practice of medicine.

So applying some of these very objective tests to begin to understand why some individuals have chronic complaints following exposures and other individuals might not have chronic complaints following the same exposures is very important.

I think, as Dr. Duffy had said, it's also important to look at the issues of why some individuals are susceptible to that problem and other individuals appear to be resistant to it. It doesn't mean that they shouldn't prevent those exposures. It's just scientifically a very, very important question to answer because it helps us understand the pathogenesis.

In terms of my response as an investigator, I think that some of the very preliminary epidemiology has been done in this field in terms of the Persian Gulf activities and health consequences, and some of that I am going to be able to present. Some of it is still ongoing and it will come out over the next couple of years, but I think that the next obvious step, the next very important step in terms of understanding this disease process is to do very detailed examinations and very detailed laboratory tests, including tests like EEG tests, to understand this not as a syndrome or as a group of diseases that we have never seen before, but to try to under-

stand whether this, these processes, these complaints, fall into disease categories that we can treat.

Mr. SHAYS. Let me interrupt you a second because I want Mr. Sanders to——

Dr. SCHWARTZ. Sure.

Mr. SHAYS. If you could try to finish up.

Dr. SCHWARTZ. Those are my complete comments.

Mr. SHAYS. You are going to be here a little later?

Dr. SCHWARTZ. Yes.

Mr. SANDERS. I apologize for missing the opening part of your testimony. I am interested in two areas. First, a general question, we understand that everybody is trying to do their best to get at the root of this problem. Do you think that from what you heard today from the DOD and the VA and those people that they have the expertise to look at it—if you like in environmental medicine, that they have the background to make the diagnoses that some other people have been making?

Dr. DUFFY. Since my career doesn't depend on the answer, my answer I guess would be no. You graduate from medical school, most people don't think of the VA service or the Department of Defense as the top two choices of occupation, but they might go there if there were medical conditions they were very interested in that were looked into in either the VA, like rehab medicine, or the Department of Defense in certain areas. But this is universally true. And what I think is missing is the ability of the VA to candidly recognize, we don't have experts, they are out there, let's facilitate the ability to bring them in and take a look.

Mr. SANDERS. Let me ask you—we always have a problem because we're not physicians, but am I correct in understanding the whole concept, and Dr. Schwartz mentioned environmental medicine, is kind of a different ball game historically than the VA has been playing, which is not a criticism. They do excellent work in various areas, but is it fair to say that analyzing, diagnosing and treating people who may have been exposed to a wide variety of chemicals is not what they have historically been expert in.

Dr. DUFFY. Or even at every major university medical center will have a department or someone of interest you can think of, places in the country. So when you have such a problem, I wouldn't suggest setting up a branch—unless this becomes a major issue and we keep fighting in these areas, but I would think there should be some liaison rather than duplication, and the freedom to move out rather than causing someone to lose face.

Mr. SANDERS. OK. You used the word "freedom" a couple of times. What do you mean?

Dr. DUFFY. It's cheaper to use in-house physicians than to contract. Second, it's almost an admission of you can't do it, therefore you had to ask for help. And that's unfortunate. It doesn't need to be that way, and really shouldn't be that way.

I might make one final comment. The work was partly made to sound—our work that I presented—made to sound irrelevant because it might seem as you read it that the workers had more significant exposures than were relevant to the Gulf war.

In fact, what happens is if you are working with this stuff and you know it's a lethal agent and an accident happens, the first

thing that crosses your mind, I have 2 seconds of consciousness and 5 minutes of life, and you panic and do everything you can and run to be protected as soon as you possibly can. Whether you are exposed or not, you walk in hyperventilating and in panic.

My impression from actually going over all the records and as a medical officer at Edgewood looking at patients who had been in these types of accidents, you can have a biologically significant exposure and only maybe it sort of feels like you had a little too much chili for lunch or you had a fight with your wife or stayed up too late. That's the kind of feeling, but that may last. I would put on as—as well, if you've taken a protective agent, you might not experience that. And finally, if it's over 100 degrees, you've got on your full military garb, you're worrying about the missiles overhead and you're wishing you were back in the United States, the little extra burden of a whiff of organophosphates you could easily miss and it still could be significant.

Mr. SHAYS. I would like to understand, when you did this study with the monkeys, you were first surprised, and I guess I am missing why you were surprised. What was the new revelation that made you surprised? It seems very logical to me.

Dr. DUFFY. In retrospect it seems logical. The fact that we did the study means we thought there was a reasonable probability that the monkeys would show something. But they said you are not going to be able to look at those people unless the monkeys show something. And a year later, you are not going to be able to show it. But they did.

Mr. SHAYS. Now, the second part is given that's quite a significant finding and has implications to workers, what is your statement as to what happened in the study?

Dr. DUFFY. It was accepted with open arms by the Army at the time. It keeps surfacing every time the spruce forests of Vermont are oversprayed by malathion and parrathion and people come out and go through the literature and see the report and I end up talking on Vermont public radio or something like that. But——

Mr. SHAYS. That's it, Raiders of the Lost Ark, and in the end it's put in a box and they have this warehouse with billions of those boxes and they are saying we're taking care of it. Is that the sense that I should have of what happened to this study?

Dr. DUFFY. What I think happened—this is third and fourth hand. The Army knew about the study. It was picked up by people not in a position to—not in—of a rank to make a statement for the Army. It was—a committee was formed to look into this. It was maybe or maybe not given to the committee, I am not sure. The committee, which was composed of civilians, came back with the recommendation there's not much to this, and the Army said OK, and everyone said OK, and the VA said OK, and that was it. That's what happened. Then someone really looked at the data more seriously.

Mr. SHAYS. It makes you wonder if there aren't other pieces of data like this and other studies that you are not aware of that have been done by someone else. It's kind of scary to me. The implication is you've determined that some workers were at risk from this kind of experience and it has long-term implications for a whole

host of areas, but even just for that plant it has tremendous implications.

Dr. DUFFY. Well, for Denver and their water supply and I don't know what happened to all those munitions out there. It used to be next to Stapleton International Airport. They moved.

Mr. SHAYS. I am going to keep my word to you. You've been a wonderful witness. Thank you for coming.

Dr. DUFFY. My pleasure.

Mr. SHAYS. Dr. Duffy, thank you very much.

Mr. SANDERS. Thank you very much, Dr. Duffy.

Mr. SHAYS. Dr. Haley, you are next in line. You have to go over to the Senate, correct?

Dr. HALEY. Right.

Mr. SHAYS. And you have to be there at 3:30, and that's a 15-minute walk, so I think we're doing fine. Why don't you make your statement?

Dr. HALEY. OK, we published three articles in last week's issue in the Journal of the American Medical Association, and what I would like to do is list several main conclusions that came from this study. Basically we studied one group of Seabees, a battalion of Seabees. So what we're going to say pertains to this group. To the extent we can generalize we don't know yet, although they seem to have the same type of symptoms that many other groups have. But what we're going to say deals with this group.

We started this back in early 1994, and our first activity was to attend the National Institutes of Health Consensus Conference in April 1994, and when you are trying to reconstruct what's done badly and what's done well in this scenario over the last several years, you really need to look at that conference. Had that conference not occurred and the VA central office was primarily involved in establishing that conference; that conference all at one time summarized everything known, summarized all the information from the VA registries, DOD information, everything about risk factors, everything about symptoms, and that sped us up by at least a year.

Mr. SHAYS. What was that conference?

Dr. HALEY. That was at the National Institutes of Health in April 1994. And all in 2 days we caught up 3 years' worth of information and we went from that conference and in the following week we designed a series of three studies that have now been peer reviewed and published. But it was due to that. And I think that was a signal event in all of this and really needs to be high on your priority as you reconstruct what's happened.

Mr. SHAYS. In other words, it's very important and your point is that the bottom line is the VA did something extraordinarily helpful.

Dr. HALEY. Absolutely. See, this is the way science works. A series of small steps, even missteps, information is collected and then at some point you summarize it and present it to whoever is there, and there were veterans groups there and scientists, different interest groups, and right there sitting in the audience I had some insights about how to design a study, and my collaborator, Dr. Tom Kurt, toxicologist, said I think I know what this is, I think this is the syndrome of OPIDP. And we went off and started looking into

chemical combinations and doing epidemiologic studies. And that's how science works, and this process was well carried off. It was a great hour, a great 2 days for the country. So I wanted to start off. Here's what was designed then as a result of that process.

Mr. SHAYS. Let me understand one thing. If you want to interrupt at any time, because we're going to get you out of here, but I don't understand the 3-year reference.

Dr. HALEY. That was 3 years from the end of the war. And in that 3 years, a lot of work was done looking at risk factors, things that happened in the Gulf war, collecting registries of patients' symptoms. So we were presented in that 2 days with a complete inventory of all the things that were possible.

Mr. SHAYS. So you didn't say you had 3 years, it just took the 3 years of collected data and presented it to you, you didn't have to hunt for it, it was just right there.

Dr. HALEY. Yes. It would have taken us a year to find it, but it put us ahead a year. Now, we designed a study where we did something different. Instead of studying the sick people who were stepping forward. We went out and looked for a battalion of people who went to the Gulf war to try to study them all, a free-living population and try to study the sick ones and compare them to the well ones. Because if you look back at Legionnaires' disease, toxic shock syndrome, AIDS, hantavirus, that's how you discover the cause of the disease. You get the sick ones and the well ones and compare the two and see how they differ. So we decided to do that.

In this unit, we measured the symptoms in an interview survey, all 249 of them, studied their symptoms and then did a mathematical analysis to see how the symptoms—if this is a syndrome, that means there's a group of guys that will all have the same symptoms. And there's another group of guys that have another group of symptoms. That's what a syndrome is, and if that's true, we should be able to find those groups and that is a mathematical process. So we applied a mathematical process called factor analysis, but that's immaterial, and we found three major clusters and three sort of minor clusters, but the three major clusters looked like three syndromes.

Now, there was a real ringer here which is important to understand why we have not—why the country has not come up with an answer until now. This was very complex because when you looked at each of the individual symptoms, for example, chronic fatigue, common symptom in this problem, that symptom is ambiguous. It means one thing to one group of veterans and it means another thing to another group of veterans, and unless you disentangle these meanings you get mushy things like post-traumatic stress disorder, chronic fatigue syndrome, you get diagnoses that are imprecise like this.

We found, for example, with chronic fatigue, one group of soldiers meant by that that all day I am sleepy, excessively sleepy and want to go to sleep all day and I go to sleep while I am driving and so forth. Another group says I am not sleepy at all, but my muscles feel rung out after I exercise a little while, but I've not sleepy. So these are two different symptoms, but they both go under the name chronic fatigue, and so unless you differentiate these, you're going to come out with these mushy things like chron-

ic fatigue syndrome, PTSD, and that's the language we've been using, and until studies start disentangling these we're going to come up with these mushy diagnoses that lump some sick guys with some well guys and that's why it all washes out. So if I don't get across but one thing——

Mr. SHAYS. What do you mean, it all washes out?

Dr. HALEY. Well, if you include some people with bona fide medical illness along with a larger number who don't have illness but are complaining of different types of symptoms, then do you some tests, the group doesn't seem sick because the well ones wash out the sick ones.

Mr. SHAYS. OK. You used the word "wash out" different than I think.

Dr. HALEY. Yes. It obscures the real effects because it gets lost in this group of well people you're using. So that was our first big breakthrough. Then, in order to prove this is real illness, whether these clusters are real syndromes or whether it's just statistical, we then took a sample, 23, and that sounds like a small number, but this was 23 selected from already sifted out syndromes. We took 23, brought 20 controls, 10 of whom had gone over to the Gulf in this unit but remained well, and 10 who didn't go over but remained well, and matched them for age, sex, and so forth, and brought them to Dallas and the doctors in Dallas didn't know who was in what group. Was a blind study. We didn't do EEG because we think there's some new technology that's more substantive and more reproducible, and that is we did tests measuring the velocity of nerve conduction. How fast the nerve impulse goes up the spinal cord, measuring reflexes that are mediated by the brain stem. You have a lower part of the brain where you can stimulate the ear and the eyes move and so forth, and you can measure the speed of these reflexes. It's something the subject cannot, so it's totally reproducible. And all humans are supposed to have values in a very narrow range. And also one side is supposed to be exactly the same as the other side, so we can compare sides and so forth.

In this we found that the ones with the syndromes, the statistical syndromes, this group were very abnormal and the controls were normal, but you see, the doctors didn't know which was which, so we couldn't have influenced this. Once it was over we broke the code and found this group was very abnormal, and that shows this was due to brain damage, just the way Dr. Duffy's studies showed back in the 1970's.

Mr. SANDERS. Let me jump in one more time. So you are saying you were able to objectively, scientifically demonstrate brain damage on people who were complaining of symptoms.

Dr. HALEY. That's correct.

Mr. SANDERS. To your knowledge, has that been replicated within the VA, DOD?

Dr. HALEY. No.

Mr. SANDERS. So this is very significant, is it not?

Dr. HALEY. We believe so. Now, I believe there are studies ongoing, but I don't know details and perhaps people from VA can talk about that. I think this is certainly a major area of interest. I think some at the Portland VA are doing some studies now, but we're going to see a movement in this direction soon.

Now, the next thing we did, in our survey we asked them standardized questions about the risk factors they were exposed to in the war. There are no objective records about where people were and whether they were in chemical attacks, but we developed a series of objective questions to ask them. The problem is when you ask people about their exposure at the same time you ask their symptoms, there's a possibility that recall bias will creep in, that the people who are sick will have more of a selective memory, be more concerned about it and more likely to put it, or people might frankly cheat. I am sick so I am going to say I was exposed to these things.

The ringer here is we asked not only the questions about chemical exposures and combinations which we hypothesized from that NIH conference to be the most likely cause, we also asked questions about depleted uranium, oil well smoke, multiple immunizations, and so forth. You see, if recall bias was the explanation for the association, you would expect all of those to be about equally associated, because back when they did the survey in late 1994, all of these were being talked about in the press. So you would expect all of them to be equally associated with the syndromes.

In fact, when we did the analysis, the six chemical exposures were highly associated with these three syndromes, and I mean highly. There was not a relative risk of 1.2 or 2.1; relative risks of 4 to 8. Now, this is in a realm that is extremely high association, and generally the higher the relative risk the more likely it is to causes not due to bias.

Mr. SANDERS. Please repeat the risk factors that were associated.

Dr. HALEY. OK. First of all, there were risk factors having to do with the perception that they were involved in a chemical weapons exposure, that is were they in an area where the chemical weapon alarms went off and they were concerned about being exposed. Second, we found that a group who was in a certain place on a certain day had the highest, very high risk. That was not Khamisiyah because none of our soldiers were anywhere near Khamisiyah. This is the town of Khafji, which is just south of the Kuwaiti border on the coast, it's where the incursion was in early February, just on the border, and it happened that the soldiers who were there in Khafji, in the Khafji area on January 19 and 20, were the ones who had the highest risk. Now, the 19th and 20th were the same date that the Czechoslovakian chemical weapons detected Sarin and a mustard agent just west of that spot, on that same day. And it was the same day that in Jim Tuite's report for the Banking Committee, he obtained eyewitness testimony done way before our study was even designed and we didn't know about this until after we had done the analysis, he found eyewitness testimony that there was actually chemical weapons alarm, Marines yelling this is not an alert, people getting into their MOP suit and then symptoms for 24 hours following that.

Mr. SANDERS. You are saying people who were there——

Dr. HALEY. On that day.

Mr. SANDERS. Experienced that, had this objective physical evidence.

Dr. HALEY. That's right, that's some of our most severe symptoms. In addition, people who were hyperreactive to

pyridostigmine, the more side effects they reported to pyridostigmine, the more likely they were to have our syndromes.

Mr. SANDERS. Now, go through——

Dr. HALEY. The more likely they were to have serious, systemic side effects after taking pyridostigmine.

Mr. SANDERS. They said we took this and we got sick.

Dr. HALEY. We asked them which side effects they had. The more side effects, the more advanced side effects, the more likely they were to have one of our syndromes. OK?

Now, third, those who wore flea collars—now, this was not, as you know, this was not sanctioned by the military command, but those who wore flea collars to protect themselves from insects, those had about a sixfold relative risk over others of having the syndrome.

Mr. SHAYS. Were these animal——

Dr. HALEY. Yes, these are pet flea and tick collars that you buy at the hardware store and most of them contain the common pesticide chlorpyrifos, or Dursban, which has been shown in one very important report of six families that were poisoned by pyridostigmine by straying in their houses and developed symptoms just like that.

Mr. SHAYS. Definitely not authorized by the military.

Dr. HALEY. No, these were civilian studies.

Mr. SHAYS. No, these soldiers were wearing, literally had these collars on.

Dr. HALEY. Yes, they were wearing them around their——

Mr. SHAYS. But that was not authorized by the military.

Dr. HALEY. No. But they were wearing them to protect themselves from the insects, which was a valid concern.

Mr. SHAYS. But this was their solution?

Dr. HALEY. Yes, they brought them from home and wore them. Now, the fourth factor was the highest rates of these syndromes was in soldiers who used the most insect repellent. So the more insect repellent they used, the greater the risk. Now, it wasn't all insect repellents, because we asked them which types they used in the war. Those who used Off, the commercial brand, there was no excess risk. Those who used Avon Skin-So-Soft, which contains no DEET, the active ingredient, they had no excess risk. But those who said they used government-issued insect repellent, which contains 75 percent DEET, an excessive concentration, those, the risk of our syndrome 3 increased in a step-wise manner with the amount of the insect repellent they said they used. And there are reports in the literature showing that using compounds of insect repellent with high concentrations of DEET, 75 to 100 percent DEET, this causes brain damage and seizures in children and it's been banned in New York State, although that ban is undergoing appellate review after appeal by the chemical companies. But we believe DEET is a toxic agent.

Now, these were the findings, that these four chemical types appear to be related. Now, we found in further testing the epidemiologic findings that those who were exposed to two of these chemicals in combination, they had much higher risk, like fivefold risk, over those that had exposure to one of them. So there appears to be an important synergistic effect between different chemicals.

Mr. SANDERS. I just want to say I am very impressed by what you are saying, and what you just said, the synergistic effect, it's one thing to say exposure to one chemical; mix them all up, inoculate people, God knows what is happening. Is that what you are saying?

Dr. HALEY. Yes. We have epidemiologic evidence, numerical evidence with P values, statistical testing, that shows that combinations have synergistic, much more higher effect, more higher risk of the syndromes. Once we had indication this was true, we then undertook a series of animal studies to try to show the biological plausibility of what we found, because this might have been only a statistical finding. It might not be biologically true. So we contracted with a laboratory at Duke, Dr. Abidania, whose studies I believe you reviewed before, we contracted with him to carry out some studies that we designed to take these same chemicals that we found to be synergistic in the troops, to test these in hens. And he found, as he's testified before, that if you give any one of these agents to hens, which is the preferred animal model, you won't have a problem. But if you give two of them you get mild nerve and brain damage, and if you give three of them, you get severe brain and nerve damage and the type of brain damage is important. It's a type of brain damage called OPIDP. Now, this acronym is very important and has not been introduced into this discussion in a serious way before. It stands for organophosphate induced delayed polyneuropathy. OPIDP. Now, that's what we found in the hens. So we believe the compounds acting synergistically, and pyridostigmine of course is one of these, in combination produce OPIDP, and which is mild generalized brain stem, spinal cord and peripheral nerve damage.

Now, let me make several other points which I think are important for explaining a lot of confusion that's been going on over the last several years. First of all, after we have——

Mr. SHAYS. Could I interrupt you for a second? We have been joined by Michael Pappas who is a new Member from New Jersey, and it's wonderful to have you. We're not following the regular order, we're just stepping in sometimes due to the fact that Dr. Haley will be leaving in 10 or 15 minutes at the most. And I want to ask you, Dr. Haley, are you in a particular field that is considered kind of orphan in the sense that there aren't many who are involved in this, that it's not a main field of study for practitioners?

Dr. HALEY. No, I don't think that's the case. I am an epidemiologist and an internist, and I have working on my team a toxicologist, like Dr. Kizer, very similar credentials, and a neuropsychologist, because we think it's a multidisciplinary problem. And we think our insights, we obtained the insights that were the source of this paper while sitting in that NIH conference.

Mr. SHAYS. I know you give credit to the VA, and I appreciate that, because that's important.

Dr. HALEY. There was a whole set of data——

Mr. SHAYS. But I am wondering who is listening to you.

Dr. HALEY. Well, our papers were just published last week, and we expect there will be conclusion for the next month or 2 months and then there will be understanding, and these are very complex issues.

Mr. SHAYS. Now, in your study, you had 249 people in your study. One of the areas you've been criticized that you didn't have a large enough population.

Dr. HALEY. Right, if you look back at the studies that have solved the great disease mysteries of the last 25 years, Legionnaires' disease, toxic shock syndrome, AIDS, hantavirus, all of the studies that have solved these are taken a smaller group of people and compared the sick and the well, and that's you solve this——

Mr. SHAYS. We haven't solved any of those problems, so what do you mean solved?

Dr. HALEY. No, all of those have been solved. The cause has been determined and——

Mr. SHAYS. So solve in the sense of——

Dr. HALEY. Understand the nature and the cause, what the disease is and what the causes are so you can then take control measures. All of those——

Mr. SHAYS. Right, you haven't solved in terms of the control measures——

Mr. SANDERS. Let me jump in and pick up on the point the chairman made. I think that the testimony you are offering is of enormous consequence, and maybe just paraphrasing the chairman here, I hope it doesn't get lost in the intellect. Now, would it be—I would expect that you would be sitting down with the VA and the DOD to figure out how we build on the work that you've done. I presume you want to continue this very important line of research. Has that process begun?

Dr. HALEY. Yes. I have an appointment February 4th with the VA Scientific Advisory Committee with a fairly large chunk of time to go over this and in the meantime they will have had a chance to read and study this.

Mr. SHAYS. Is that process open to the public?

Dr. HALEY. Is it?

Mr. SHAYS. Yes. I would just like someone from our committee to sit in and witness that. I think that would be instructive.

Mr. SANDERS. So you think you are getting a good hearing.

Dr. HALEY. Oh, yes. I think the scientific process has been muddling around and it seems like cover-ups and so forth. This is the way science works when we're dealing with an enormously complex problem. But it builds on itself one step at a time, and the NIH conference, our work, the work from Iowa, all of this builds and there will be another round of studies and pretty soon I think we will have a general consensus of what this is and what to do about it. I am very confident of that. If I could, let me make a couple of points——

Mr. SHAYS. I am going to let you make them, but I just want to make sure you touch the role of stress.

Dr. HALEY. That was my next point. We did very thorough psychological testing on the 249, and then we brought the cases and controls and we did even more psychological testing. We found no evidence that the veterans had post-traumatic stress disorder, none, zero. We found no evidence that combat stress, the ones that had high levels of combat stress had the same risk of the syndrome as those with low levels of stress. So we don't believe stress is a cause of this unless in a different sense. Stress at the moments of

chemical weapons attack might have opened up the blood-brain barrier, as an Israeli study has recently suggested might be true. However, we have already been following that line and we don't think it's as simple as that study pointed out. We have evidence we don't think the blood-brain barrier opened, we think something else happened.

But in addition, we brought in a group of physicians, neurologists, Dr. Kizer alluded to that this morning. After we already got all this evidence and we knew what was going on, I brought some neurologists in to look at these veterans one at a time, all 43 of the ones we had done the cases and controls, and they didn't know who was who and they didn't know the information, except they had all the clinical and laboratory information on each veteran. They looked at them one at a time. They were absolutely unable to make a diagnosis. Even when they had all that neurologic physiological data, the clinical data, everything, but after they went over each one and were unable to make a diagnosis of anything in these people, we then broke the code and I showed them the group data and they said yes, this group has neurotoxicity compared to the controls.

Mr. SHAYS. Were they inclined to diagnose stress from that?

Dr. HALEY. No. They said the guys have what look like nonspecific problems, maybe there's something going on but we can't make a medical diagnosis. That is an enormously complex issue. I don't think the interpretation was quite right. That doesn't show that the neurological tests were invalid. What it shows is there was a limitation with normal medical diagnosis. You cannot diagnose these neurotoxic problems that are subtle like this with a history, physical, routine lab work. Even with complicated neurophysiological tests, when you look at veterans one at a time, and that's why I think the CCEP looked at 38,000 veterans and couldn't make a diagnosis, because they looked at 38,000 veterans one at a time and they had no control group.

You see, that doesn't mean that what they were doing was wrong and not smart, it's just, it was a different way of looking at it. They went to that road which often solves problems, but it just didn't. This is a much more complex problem and it gives us great problem right now in what are we going to do. Now that we know there's a problem, how do we screen for them. And that's what we're going to in our next study is try to look, and others are looking at this, how to screen so that you can tell an individual veteran has it.

Mr. SANDERS. Let me ask you this question. How do you treat it? If what you are saying is right, how do you treat it?

Dr. HALEY. Right, if this is brain damage and we are convinced at least in this unit that this is brain damage from these chemical exposures, you can't fix brain damage. Brain damage is permanent. Nerves do not regenerate. It will get better over a short period of time, but once it's stable it's there forever. However, we can't cure diabetes, we can't cure coronary heart disease, really. What we can do, we can look at each of these symptoms, develop medications, rehab strategies, counseling, whatever, and address each of the symptoms.

Now, let me say, this is a tough ball game and for every valid researcher, this is trying to come up with a treatment that will work and test it scientifically, there are five charlatans out there who are putting people in sweatboxes and doing all kind of bizarre things, I mean bizarre things, with no hint of an idea or desire to prove any of this works. They are just making money. And I've seen terrible things done to some of the veterans we've studied for $10,000. They were offered a treatment and all it turns out to be is diet pills, and it's very disturbing to see the charlatanism going on out there, and you as the committee, respectfully, let me say, must be careful not to contribute to the charlatanism out there.

Mr. SANDERS. Let me ask you, something, Doctor. Is this—in your judgment is multiple chemical sensitivity a reasonable diagnosis?

Dr. HALEY. Absolutely not. Let me say, people with multiple chemical sensitivities, many of them have similar neurological, neurotoxicologic syndromes, and they are—as I see it, there are sort of two groups out there with MCS, working in the MCS area. There are charlatans, which are most of them, and there's a small group of neurologists who are treating these people and finding some valid neurological things that they are approaching scientifically, but this is a small group and not most of them.

Mr. SANDERS. Give me some evidence about——

Dr. HALEY. I could define a perpetrating—a treatment that has no scientific rationale and then refusing to do a scientific—double blind study to prove whether it works or not and even avoiding doing that. And what is that? Are we that against the veterans?

Mr. SANDERS. There are some people who disagree with your statement.

Dr. HALEY. The deciding factor is, are they doing a trial as a clinical trial? When the VA offers a chemical methodological expert to help them design a clinical trial, do they go off and change the subject? That is what is happening.

Mr. SHAYS. Let me ask Dr. Schwartz.

Dr. Schwartz, we are going to have you give your testimony afterwards, but I would like your response to what Dr. Haley said. Dr. Haley, you had another point you wanted to make.

Dr. HALEY. One more point.

Mr. SHAYS. I want you to sit here while Dr. Schwartz responds.

Dr. HALEY. Right. The question is, can it leave low-level brain damage when they don't produce immediate symptoms? The answer is, definitely yes, and there is information. It is very clear, but a lot of it has not been introduced.

Mr. SHAYS. What is the question again?

Dr. HALEY. Can it leave low-level brain damage in the absence? Yes. But the answer is very complex. We had unraveled this in a paper that I would encourage you to read. We have reference here that is the way it works. It is a trick, it is a conundrum, that has not been understood yet.

There are two enzymes in the brain and nervous tissue that are destroyed by chemicals or nerve gas and pesticides and so forth. One of them is cholinesterase in the system. Another one is called neurotoxicesterase, abbreviated NTE. It is another enzyme. Cholinesterase on the battlefield or pesticide in a field, it binds to your

cholinesterase. You are paralyzed, and you can even have seizures. You can recover; then you might have brain damage because of the seizures.

So this can lead to brain damage, but only after you are overcome and have severe brain seizures and damage as a result. That is what the military has been talking about. Since there were no seizures, no people overcome, we couldn't have brain damage by the cholinesterase system.

However, nobody has talked about NTE. There is a—there are hundreds of articles of toxicologic literature about NTE since a big epidemic in the 1930's, then in the 1970's. This was understood, and there is a huge body of literature on it. When these chemicals get into your nervous system, this can also bind to NTE. That causes no symptoms immediately, but over the succeeding weeks or months, the union or the complex between the organophosphate and the NTE will disintegrate, will decompose into a toxic by-product which, 6 weeks later, will diffuse into the nerves and damage the axon. That then causes mild, creeping evidence of brain damage which can continue to get worse for months. That is what happened here.

Dr. Duffy pointed out that this type of thing can happen with low-level chemical nerve agents without acute symptoms.

And let me point out two articles by Hussein, a researcher in India who in 1993 and 1995 did experiments with mice first, then hens, in which you treated them daily for 10 days with low-level doses of Sarin which would not produce acute effects. And he found that on the 14th day they started developing a progressive neurological injury. And when they sacrificed animals, looked at the brains, they had OPID. They noticed NTE induced, long term, no acute symptoms.

Mr. SHAYS. Would you define "NTE" again.

Dr. HALEY. Neuropathy Target Esterase. Neuropathy Target Esterase. We reference these in the third—I have copies of the paper, and it is referenced in numerous articles too.

Mr. SHAYS. Do you have the ability—why can't you cure nerve damage or brain damage? Can you slow the deterioration? And if you discover it soon enough, can you literally prevent it from getting worse?

Dr. HALEY. No. Once it happens, progresses for a number of weeks or months, then it levels off. But then as people age, we normally—we who are over 50, we lose neurons normally.

As you lose neurons, you unmask damage, you have less reserve capacity, so as you age, we expect the symptoms to become exaggerated, and we found in our study the older veterans were more likely to receive severe damage than the younger brain reserve capacity.

Let me make one other point here.

Mr. SHAYS. Then I am going to ask Dr. Schwartz to comment while you are still here.

Dr. HALEY. The NTE system that is acute leads this subtle, creeping brain damage over months, and these are separate; either one can occur without the other.

Now, pyridostigmine is a class of drugs that is protected from both cholinesterase damage—and NTE mediated before the expo-

sure because it latches, protects them; the bad chemical can't get on it.

December 1990, a month before the war actually broke out, a researcher, Kerry Pope and Stephanie Padilla, presented a paper at a national meeting. Protective agents, after the exposure to it, may make the brain damage worse. Through the NTE system—not cholinesterase, the NTE system it can make that worse.

What you have got is, if soldiers continue to take it after exposure, this model would suggest it might convert a minimal—it might take an exposure to a nerve agent that was too low to produce brain damage by NTE and would amplify into something that would produce brain damage.

It appears to be through these mechanisms that the pyridostigmine would protect you, if given first, from dying on the battlefield. But if you continue taking it by amplifying the effects through NTE and cause brain damage, unravels all of these riddles about, can low levels cause it without causing acute symptoms?

Why does pyridostigmine protect you, and how can the Haley Study say it causes damage? It acted synergistically because you can't understand it unless you understand the two different systems. Then this becomes all clear, and that is what we found.

Mr. SHAYS. Dr. Schwartz, why don't you make a comment on what you found? I appreciate your patience.

Dr. SCHWARTZ. I have a few comments.

First, I would like to congratulate Dr. Haley. I think Dr. Haley's contribution to the group is substantial in advancing the field. However, I don't share the degree of definitiveness that Dr. Haley has regarding these particular findings.

I think you are going to have to bear in mind that this represents a highly selected population; 41 percent of the individuals within these Guard groups participated in this study, and a very small percentage of the individuals had these syndromes within those who were symptomatic.

Another very important item to keep in mind—limitation to keep in mind, is that the exposures are all self-reported. So in looking at the relationship between these exposures and the syndromes, even though the differences were somewhat different from one exposure to the next and they lead to a very nice hypothesis, I think that hypothesis and that series of observations would be worth testing in another population to be more certain of the findings.

Another, I think, very important observation in Dr. Haley's study is, if I read it correctly, 63 out of 100 or so, there were 21——

Dr. HALEY. 249.

Dr. SCHWARTZ [continuing]. 249 individuals came in for exams; 179 of them were symptomatic. Of the 179 that were symptomatic, 63 were found to have syndromes. So the majority of the individuals who were symptomatic turned out not to have a syndrome.

It is important to recognize that those problems that individuals—that the Persian Gulf veterans have may be related to their serving in the Persian Gulf; it may be related to certain exposures but don't fit into one of the syndromes.

Mr. SHAYS. Is that basically the concept of not everybody is going to be bothered by the rug?

Dr. SCHWARTZ. No. Some people may be bothered, but they may be bothered in ways that are recognized as other diseases. Some people may be bothered by the rug by developing symptoms of neurotoxicity. So I think that there are different manifestations potentially of the same exposure.

I guess the third limitation that I just want to address is, the potential issue of other exposures, other occupational exposures, after the war and other social exposures, like alcohol, were not taken into account that I actually saw in the study. So those are other issues, other confounders, other exposures, that may result in some neurotoxicity that I think need to be addressed in a more definitive study.

Mr. SHAYS. In just a moment, Dr. Haley, we are going to have someone walk you through the tunnel.

Dr. HALEY. There is a lot of confusion about this. Some of these points are excellent, some—let me respond. The selectiveness—I heard this from a number of groups—that 41 percent of the battalion showed up to participate. However, we didn't stop there. In many studies, that is a problem.

We then did a background survey on the nonrespondents, the nonparticipants, and we found that in fact the participants and nonparticipants were identical on age, sex, race, job title—in the Gulf war—rank, and so forth. The only thing they differed on was that the participants were about twice as likely to say that they had been seriously ill since the war, but only twice as likely. It wasn't all the guys who showed up were sick and all the others weren't. We believe this shows that the selectivity is a minor issue.

Second, on selectivity, if one were to posit that selectivity were the cause of these associations with the chemical exposures and the neurological brain damage, selectivity with relative risks of 4 to 78, there can't be enough selectivity to produce that. I have gotten that comparability in the cases of control. So that doesn't explain our findings.

Third, there are self-reported risk factors—a very important consideration. Originally we asked them—all the exposures that were being equally pointed out in the press—and only chemical ones were highly associated; the others were not associated. We published all of those findings so people could look to see the chemical exposure. Selective recall and recall doesn't work that way. So we don't believe that is an explanation. We believe we need to test these findings.

Mr. SHAYS. I get really the gist. I think the point that Dr. Schwartz was trying to say is, he saw me get so excited and he wanted——

Dr. HALEY. Sure it is another scientific——

Mr. SHAYS. I love definitive statements, I love confidence, I love your energy, and I love the fact that you were here.

Dr. HALEY. Thank you.

[The prepared statement of Dr. Haley follows:]

# Scientific Findings on the Gulf War Syndrome And Action Plans Leading to Treatment for Veterans

Testimony before the House Subcommittee on
Human Resources and Intergovernmental Relations

January 21, 1997

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The overall conclusions from the 3 studies from our UT Southwestern research group are as follows: Illness from the Persian Gulf War is real. Many Gulf War veterans are suffering from three primary syndromes. The syndromes are due to subtle brain, spinal cord and nerve damage--but not stress. The damage was caused by exposure to combinations of low-level chemical nerve agents and other chemicals, including pyridostigmine bromide in anti-nerve-gas tablets, DEET in a highly concentrated insect repellent, and pesticides in flea collars that some troops wore. Different combinations of the chemicals appear to have caused the 3 different syndromes.

To arrive at these findings, we completed three studies in a group of 249 members of a U.S. Navy reserve unit, the 24th Naval Mobile Construction Battalion. We chose them because Seabees go throughout the battle zone, and thus any geographical exposure would affect at least some of them. The 24th was the only reserve Seabees unit in the war, and a reserve unit can be reassembled because its members tend to live in a defined region of the country. We included ill and well veterans; about half had retired from the service.

**Defining the Syndromes**

In the first study, in December 1994 and January 1995, we actually assembled the 249 Seabees in groups and performed a very detailed survey of the veterans' symptoms. Then we used a mathematical computer technique to identify clusters of symptoms that comprise the syndromes. Early on, it occurred to me that each of the symptoms we were seeing was ambiguous. For example, "chronic fatigue" meant daytime sleepiness to some people and muscle exhaustion to others, and the medical meaning of these is very different. This turned out to be true for most of the symptoms.

So I wondered if, the fact that we had been lumping the different meanings of a symptom together might be why previous researchers had come out with ambiguous, or mysterious, diagnoses like chronic fatigue syndrome and post-traumatic stress disorder, which themselves have never been explained.

Sure enough, after splitting each symptom into unambiguous components, 3 primary syndromes and 3 secondary syndromes literally jumped out at us from the mathematical computer analysis. And these new syndromes looked like familiar nervous system injuries from different chemical exposures. This was our first breakthrough.

**Uncovering Potential Causes**

Also in the December '94 - January '95 survey, the veterans reported certain wartime exposures in our standardized survey booklets. Notice that we had obtained this information a full 18 months before the possibility of chemical weapons exposures became a serious consideration in the press. We designed a special analysis strategy to avoid a problem called "recall bias" that can occur when you ask people about their illnesses and their risk factors at the same time. From a very clever insight by my colleague, toxicologist Tom Kurt, who's here today, we hypothesized that the risk factors measuring veterans' exposures to chemicals, would be more strongly associated with the syndromes than the other risk factors, like oil well smoke and depleted uranium, that were being equally publicized but were probably not causal.

The strategy worked. The chemical-related risk factors were 4 to 8 times more common in the veterans with the new syndromes that in the well veterans. But the risk factors for oil well smoke, depleted uranium munitions, multiple immunizations, burning jet

fuel in tents, combat stress and the other highly publicized concerns were not associated, or were only weakly, associated.

**Summary of the Syndromes and Risk Factors**

The graphic table in your handout, entitled "The Gulf War Syndromes," shows the symptoms that make up each of these new syndromes and the risk factors associated with each.

Of the 249 veterans, many had health complaints that they attributed to the war, but one-quarter of them had one of the syndromes. Since the 3 secondary syndromes largely overlapped the first 3, I'll focus on the 3 primary syndromes.

First is syndrome 1, which we called the "impaired cognition" syndrome. Its symptoms are distractibility, difficulty remembering, depression, insomnia, fatigue in the sense of excessive daytime sleepiness, slurred speech, confusion and migraine-like headaches. These symptoms are typical of what we see in civilians who have repeated exposures to toxic pesticides. Syndrome 1 was epidemiologically associated with having worn pet flea collars to ward off insects, and having worked in security jobs during the war.

Many pet flea collars contain the common pesticide chlorpyrifos, or Dursban. It's been shown to cause brain and nerve damage in families whose homes were sprayed with Dursban on the inside. It's important to note that wearing flea collars in the war was not approved by the military command.

Also, security personnel often stood watch outdoors at night, exposed to potential chemical fallout as well as to pesticide fogging of the camps with Dursban.

Next is syndrome 2, which we called the "confusion-ataxia" syndrome. Its symptoms are confusion and disorientation, dizziness, disturbances of balance, a sensation of the room spinning, problems thinking and reasoning, and sexual impotence. Syndrome 2 is more severe, and it was epidemiologically associated with self-reports of having experienced excessive side effects after taking the pyridostigmine bromide anti-nerve-gas tablets and with having been involved in a chemical weapons attack or exposure. Remember that chemical weapons exposure was not being discussed widely in the press until 18 months after this survey was completed.

We also found an unusually high rate of syndrome 2 in individuals who had been in the Khafji area on January 20, the fourth day of the air war. Khafji is in far northeastern Saudi Arabia, near the Persian Gulf coast, and just below the Kuwaiti border. This was the same day that Czechoslovakian experts detected sarin and a mustard agent near here, and chemical alarms went off here.

I should note here that none of the veterans that we studied were anywhere near the Khamisiyah ammunition dump during the war. This means that the post-war Khamisiyah incident does not explain the illnesses in the veterans we studied. The problem appears to be much wider.

With syndrome 2, the evidence for chemical interactions was particularly strong. Veterans who were involved in what they thought was a chemical weapons attack, and who had particularly severe side effects from the PB tablets were five times more likely to have syndrome 2 than those with only one of these risk factors. This indicates a synergistic effect, and it's a strong sign of truly causal events in epidemiology.

Next is syndrome 3, which we called the "arthro-myo-neuropathy" syndrome. ("Arthro" for joint, "myo" for muscle, and "neuro" for peripheral nerves.) Its symptoms are

joint and muscle pains, muscle weakness, fatigue in the sense of excessive muscle exhaustion in daily activities, and tingling and numbness in the hands and feet. Syndrome 3 was epidemiologically associated with the amount of a highly concentrated insect repellent containing 75% DEET in ethyl alcolho typically used during the war, and with experiencing excessive side effects after taking the PB anti-nerve-gas tablets.

DEET is the active ingredient in most insect repellents. It's considered safe in concentrations of 30% or less, but higher concentrations have caused brain damage. Interestingly, action to ban these higher concentrations of DEET is pending appellate review in New York state.

**Studies of the Nature and Severity of the Syndromes**

All three syndromes appear to involve chronic diarrhea and skin rashes.

We found syndrome 1 mostly in younger veterans, while the rate of syndromes 2 and 3 increased with age.

To assess the relative severity of the syndromes, we analyzed the rates of unemployment. We found that approximately half of the veterans with syndrome 2 are disabled and unable to work, but unemployment was low in syndromes 1 and 3--similar to that in veterans with none of the syndromes. From this, we conclude that syndrome 2 is more severe than the other 2 syndromes.

In 1994 Dr. Jay Sanford developed a case definition of the Gulf War syndrome for the U.S. Defense Department from examinations of Gulf War veterans who were still on active duty in 1994. We found that the Sanford case definition closely mirrored our syndromes 1 and 3, but it did not reflect our syndrome 2. This suggests that the sickest, most impaired veterans (those with our syndrome 2) must have left the military before 1994. We think this explains why the Defense Department's large CCEP examination project, which began in 1994, did not find the most severely impaired veterans--they had already left the service.

**Studies of Stress and Possible Psychological Causes**

To measure levels of stress and other psychological problems, we performed standardized psychological testing on all 249 veterans in the study, supervised by our neuropsychologist Dr. Jim Hom. The results showed the same psychological profile in all three syndromes. This was the profile you expect to find in any general medical clinic--in patients with common physical illnesses. Let me emphasize--none of the 249 veterans had profiles compatible with post-traumatic stress disorder, combat stress, malingering or other psychological conditions.

**Studies of Neurologic Damage**

Now, we had all this information 18 months ago and shared it with scientists in the government to see if other studies being planned at that time could corroborate what we had found. However, we couldn't publish it then because--all these findings were statistical and did not prove that the syndromes represented real disease. To get a hook into bedrock, we designed a final case-control study to compare the brain and nerve function of veterans with the syndromes with that of well veterans, serving as controls. We brought 23 veterans with the syndromes and 20 well members of the same battalion to the UT Southwestern campus in Dallas for intensive neurological testing. This is reported in the second paper in the series.

The medical scientists in our 6 testing laboratories were blinded to which veterans were cases and controls. They performed sophisticated tests that electronically measure the speed of certain reflexes and how fast certain nerves conduct impulses. These tests are very sensitive to brain and nerve damage, and they're not under voluntary control, so the subject can't influence them. They also did brain MRI scans and brain blood-flow scans, a wide array of blood tests, and an entire day of detailed neuropsychological performance tests that can distinguish brain damage from psychological disorders.

The testing showed the veterans with the 3 syndromes to be significantly more neurologically impaired on the objective tests than the normal controls. This confirmed that damage to the brain, spinal cord and peripheral nerves underlies our three syndromes.

After all the testing was complete, I convened a meeting of the top UT Southwestern neurologists to go over all the clinical and laboratory findings on each veteran individually, to try to diagnose a known disease in each one. This was before they saw the results of the group comparisons. Ultimately, they were unable to make a diagnosis on any of the veterans. However, when I then showed them the results of the statistical group comparisons of the cases versus the controls, they agreed that the veterans with the syndromes were significantly more impaired than the controls in patterns typical of neurotoxic damage.

We believe this experience explains why medical examinations of tens of thousands of ill veterans in the various VA registries and the Defense Department's CCEP project have been unable to identify the syndromes. We couldn't do it either--when examining the veterans one at a time. We could only confirm the syndromes by comparing ill veterans with well veterans in a case-control study.

**The Likely Mechanism of Neurologic Damage**

The syndromes that we uncovered appear to be variants of a rare neurotoxic disorder called OPIDP (which stands for "organophosphate-induced delayed polyneuropathy"). OPIDP is caused by exposure to certain neurotoxic chemicals that inhibit cholinesterases and other enzymes in the nervous system. The spectrum of symptoms in OPIDP varies from severe nerve damage and paralysis following large chemical overdoses--all the way to vague, mild brain symptoms following repeated pesticide exposures, like what you see in injured pesticide applicators. Since these cases are usually treated by toxicologists, few regular physicians are familiar with OPIDP. This probably explains why no one explored this diagnosis earlier. Our medical toxicologist, Dr. Tom Kurt, proposed the OPIDP mechanism for the Gulf War syndrome back in early 1994 when we first started planning our studies.

At that time, as I began the epidemiologic studies in veterans, Dr. Kurt designed a series of laboratory studies to proceed in parallel with the epidemiology to test the biological plausibility of our chemical-combination theory in laboratory hens. He and his collaborators, at two other universities and the EPA, recently published two papers confirming that the same chemicals, already implicated in our epidemiologic studies in humans, act synergistically to cause permanent neurologic damage in hens. When they gave the chemicals one at a time to the hens, there was no adverse effect, but two-way combinations of the chemicals caused mild neurologic damage, and three-way combinations caused severe damage in the hens. Our findings in the veterans actually came first, but were published second because of the longer journal peer review process they required.

As for the mechanism by which these chemicals might have combined to cause neurologic damage, there is actually quite a lot of published material that has not come into

the public forum. We've summarized and referenced many of the key articles in our three *JAMA* papers. For example, extensive research has been published on the OPIDP syndrome and the mechanism by which certain chemicals cause it. To understand it, you have to distinguish between the "immediate" effects of the chemicals and their long-term effects. And you need to be aware of the concepts of pharmacologic "protection" and "promotion." Let me explain.

The immediate poisoning effects and the long-term neurologic damage occur by completely different mechanisms. Either can occur with or without the other.

The 1990 U.S. doctrine on defense against chemical nerve agents was based on the well-established fact that giving a protective drug like pyridostigmine before exposure to a neurotoxic chemical can protect a person and improve survival from a chemical attack with the nerve agent soman. However, research published since the war has shown that giving a protective drug after the exposure can paradoxically promote brain damage from even a low dose of a neurotoxic chemical that might not have caused a problem otherwise. Failure to understand these mechanisms has thoroughly confused the public debate up to now.

**Summary of the Findings**

To summarize the findings, after mathematically disentangling the different meanings of the ambiguous symptoms, we identified 3 primary syndromes. In a blinded, case-control study, we established that the syndromes are due to the nervous system damage. Epidemiologic analysis of self reported exposures found risk factors for different combinations of chemical exposures--including chemical nerve agents--to be strongly associated with each of the syndromes.

**Plans Leading to Treatment for Veterans**

Finally, where do we go from here? The ultimate goal of research on this subject is to develop a way of screening veterans to identify which have the bonafide neurologic syndromes and to find treatments for our injured service personnel to help return them to more productive and pleasant lives. Although brain and nerve damage cannot be cured, there are valid ways of identifying who has it, and there are medications and rehabilitation strategies that can reduce the symptoms and help the veterans function more successfully.

To reach this goal, three things must be accomplished.

First, we must bring our cases and controls back to Dallas for a final round of testing to define more sensitive ways of screening for the neurologic syndromes. Now that we have shown that groups of affected veterans can be distinguished from normal groups, we now need to validate tests that will allow us to identify definitively those single individuals who are affected rather than groups of individuals. We also need to gain a deeper understanding of some of the symptoms we deferred in the first study, such as the joint pains, diarrhea and skin rashes.

Second, in parallel we must organize a larger survey of Gulf War veterans using the methods we found successful to confirm our findings in a larger group of veterans. For this to work, we must establish a research task force of top Defense and VA department researchers with a mandate to reproduce our survey, a sufficient budget, access to Defense and VA department records, and a willingness to collaborate enthusiastically. This project should not supplant other creative approaches, but since we have uncovered the most

promising track, a new, larger project to test our theory must be undertaken soon and done well.

Third, from the findings of the clinical case-control studies we will develop practical clinical practice guidelines for screening veterans for the bonafide neurologic syndromes and for treating each of the major symptoms. We must test these screening and treatment recommendations in scientifically designed clinical trials to test their effectiveness. The validated screening methods and treatments will be incorporated into a final clinical practice guideline for nationwide implementation.

As you know, six years have passed since the end of the Gulf War and not enough has been done to alleviate the suffering and disability of the men and women who put their lives at risk for our country's interests. I am proposing a plan for moving aggressively and expeditiously toward providing practical ways to diagnose and help those veterans who have Gulf War illnesses. If this plan is adopted immediately, it can be completed and treatment started in less than a year. I hope that we can work with the Congress and the departments of Defense and Veterans Affairs to put this plan into action immediately.

## The Gulf War Syndromes

UT Southwestern researchers studied 249 members of a U.S. Navy reserve unit and found that up to one-fourth of them suffered symptoms that occur together, indicating a possible syndrome.

### Syndrome 1. "Impaired Cognition"

**Symptoms**
- Distractibility
- Difficulty remembering
- Depression
- Middle and terminal insomnia
- Daytime sleepiness
- Slurred speech
- Confusion
- Migraine-like headaches

**Risks** Wearing pet flea collars; working in security; younger veterans.

### Syndrome 2.* "Confusion-Ataxia"

**Symptoms**
- Confusion and disorientation
- Dizziness, imbalance and vertigo
- Problems thinking and reasoning
- Sexual impotence

**Risks** Reporting a likely chemical weapons attack; experiencing side effects of pyridostigmine bromide (PB) tablets; being near Khafji on Jan. 20, 1991; older veterans.

### Syndrome 3. "Arthro-Myo-Neuropathy"

**Symptoms**
- Joint and muscle pains
- Muscle weakness
- Muscle fatigue
- Tingling or numbness in hands and feet

**Risks** Using government-issued insect repellent containing 75% DEET; experiencing side effects of PB tablets; older veterans.

Chronic diarrhea is common in all three syndromes.
None of the 249 veterans was near Khamisiyah at any time in the war.
Psychological tesing showed that none is suffering from stress.

* Veterans with Syndrome 2 were more likely to be unemployed. A definition of the Gulf War Syndrome developed for the U.S. Department of Defense from examinations of Gulf War veterans who remained on active duty in 1994 closely mirrored Syndromes 1 and 3 but did not reflect Syndrome 2. The UT Southwestern researchers suggest this may have been because the sickest veterans (those with Syndrome 2) had left the military before 1994.

Mr. SHAYS. Dr. Schwartz, it has been wonderful to get you here. We are all done now. We appreciate your accommodating your other two colleagues.

Dr. SCHWARTZ. Our study was held at the Iowa Public Health and Centers for Disease Control. The study was primarily focused on individuals who listed Iowa as their home of record. It involved initially about 29,000 individuals. We selected our population from that 29,000 individuals. In the end, 3,700 individuals of the selected individuals in the study participated in the study. This was a classic epidemiologic study.

The purpose of this epidemiological study was first to try to identify the playing field. In other words, what are the diseases in the Persian Gulf veterans? What are the Persian Gulf veterans complaining of in relation to the symptoms that non-Persian Gulf veterans are complaining of? Is there a difference, and do those differences fit into categories of disease?

The second item we wanted to address, the objective we wanted to address in this study, is that we were interested in trying to see within the Persian Gulf population where those in the regular military had a different expression of disease than those in the National Guard and Reserve, because initially individuals in the National Guard and Reserve were coming forward with increased rates of disease or complaints, and there was some concern that the National Guard and Reserve had a higher rate of disease for an unknown reason. So we were very interested in that comparison as well.

There are several aspects of our study which clearly distinguish the previous studies and lead to the importance of the findings. First, this was a population-based study. It involved all four branches of the military in the Persian Gulf. These individuals were selected in such a way that they represented the 29,000 individuals in the larger population, and so we could extrapolate back to that group of veterans.

We also had a control population. Our control population was identical to our—similar to the exposed population in terms of background demographics—age, rank, gender, type of military service, and whether they were enlisted or an officer.

The third very important point is that our study instrument was developed over a 6 month period of time by 30 different investigators. The reason that we took a great deal of effort in developing this study instrument is that we wanted to make sure that the questions that we asked and the disease categories that we put individuals into were valid disease categories.

So what we did is, we went out and used portions of validated questionnaires and incorporated that into our questionnaire. So it wasn't simply, "Are you forgetful?" but it was a series of 10 or 15 questions about memory that had been tried and refined by other investigators and found to be associated with pathologic evidence of cognitive dysfunction. Those are the types of disease categories that we have developed. We developed complex algorithms based on other investigators' findings.

The fourth important point of our study is, we used a telephone interview. A telephone interview is actually a very accurate way of getting a large number of people to participate. In fact, of the indi-

viduals that we contacted by telephone, 91 percent of the individuals participated in this study.

It was hard getting the phone numbers of individuals, so overall, we had a 76 percent participation rate. But even a 76 percent participation rate is very good and assures you that the study population is representative of all eligible for the study.

Mr. SHAYS. 76 of the 3,700?

Dr. SCHWARTZ. We selected approximately 4,600 eligible study subjects for this investigation, and 3,700 ended up participating in the telephone survey.

So our results are really very different than what you have heard before. We focused on major disease categories like cognitive dysfunction, depression, respiratory diseases. We did that on the basis of literature that had been presented at the NIH consensus conference and also had developed since the NIH consensus conference.

Our major findings, when you compare the Persian Gulf veterans to the non-Persian Gulf veterans: 11 percent increase; 6 percent increase in depression; 3 percent increase in anxiety disorder; 2 percent increase in alcohol abuse, bronchitis and asthma; and 1 percent increase in posttraumatic stress disorder and chronic fatigue.

The reason we decided to express this in terms of this particular disease is—so, in other words, in the population of Persian Gulf veterans, if chronic fatigue occurs in a background population, a base line population of about 1 percent, then an excess 1 percent of Persian Gulf veterans would have chronic fatigue, it tells you that approximately 7,000 individuals would have chronic fatigue of those that went over to the Persian Gulf.

If you expressed it in terms of risk ratio, for instance, it could give very different results for chronic fatigue. We said there was a 1 percent increase in chronic fatigue, but if you express it in terms of 4.3-fold excess risk of developing chronic fatigue, that is a major increase even though it is a small percentage.

Another very important finding from our study is that there were several things we found not associated with going over to the Persian Gulf and things that were particularly publicized as being related, which addresses this issue, this potential issue of recall bias. Skin lesions, aplastic injuries, were not related to having been over in the Persian Gulf.

If we look at the five major disease categories, 64 percent of the Persian Gulf population was entirely asymptomatic, without any one of those five diseases; 21 percent only had one of those—symptoms of one of those diseases, and 15 percent had symptoms of two or more of those diseases.

The reason that I bring those up, of those that are symptomatic, most of those fall in one disease category classification.

The second important finding from our study was that service in the Gulf. We looked at measures of functional health: How do people function at home and at work? We found that service in the Gulf and having one of those diseases that I mentioned—the symptoms of one of those diseases, resulted in decreased self-reported functioning at home and at work.

So not only were these individuals symptomatic but they didn't think they were functioning well at home or at work, which I think

gets into a major concern of the veterans, how well they are doing in terms of their daily activities.

A third important finding is that we didn't find very many differences——

Mr. SHAYS. Would that also be a factor in how they might have an inability to articulate their case?

Dr. SCHWARTZ. Absolutely. I think the cognitive dysfunction would be another problem in terms of them effectively articulating their case. It does involve that as well as memory.

A third important finding is that, different than previous studies, we found very little differences between the regular military and the National Guard and Reserves, suggesting that the type of military service didn't really affect the development of these symptoms.

So why are our findings important? Our findings, I think, are important because in a very controlled study we clearly document that Persian Gulf veterans are reporting more medical and more psychiatric conditions than an appropriate control population.

We also have identified some very well defined medical and psychiatric conditions that are being reported more frequently in this population. I think an important take-home message for physicians caring for these individuals is that many of these individuals will present with diseases that other patients present with that didn't go to the Persian Gulf that we have treatment for, like depression, asthma, bronchitis, fibromyalgia.

I think that is an important take-home message, that not all individuals who are Persian Gulf veterans who have medical problems need necessarily to be referred to specialty centers. Many of the people are being cared for by their local VA hospital or local physician.

A second important finding was that the medical and psychiatric conditions, as I said, appear to have a measurable impact in terms of their daily functioning. And the third finding was that National Guard and Reserve didn't differ from the regular military in terms of the manifestation of symptomatology.

I think that this study is important because it takes a first fundamental step in establishing what are the medical and psychiatric concerns among the Persian Gulf veterans. What it does is, it provides a road map for us to begin to look more carefully at these particular medical and psychiatric conditions with more objective tests, both clinical tests as well as laboratory tests, directed at these specific conditions.

A shortcoming of our study is this issue that we relied solely on self-report. I think self-report is important in identifying what the problems are, what the potential problems are, but the next step has to be objectifying those problems.

Another shortcoming of our study and shortcoming of all the Persian Gulf studies that we have seen so far, and something that you might have influence in, is that minority populations and women have not been studied specifically to see if those individuals have different risks than white males who went to the Persian Gulf. I think this is a very important area of investigation that needs to be pursued.

If I had to make one other suggestion in terms of future followup studies, a longitudinal study to look to see what happens to those

individuals over time is critical, because all we have done is, we have taken a snapshot of the population. We know what is going on with them 5 years after the Gulf war. We don't know how that is going to change over a period of time and how that is going to impact on their lives.

Thank you for your attention.

[The prepared statement of Dr. Schwartz follows:]

# "THE IOWA PERSIAN GULF RESEARCH PROJECT"

**Testimony before the**
**House Subcommittee on Human Resources**

**January 21, 1997**

**By David A. Schwartz, MD, MPH**
**Professor of Medicine**
**University of Iowa College of Medicine**

Statement of David A. Schwartz, MD, MPH, Professor of Medicine, The University of Iowa

The Iowa Persian Gulf Research Project is one of the first population-based, controlled epidemiologic studies to document that Persian Gulf War veterans are reporting more medical and psychiatric conditions than their military peers who were not deployed to the Persian Gulf.

**Purpose:** The purpose of our study was to compare the prevalence of self-reported symptoms and illnesses among Persian Gulf War veterans from Iowa with military personnel from Iowa who were not deployed to the Persian Gulf. Since previous reports had suggested that the national guard and reservists might have more health problems than active duty military personnel serving in the Persian Gulf, we also explored the relationship between self-reported medical and psychiatric conditions and type of military service.

**Methods:** Our study differs from previous reports in several substantial ways:

Our study is one of the first population-based epidemiological studies to evaluate the health consequences of the Persian Gulf War - the 3,695 subjects in our study were selected from a larger population of 28,968 military personnel who listed Iowa as their home of record - the subjects in our study were specifically selected to represent individuals from all 4 branches of the military, and include both regular military personnel and national guard and reservists - furthermore, the Persian Gulf military subjects in our study were deployed throughout the Persian Gulf and were stationed in over 950 military units - the methods used to select our study population and the demographic characteristics of our study subjects serve to enhance the generalizability of our findings

2. Second, our study is one of the first controlled epidemiological studies to evaluate the health consequences of the Persian Gulf War - we included a carefully selected comparison group of military personnel who were not deployed to the Persian Gulf but served during the time of the Persian Gulf War - this approach has allowed us to determine whether symptoms or illnesses were occurring more frequently in Persian Gulf War veterans

3. Third, our study instrument was primarily composed of validated questions and questionnaires - for instance, we used the best available validated series of questions to measure health related quality of life - using questions and questionnaires that had been previously tested in other populations increases the accuracy of our findings and, in the future, will allow us to compare our results with results from other investigators

4. Fourth, the definitions for the medical and psychiatric conditions were all derived well in advance of the analysis - in most cases, standard, well accepted criteria were used to define these conditions - in some cases, medical experts derived these definitions based on the best available information - this approach resulted in a series of definitions of medical and psychiatric conditions that are likely to be accepted by other experts in the field

5. Fifth, the interviews for our study were conducted by telephone - this resulted in both a high rate of participation and accurate information. In fact, 91% of those contacted by telephone completed the detailed telephone interviews, and repeated administration of the questionnaire to 5% of the study population showed a 90 to 97% test-retest rate of agreement

6. Sixth, our study focused on the differences in the rates or frequencies of medical and psychiatric conditions between Persian Gulf War veterans and non Persian Gulf War veterans 5 years after the gulf war. Thus, our results may prove helpful in understanding the public health implications of the Persian Gulf War

Finally, this was a rigorously conducted study with a great deal of scientific review and oversight. Over 30 investigators from three different institutes - the University of Iowa, the Iowa Department of Public Health, and the Centers for Disease Control and Prevention - participated in this investigation. In addition, we had a nationally recognized external scientific panel of advisors who provided critical review of our study at several stages of development. We also included a public advisory panel to assist with questionnaire development and provide a direct link between our investigators and veteran organizations.

**Results:** Results from our study substantially advance the scientific understanding of the health consequences of the Persian Gulf War.

We found that Persian Gulf War military personnel reported an 11% higher prevalence of symptoms of cognitive dysfunction or problems thinking, a 9% higher prevalence of symptoms of fibromyalgia or pain in the muscles and pain around the joints, a 6% higher prevalence of symptoms of depression, a 3% higher prevalence of symptoms of anxiety disorder, a 2% higher prevalence of symptoms of alcohol abuse, bronchitis, and asthma, a 1% increase in post-traumatic stress disorder and chronic fatigue, and an increase in the prevalence of sexual discomfort in both the respondent and the female partner of the respondent. Importantly, over 50% of the Persian Gulf War veterans had none of the medical or psychiatric conditions, indicating that most individuals involved in the Persian Gulf conflict did not develop medical or psychiatric problems.

The significant relationships we found between categories of self-reported exposures and health conditions suggest that no single exposure is related to the medical and psychiatric conditions among Persian Gulf War military personnel. Rather, among Persian Gulf War military personnel, several self-reported exposures were significantly related to many of the medical and psychiatric conditions. For instance, among Persian Gulf War veterans, depression was associated with an increased prevalence of self-reported exposure to solvents, smoke, sources of infectious agents, sources of lead from fuels, pesticides, ionizing and nonionizing forms of radiation, chemical warfare agents, pyridostigmine use, and spending most of the time in the Persian Gulf in either Iraq, Saudi Arabia, or Kuwait. These findings suggest that the medical and psychiatric conditions may be caused by overlapping exposures. Alternatively, these exposures may be common to all individuals serving in the Persian Gulf and the observed relation between exposures and medical and psychiatric conditions may not accurately reflect exposure disease relationships.

We found that service in the Persian Gulf War adversely affected the self-reported assessment of quality of life and functional health status. For instance, Persian Gulf War veterans reported significantly lower measures of social functioning, mental health, and physical functioning. In fact, among Persian Gulf War military personnel, the self-reported medical and psychiatric conditions were significantly related to impairment of social activities and self-reports of decreased performance at work. These findings suggest that the Persian Gulf conflict and the medical and psychiatric conditions that we identify in this manuscript have had a measurable effect on the functional activity and daily lives of Persian Gulf War veterans.

Finally, among the Persian Gulf War veterans, we found relatively few differences between the frequency of medical and psychiatric conditions reported by the national guard and reservists and the regular military personnel. The national guard and reserve study group only reported a 1% increase in the prevalence of symptoms of chronic fatigue and a 4% increase in symptoms of alcohol abuse. These findings indicate that our results apply to national guard and reservists, as well as regular military personnel.

**Comment:** Our study is important for the following four reasons:

It is one of the first population-based, controlled epidemiologic studies to document that Persian Gulf War veterans are reporting more medical and psychiatric conditions than their military peers who were not deployed to the Persian Gulf

2. Second, our study has identified several specific medical and psychiatric conditions that need to be studied in more detail

3. Third, the medical and psychiatric conditions identified in our study appear to have had a measurable effect on the functional activity and daily lives of Persian Gulf War veterans

Finally, among the Persian Gulf War veterans, minimal differences were observed between the national guard and reservists and the regular military. These findings indicate that our results apply to national guard and reservists, as well as regular military personnel.

**Future Studies:** Based on our findings, future studies are needed in the following areas:

1. First, more objective clinical studies are needed to fully characterize the self-reported medical and psychiatric conditions that were found to be elevated among Persian Gulf War veterans

2. Second, due to limitations in our study population, we were unable to fully evaluate the effect of the Persian Gulf conflict on women and minorities. In the future, specific attention should be given to the problems that might have differentially affected women and minority military personnel deployed to the Persian Gulf.

3. Third, the individual and combined effects of potential etiologic agents, such as medications and vaccines, infectious agents, ambient pollutants, biological and chemical warfare, and psychological stressors need to be fully investigated in population-based studies.

In summary, the Iowa Persian Gulf Research Project is one of the first population-based, controlled epidemiologic studies to document that Persian Gulf War veterans are reporting more medical and psychiatric conditions than their military peers who were not deployed to the Persian Gulf. Our study is an important first step in a series of studies that are needed to further understand the medical and psychiatric conditions that we found elevated among Persian Gulf War veterans.

Mr. SHAYS. Thank you, Doctor.

What is your reaction when you heard of studies that have been in the news that have said there is really no difference between those who served in the Gulf and those who didn't serve in the Gulf?

Tell me first off, when did you, again, conduct this study? What timeframe to what timeframe?

Dr. SCHWARTZ. We started the study in December 1994. The questionnaire was administered from September 1995 to May 1995. So fairly recently.

Mr. SHAYS. So you are not using pre-1993 data basically?

Dr. SCHWARTZ. I am sorry, September 1995 to May 1996. I apologize.

Mr. SHAYS. This was basically all telephone conversation interviews?

Dr. SCHWARTZ. This is all telephone conversation interviews in terms of whether they are currently having a problem. So we didn't ask them whether they had a problem immediately after the war or whether the problem developed and went away. We were interested to find out whether they currently had the problem.

Mr. SHAYS. Now the critics would say you didn't see these individuals so you don't know whether they are well or not well.

Dr. SCHWARTZ. Yes, that is absolutely a valid criticism of the study, that we have self-reported information.

I think a rebut to that criticism is that what we found was that there wasn't, as Dr. Haley said, an across-the-board similar percent increase. That percentage actually differed quite a bit from one disease to the next. So for cognitive dysfunction there was an 11 percent increase, for asthma and bronchitis there was a 2 percent increase, and for injuries and skin lesions there was no increase at all.

Mr. SHAYS. That is interesting. The 11 percent increase, that is on a population of those who may have come home from the Persian Gulf feeling totally—and maybe not being exposed to any.

But let me back up a second. Your study basically determines—I am going to ask it differently. I retract that.

Tell me why 11 percent is significant, just in your own words. Is 30 percent significant? Is a 2 percent increase? What other physicians looking at that would say 11 percent is significant? Why?

Dr. SCHWARTZ. Eleven percent is significant because—I am just pulling out the table here—in the population that didn't go to the Persian Gulf, the prevalence or the frequency of cognitive dysfunction was about 9 percent. In the population that went to the Gulf, the frequency of cognitive dysfunction was 20 percent.

Mr. SHAYS. So it is double.

Dr. SCHWARTZ. It is double. And it is significant because 11 percent of the Persian Gulf veterans are affected by cognitive dysfunction that shouldn't have been affected by cognitive dysfunction if they hadn't gone to the Persian Gulf.

Mr. SHAYS. Eleven percent more?

Dr. SCHWARTZ. Eleven percent total of the Persian Gulf veterans.

Mr. SHAYS. Compared to the population that didn't go to the Persian Gulf?

Dr. SCHWARTZ. Correct.

Mr. SHAYS. To my mind, that is double. You add 9, then went to 20.

Dr. SCHWARTZ. That is right. The reason that we expressed it as a percentage was that approximately 700,000 individuals went to the Gulf, so if we say 11 percent of them develop cognitive dysfunction in excess from going to the Gulf, that is 77,000 individuals.

Mr. SHAYS. And your determination as to the cause is not part of the study?

Dr. SCHWARTZ. No. We did look at the relationship between self-reported exposures and the relevance of specific outcomes, and we found that many of the exposures were related to many of the outcomes. And I think that one important point related——

Mr. SHAYS. Back up to make sure I understand. In those that were feeling symptoms, their position was that they had been exposed?

Dr. SCHWARTZ. Yes, yes. And they had been exposed to a variety of agents. So for depression they had—they said that they were exposed to more smoke from oil fires, more radiation from nonionizing and ionizing forms of radiation, a variety of different exposures that may be related to the outcome, but given the fact that many of these exposures were related to the outcome, it makes the exposure response relationship less believable.

But an important point regarding this exposure information is that we collected it in 1995 to 1996, and we are asking people to recall exposures that took place between 1990 and 1991. That is much less reliable than asking them to recall health information about the last month. So I believe the health information much more than I do the exposures, and looking at the exposure response relationship, I think it is difficult.

And one of the points that was made in a recent conference that I was at was that it may be very difficult for us to identify specifically what is causing this problem in the veterans, or these series of problems. I think even if we can't identify what is causing the problems, we need to take the next step and define what the problems are much more objectively and try to figure out how to treat these individuals, as Mr. Sanders was saying before.

Mr. SHAYS. How much did stress play into this issue? I asked Dr. Haley the same thing. You can't diagnose that, can you?

Dr. SCHWARTZ. We asked questions about stress related to their experience in the Persian Gulf, and we derived measures of stress from whether they were in combat, whether they had hand-to-hand combat, whether they were exposed to gunfire, whether they were exposed to Scud missile attacks. So we based our index of stress on those items. We found that stress was related to a number of the outcomes.

Interestingly, we found that stress was not related to depression. I don't know to what extent stress is playing a role here.

Mr. SHAYS. Fair enough. Mr. Pappas would like to ask some questions, and we would be honored to have you ask questions.

Mr. PAPPAS. Thank you, Mr. Chairman. I apologize for arriving late.

Mr. SHAYS. You don't need to apologize. It is great to have you here. Thank you.

Mr. PAPPAS. Doctor, maybe this is beyond the scope of your study, but just last week I had read an article where there was a gentleman who recently committed suicide that, at least according to this article, comments from members of his family were prompted by some of the symptoms that I have heard spoken about here today.

Have you encountered—in your study dealing with these servicemen and women, have you encountered that in other instances that you might think would be the higher percentage than average population?

Dr. SCHWARTZ. Yes. In terms of suicide risk, we looked at major depression, and we used a very rigorous approach to looking at major depression, and I believe that we found that the Persian Gulf veterans had a 4 percent higher prevalence of major depression than non-Persian Gulf veterans. I would concur with that.

I would also say that that underscores the importance of therapeutic intervention by physicians that are capable of taking care of individuals who are depressed.

Mr. PAPPAS. Have you dealt with any other veteran populations that may not necessarily have been engaged in this conflict but in other conflicts, or have you read of any other records that would, in order to compare this particular population with others and their suicidal rate——

Dr. SCHWARTZ. Yes.

Mr. PAPPAS [continuing]. Or just their ability to cope with the symptoms that they may have a reaction to either chemical agents that they may have encountered or just the experience?

Dr. SCHWARTZ. Not in terms of suicide rate. However, Dr. Hyams, who may have testified before this committee, wrote an excellent article that was published about 6 months ago looking at symptoms after a number of different wars—the Civil War, World War I, II, Vietnam war, Korean war—and looked at similarity of symptoms among the veterans from those wars. And the conclusion from that article was that stress played a major role in terms of the development of those similar series of symptoms.

Mr. PAPPAS. Thank you.

Mr. SHAYS. Doctor, we are going to go to the next panel, but if you would like to make some closing comment, we would love to hear from you.

Dr. SCHWARTZ. I think the—I would just say that there are two areas that I want to comment on. First, the lion's share of the veterans that have symptoms or medical problems related to the Persian Gulf war have very clear, well-defined medical and psychiatric conditions that are no mystery to any good clinician. And clinicians need to be encouraged to take care of those individuals and treat them as they would any other patient.

Another very important next step is not only to look at new therapies but to begin to very carefully understand how these symptoms translate into objective evidence of disease, both laboratory and clinical evidence of disease. And we really haven't taken that next step yet.

Mr. SHAYS. I appreciate your entire testimony; again, your willingness to be third on the list and to listen to the others testify. I am grateful that you came.

I will also say, and then I will yield to my colleague, Mr. Sanders, for some of us who have heard veterans for years tell us that they are ill and no one is listening, it has been very discouraging to have official reports come out saying that there is no documentation that our veterans are sicker than anyone else. Then we find out that the studies have serious flaws in terms of data and conclusions and so on. Then to at least have someone like yourself say, hey, wait a second; we are coming from a different direction, and we do see that our veterans haven't been lying to us, has been very important.

Mr. SANDERS. I just want to concur in your findings. Thank you very much.

Mr. SHAYS. We are going to end this hearing, and we usually have our veterans come first, so I would appreciate our veterans coming last to accommodate the others who testified.

We have Chris Kornkven a Gulf war veteran who lives in Watertown, WI; we have James Brown, a Gulf war veteran from Hannibal, MO; and James Green, a Gulf war veteran from Fishertown, PA.

Welcome, all of you. If you would remain standing, I will swear you in.

We have James Green to my far right; James Brown in the middle; and, Chris Kornkven, you are on my left.

[Witnesses sworn.]

Mr. SHAYS. For the record, all three of our veterans have answered in the affirmative.

We will begin, I think, with Mr. Kornkven. We will go from my left to my right, and say that you can testify in any way that you want. I will be happy to have you respond to what you heard earlier, and just let you know that you have time to say what you need to say.

**STATEMENTS OF CHRIS KORNKVEN, PERSIAN GULF WAR VETERAN, WATERTOWN, WI; JAMES BROWN, PERSIAN GULF WAR VETERAN, HANNIBAL, MO; AND JAMES GREEN, VETERAN, FISHERTOWN, PA**

Mr. KORNKVEN. Thank you, sir. On behalf of my family, Gulf war veterans, and the National Gulf War Resource Center, I would like to thank the chairman and the members of this committee for inviting me to provide this testimony today.

My name is Chris Kornkven. I was a Reservist who was activated and served in the Persian Gulf from 8 February 1991, until 5 August 1991, with the 304th Combat Support Company, an Echelon Above Corps unit. My duty, officially, was as a field radio inspector. Unofficially, I was a combat lifesaver in charge of my unit's medical requirements. While still in the Gulf, I began experiencing symptoms that continue to this day. After hearing of many fellow veterans suffering from the same symptoms, I began trying to recall when I first noticed these problems, and believe they started in March or April 1991.

In keeping a diary while in the Gulf, I remembered I had difficulty in remembering significant events that happened 2 and 3 days prior. I remembered my knees and shoulders being especially painful after the slightest exertion, and that fatigue stayed with

me constantly. I believed these were a result of the conditions I was in and they would improve with rest.

I began seeking treatment from the Oklahoma City VAMC in 1992 when the symptoms continued and worsened and when I heard many other Gulf war veterans were having the same problems. I was having intestinal problems; the fatigue was getting much worse, as was my memory. I still believed the pain in my joints was from something else and the headaches would eventually go away. After some initial consultations, I was referred to the mental health clinic, although I was not told why. Eventually I was told I may have posttraumatic stress disorder and I would be tested and possibly be followed with counseling. Several weeks passed with no other medical testing or treatment. I began asking questions in the mental health clinic when any appointment would take place and was told they were too booked up to get me in any time soon. It was suggested I go to the Vet Center for any counseling. At this point, much of the medical testing or treatment had stopped, with emphasis placed on PTSD and possible treatment in the mental health clinic.

In May 1994, I became upset with no physical testing or treatment taking place. I waited in the emergency clinic over 6 hours and finally got to see a nurse. It appeared she would exhibit the same attitude of indifference and dismissal, so I told her I wouldn't leave until each of the medical problems were documented. At one point she left the room, saying she had to consult with the Persian Gulf veterans doctor. This was the first I had heard there was one. When she returned, she said they were referring me to the Houston VA Gulf War Veterans Referral Center because they could not figure out what was wrong with me.

During this period and after, the testing or treatment improved somewhat, with the following items having been discovered or reported to the VA: I have reported blinding headaches for more than a year, with only offers of aspirin. Eventually an MRI was reluctantly performed in which a nasal mass was discovered. There has been absolutely no treatment to date; I have reported memory loss since returning from the Gulf. This has been dismissed as a result of stress, with no other attempts at finding the cause or other treatment. Many times I have been told it is from PTSD, but when I try to explain how bad the problem is, it is dismissed. Tests for memory loss usually consist of being told a few words, then being asked to repeat them after a few minutes; I have reported skin problems since returning. After a sample was taken of the many brown spots that have been appearing, I was told, "It's not skin cancer yet," and I could "come back as needed." A single examination has been performed of the rashes on my legs so long ago, I cannot remember the date. There has been no further treatment to date; I have reported problems breathing and have had instances of pneumonia and of bronchitis since returning. I have been questioned by VA doctors about whether I have ever had surgery on my chest, with no explanation. Other than antibiotics for the pneumonia or bronchitis, the only other attempts at treatment have been frequent chest x-rays; I have reported intestinal problems, to include diarrhea, for more than a year before a strange type of bac-

teria was found. I was given a 2-week course of antibiotics in which the symptoms receded somewhat.

When the symptoms returned worse than before, I reported this to the VA for more than another year. During this time, I also reported having rectal bleeding. I was eventually given an appointment, in which the bleeding was dismissed as hemorrhoids, after no examination. When the doctor found no evidence of hemorrhoids in my medical records, he continued to dismiss the problem until I insisted something be done. By the time I left Oklahoma months later, a followup still had not been performed. This bleeding continues; I have reported joint pain for many months and had been given a followup to see a rheumatologist in 1994. To date, I have yet to see a rheumatologist, even after a congressional request, and the joint pain has been dismissed as being fibromyalgia. No treatment other than Motrin has been given.

I have reported my wife and I having a miscarriage in which the fetus had to be surgically removed and my semen burning her. There have been no attempts at finding the cause, other than mysterious questions about sexual diseases asked by some doctor from the Houston VAMC. At this time I would like to show a picture of my wife and son.

My wife was always very awake and lively when she woke in the morning. Now she has as much trouble as I do with fatigue. She also has been diagnosed by a private physician as having fibromyalgia. My son, who is 2 years old, has not slept a complete night through since being born. He appears to have intestinal problems, his stools are very acidic, he is very light sensitive, and has the exact same rashes on his legs as I do. Other blood and urine samples have shown glaring abnormalities, with no attempts to discover the problem. I have been told of these abnormalities months after the same was taken.

I requested over several months that a urine test for depleted uranium be performed. After many excuses and attempts to ignore this, I finally was successful, after requesting congressional help.

After waiting the period needed for the results, I began inquiring about them from the chief of staff. Three months went by during which I was told they had called the Baltimore facility performing the test, left messages, but Baltimore would not return their phone calls. I called the Baltimore facility, spoke with the doctor overseeing the testing, and had him fax me the results.

During the conversation, I was told I "had a higher DU count than those carrying around fragments in them." I was also told it was nothing for me to worry about and that I probably got it from the drinking water where I live. I believe the Environmental Protection Agency would be interested in hearing that one.

I understand DU contamination may cause kidney problems. I have been questioning for many months as to whether this may be the cause of urine abnormalities, but they have been unanswered. I also question if this may cause liver problems, and the only response I have ever received is a question of whether I have ever had an ultrasound of my stomach since it has been painful to the touch since I have returned.

I have reported chest pains since returning and instances of my heart racing as high as 160 beats per minute with no activity. After

going through tests, with results varying from "no problem" to not being able to start a test due to abnormalities shown, I was given an appointment with a cardiologist.

After the initial examination in which problems were discovered, I was given a followup. Unfortunately, this followup was scheduled for a year after the initial visit. Several attempts to correct this were ignored, until once again I requested the help of my Congressman. When the appointment was held, after a couple of failed attempts, I was told the heart problem I was having was due to an abnormal heart valve. After many physicals and no heart problems prior to the Gulf, I was surprised to hear this. I was also told this type of problem was hereditary, nicely avoiding the VA's rating guidelines.

Many types of treatment at this facility consisted of providing a quick prescription for whatever the reported problem may be. The number of prescriptions that I had been given totaled 27 at one point. I began wondering the interaction of all of these medications and requested over several months, through the chief of staff, an appointment with a pharmacist.

During this appointment, I was told two of the medications I was given interacted, causing heart arrythmias and, "Some people have died from it." I would like to note that the FDA is currently considering removing from the market one of these medications.

To date, my insurance has been billed more than $42,000 for these appointments, ranging from a few minutes to half an hour. Most were with medical students. I have little wonder why claims are denied once a veteran reports having medical insurance.

Due to problems in obtaining treatment, I have contacted the Persian Gulf veterans doctor, the patient advocate, the assistant chief of staff of ambulatory care, the chief of staff, the congressional liaison, and finally the director, all of the Oklahoma City VAMC.

Since problems continued in obtaining treatment or appointments, I have contacted six different Members of Congress, to include three congressional committees. The problems continued with obtaining proper and timely medical testing or treatment. During this time, I was given very good care in the mental health clinic.

I then contacted the VA Inspector General's Office, which opened an investigation. This resulted in the Inspector General's Office requesting a response from the director of the Oklahoma City VA. The director provided excuses for each of the problems I had identified. After 2 months of waiting for results, I called the Inspector General's Office and was told they were satisfied with the director's response and refused to investigate further.

I have thought of filing an SF–95 claim for damages with the VA but have given up, secure in the knowledge that it would end up in months of red tape.

Throughout this ordeal, an emphasis has been placed on posttraumatic stress disorder, with the physical aspect of my medical conditions seeming to be ignored, even when clearly indicated otherwise. I was very surprised, after submitting a claim for service connection for posttraumatic stress disorder, that it was denied by the VA. It has since been considered 20 percent disabling even though all of the other conditions have been described as related to PTSD. I will admit freely that stress from my service in the Gulf

is a part of my condition, and possibly many other veterans'. I believe the VA has done a very good job in treating PTSD in Gulf war veterans. I also believe many veterans are subjected to much more stress by trying to navigate the bureaucracy of the Department of Veterans Affairs and with worrying how to cope with medical conditions that are ignored, all while being unable to work and wondering how to feed or house a family.

All of the conditions I mentioned earlier, with the exception of fatigue and PTSD, have been denied service connection by the VA. After 45 days of trying to contact Dr. Frances Murphy of the VA central office, I finally was able to speak with her. I also left messages to speak with Dr. Susan Mather, and my calls have never been returned. I wonder if heads of other veterans organizations have the same problem.

During these conversations, I was told the registry would be updated with any new diagnoses or findings. I sent a FOIA request to the VA for my information and received it. When I received it recently, I was horrified to see it only contained medical documentation from a single examination from 1993. If I would have had my registry examination information to support my claim, it may have been allowed previously. Since I and many other Gulf war veterans have found the DOD and VA have been much less than helpful in outreach to veterans, I have been active in forming and working with Gulf war veterans organizations in an attempt to help others through this bureaucracy and to ensure they receive information that is vital to their medical treatment.

Presently I serve as the president of the National Gulf War Resource Center. In my capacity as the president of the National Gulf War Resource Center, I have encountered many Gulf war veterans whose claims have also been denied. Most have fallen outside the 2-year limit that has been imposed by the VA.

I think after 5 years that Gulf war veterans have suffered enough. Immediate action is needed to provide proper medical testing and treatment of this Nation's veterans.

I would like to make this next point very clear and understandable to the committee. The complete testimony I just gave is from me personally, but it could have come from any Gulf war veteran in America.

With that, I offer the following recommendations: The VA and DOD should be much more open and willing to communicate with established Gulf war veterans organizations.

An immediate extension of the arbitrary 2-year limit would help many thousands of veterans.

Instructing the Department of Veterans Affairs to follow the intentions of Congress in Public Law 103–446, and others, would help greatly.

Instructing the Department of Veterans Affairs to properly administer and update the Persian Gulf War Veterans Registry will ensure this becomes a truly useful data base for researchers and patient care, as was previously reported in the Presidential Advisory Committee's final report to the President.

Instructing the Department of Veterans Affairs to improve communications with medical care personnel throughout their facilities on issues relating to Gulf war veterans.

An independent oversight commission to oversee the review of the 12,000 previously denied claims would ensure the process is fair to veterans. The current practice of adjudicating these claims at area processing offices removes the veteran, their service officer, and possibly their Congressman from the claims process. A 96 percent rejection rate is unacceptable.

Encourage the Department of Defense to seek out and interview medical care professionals who were in the Gulf in order to receive their insight on what medical conditions they witnessed during their service in the Gulf.

Request a plan of action and oversight from the DOD on ensuring medical boards are conducted properly and by regulation.

Request the DOD immediately communicate down to unit commanders that veterans will not be retaliated against in any way for seeking health care related to service in the Gulf.

[The prepared statement of Mr. Kornkven follows:]

# Testimony of

## Chris A. Kornkven

before the

## Subcommittee

on

## Human Resources

and

## Intergovernmental Relations

21 January 1997

On behalf of my family, Gulf War Veterans, and the National Gulf War Resource Center, I would like to thank the Chairman and members of this committee for inviting me to provide this testimony today.

My name is Chris Kornkven. I was a Reservist who was activated and served in the Persian Gulf from 8 February 1991 until 5 August 1991, with the 304th Combat Support Company, an Echelon Above Corps unit. My duty, officially, was as a Field Radio Inspector. Unofficially, I was a Combat Lifesaver in charge of my units medical requirements.

While still in the Gulf I began experiencing symptoms that continue to this day. After hearing of many fellow veterans suffering from the same symptoms I began trying to recall when I first noticed these problems, and believe they started in March or April of 1991. In keeping a diary while in the Gulf I remembered I had difficulty in remembering significant events that happened 2 and 3 days prior. I remembered my knees and shoulders being especially painful after the slightest exertion, and that fatigue stayed with me constantly. I believed these were a result of the conditions I was in, and they would improve with rest.

I began seeking treatment from the Oklahoma City VAMC in 1992 when the symptoms continued and worsened, and when I heard many other Gulf War veterans were having the same problems. I was having intestinal problems, the fatigue was getting much worse as was my memory. I still believed the pain in my joints was from something else, and the headaches would eventually go away.

After some initial consultations I was referred to the mental health clinic, although I was not told why. Eventually I was told I may have Post Traumatic Stress Disorder, and I would be tested and possibly be followed with counseling.

Several weeks passed with no other medical testing or treatment. I began asking questions in the mental health clinic when any appointment would take place, and was told they were too booked up to get me in anytime soon. It was suggested I go to the Vet Center for any counseling.

At this point much of the medical testing or treatment had stopped, with emphasis placed on PTSD, and possible treatment in the mental health clinic.

In May 1994 I became upset with no physical testing or treatment taking place. I waited in the emergency clinic over 6 hours and finally got to see a nurse. It appeared she would exhibit the same attitude of indifference and dismissal so I told her I wouldn't leave until each of the medical problems were documented. At one point she left the room saying she had to consult with the Persian Gulf Veterans Doctor. This was the first I had heard there was one. When she returned she said they were referring me to the Houston VA Gulf War veterans referral center because they could not figure out what was wrong with me.

During this period and after, the testing or treatment improved somewhat with the following items having been discovered or reported to the VA.

I have reported blinding headaches for more than a year with only offers of aspirin. Eventually an MRI was reluctantly performed in which a nasal mass was discovered. There has been absolutely no treatment to date.

I have reported memory loss since returning from the Gulf. This has been dismissed as a result of stress with no other attempts at finding the cause or other treatment. Many times I have been told it is from PTSD, but when I try to explain how bad the problem is it is dismissed. Tests for memory loss usually consist of being told a few words, then being asked to repeat them after a few minutes.

I have reported skin problems since returning. After a sample was taken of the many brown spots that have been appearing, I was told "it's not skin cancer yet" and I could "come back as needed". A single examination has been performed of the rashes on my legs so long ago I cannot remember the date. There has been no further treatment to date.

I have reported problems breathing and have had instances of Pneumonia and of Bronchitis since returning. I have been questioned by VA doctors about whether I have ever had surgery on my chest with no explanation. Other than antibiotics for the Pneumonia or Bronchitis the only other attempts at treatment have been frequent chest x-rays.

I have reported intestinal problems to include diahrrea, for more than a year before a strange type of bacteria was found. I was given a 2 week course of antibiotics in which the symptoms receded somewhat. When the symptoms returned worse than before I reported this to the VA, for more than another year. During this time I also reported having rectal bleeding. I was eventually given an appointment in which the bleeding was dismissed as hemmorhoids, after no examination. When the doctor found no evidence of hemmorhoids in my medical records he continued to dismiss the problem until I insisted something be done. By the time I left Oklahoma months later a follow-up still had not been performed. This bleeding continues.

I have reported joint pain for many months and had been given a follow-up to see a Rheumatologist in 1994. To date I have yet to see a Rheumatologist, even after a Congressional request, and the joint pain has been dismissed as being Fibromyalgia. No treatment other than Motrin has been given.

I have reported my wife and I having a miscarriage in which the fetus had to be surgically removed, and my semen burning her. There have been no attempts at finding the cause of either other than mysterious questions about sexual diseases asked by some doctor from the Houston VAMC.

At this time I would like to show a picture of my wife and son.

My wife was always very awake and lively when she woke in the morning, now she has as much trouble as I do with fatigue. She also has been diagnosed by a private physcian as having Fibromyalgia.

My son, who is 2 years old, has not slept a complete night through since being born. He appears to have intestinal problems, his stools are very acidic, he is VERY light sensitive, and has the exact same rashes on his legs as I do.

Other blood and urine samples have shown glaring abnormalities with no attempts to discover the problem. I have been told of these abnormalities months after the sample was taken.

I requested over several months that a urine test for Depleted Uranium be performed. After many excuses and attempts to ignore this I finally was successful after requesting Congressional help. After waiting the period needed for the results, I began inquiring about them from the Chief of Staff. 3 months went by during which I was told they had called the Baltimore facility performing the test, left messages, but Baltimore would not return their phone calls. I called the Baltimore facility, spoke with the Doctor overseeing the testing, and had him fax me the results. During the conversation I was told I "had a higher DU count then those carrying around fragments in them". I was also told it was nothing for me to worry about and that I probably got it from the drinking water where I live. I believe the Environmental Protection Agency would be interested in hearing that one.

I understand DU contamination may cause kidney problems. I have been questioning for many months as to whether this may be the cause of urine abnormalities but they have been unanswered. I also question if this may cause liver problems, and the only response I have ever received is a question of whether I have ever had an ultra-sound of my stomach since it has been painful to the touch since I have returned.

I have reported chest pains since returning and instances of my heart racing as high as 160 beats per minute with no activity. After going through tests with results varying from "no problem" to not being able to start a test due to abnormalities shown, I was given an appointment with a Cardiologist. After the initial examination in which problems were discovered I was given a follow-up. Unfortunately this follow-up was scheduled for a year after the initial visit. Several attempts to correct this were ignored until once again I requested the help of my Congressman. When the appointment was held, after a couple of failed attempts, I was told the heart problem I was having was due to an abnormal heart valve. After many physicals and no heart problems prior to the Gulf I was surprised to hear this. I was also told this type of problem was hereditary, nicely avoiding the VA's rating guidelines.

Many types of treatment at this facility consisted of providing a quick prescription for whatever the reported problem may be. The number of prescriptions that I had been given totaled 27 at one point. I began wondering the interaction of all of these medications and requested over several months, through the Chief of Staff, an appointment with a Pharmacist. I eventually had this appointment from my own doing without any attempts by the Chief of Staff. During this appointment I was told 2 of the medications I was given interacted causing heart arythmias and "some people have died from it". I would like to note that the FDA is currently considering removing from the market one of these medications.

To date my insurance has been billed more than $42,000.00 for these appointments ranging from a few minutes to half an hour. Most were with medical students. I have little wonder why claims are denied once a veteran reports having medical insurance.

Due to problems in obtaining treatment I have contacted the Persian Gulf Veteran's doctor, the Patient Advocate, the Assistant Chief of Staff, the Chief of Ambulatory Care, the Chief of Staff, the Congressional Liason and finally the Director, all of the Oklahoma City VAMC. Since problems continued in obtaining treatment or appointments I have contacted 6 different members of Congress to include 3 Congressional Committees. The problems continued with obtaining proper and timely medical testing or treatment. During this time I was given very good care in the mental health clinic.

I then contacted the VA Inspector General's office which opened an investigation. This resulted in the Inspector Generals office requesting a response from the Director of the Oklahoma City VA. The Director provided excuses for each of the problems I had identified. After 2 months of waiting for results I called the Inspector Generals office and was told they were satisified with the Director's response, and refused to investigate further.

I have thought of filing an SF -95 claim for damages with the VA, but have given up, secure in the knowledge that it would end up in months of red tape.

Throughout this ordeal an emphasis has been placed on Post Traumatic Stress disorder with the physical aspect of my medical conditions seeming to be ignored, even when clearly indicated otherwise. I was very surprised after submitting a claim for service-connection for Post Traumatic Stress Disorder that it was denied by the VA. It has since been considered 20% disabling, even though all of the other conditions have been described as related to PTSD.

I will admit freely that stress from my service in the Gulf is a part of my condition, and possibly many other veterans. I believe the VA has done a very good job in treating PTSD in Gulf War Veterans. I also believe many veterans are subjected to much more stress by trying to navigate the bureacracy of the Department of Veterans Affairs, and with worrying how to cope with medical conditions that are ignored. All while being unable to work, and wondering how to feed or house a family.

All of the conditions I mentioned earlier, with the exception of fatigue and PTSD, have been denied service-connection by the VA. After 45 days of trying to contact Dr. Frances Murphy of the VA Central Office I finally was able to speak with her. I also left messages to speak with Dr, Susan Mather, and my calls have never been returned. I wonder if heads of other veterans organizations have the same problem? During these conversations I was told the Registry would be updated with any new diagnoses or findings. I sent a FOIA request to the VA for my information and received it. When I received it recently I was horrified to see it only contained medical documentation from a single examination from 1993. If I would have had my registry examination information to support my claim it may have been allowed previously.

Since I and many other Gulf War Veterans have found the DOD and VA have been much less than helpful in outreach to veterans, I have been active in forming and working with Gulf War Veteran organizations in an attempt to help others through this bureacracy, and to ensure they receive information that is vital to their medical treatment. Presently, I serve as the President of the National Gulf War Resource Center.

In my capacity as the President of the National Gulf War Resource Center I have encountered MANY Gulf War Veterans whose claims have also been denied. Most have fallen outside the 2 year limit that has been imposed by the VA. I think after 5 years that Gulf War Veterans have suffered enough. Immediate action is needed to provide proper medical testing and treatment of this Nation's veterans.

I would like to make this next point very clear and understandable to the Committee. The complete testimony I just gave is from me personally, but it could have come from any Gulf War veteran in America.

With that I offer the following recommendations:

The VA and DOD should be much more open and willing to communicate with established Gulf War Veterans organizations.

An immediate extension of the arbitrary 2 year time limit would help many thousands of veterans.

Instructing the Department of Veterans Affairs to follow the intentions of Congress in Public Law 103-446, and others, would help greatly.

Instructing the Department of Veterans Affairs to properly administer and update the Persian Gulf War Veterans Registry will also ensure this becomes a truly useful database for researchers and patient care, as was previously reported in the Presidential Advisory Committee's Final Report to the President.

Instructing the Department of Veterans Affairs to improve communications with medical care personnel throughout their facilities on issues relating to Gulf War Veterans.

An independent oversight commission to oversee the review of the 12,000 previously denied claims would ensure the process is fair to veterans. The current practice of adjudicating these claims at Area Processing Offices removes the veteran, their service-officer and possibly their Congressman from the claims process. A 96% rejection rate is unacceptable.

Encourage the Department of Defense to seek out and interview medical care professionals who were in the Gulf in order to receive their insight on what medical conditions they witnessed during their service in the Gulf.

Request a plan of action and oversight from the DOD on insuring Medical Boards are conducted properly and by regulation.

Request the DOD immediately communicate down to unit Commanders that veterans will not be retaliated against in any way for seeking health care related to service in the Gulf.

Mr. SHAYS. Mr. Kornkven, that is powerful testimony. Thank you.

James Brown. Mr. Brown, I am going to ask you—basically I let Mr. Kornkven go about 10 minutes, a little beyond. That is the outer limit.

Mr. BROWN. No problem.

First I wish to give a statement of appreciation to the members of this committee for having this hearing and for inviting me to testify today. It is through events like this that the truth can be told and changes can be made. Due to recent statements and news releases made by the Department of Defense, Central Intelligence Agency, and Veterans Affairs, finally some actions may be forthcoming that will help to save lives, which is the highest calling of them all.

In my testimony I will refer to many events, some recent, some historical, but all having a bearing on the state of mind of the institutions I have just mentioned. This mentality is one of denial, ignorance, and abuse of power given not as a right but as a gift.

The need to defend one's home and family is a basic one. However, when the responsibility of that defense is given over to another, there is a basic trust passed on which, once broken, may never mend. This broken trust is the real, basic reason we are here today.

My name is Jim Brown, and I am 32 years old. I was a U.S. Army soldier, rank of specialist E–4, assigned to the 514th Maintenance Company, 548th S&S Battalion, 10th Mountain Division, Fort Drum, NY, from 9 June 1989 to 10 April 1991. I served proudly. My primary job was to fix generators and to run the computer system for the shop office and the first sergeant. As such, I had an appropriate clearance for sensitive materials as well as training.

The health hazards and exposures that I was—the health hazards that I was exposed to are the shots that I received before leaving the United States, which were the immune gamma globulin, IGG; meningococcal, MGC; typhoid II; botulinum toxoid; and anthrax, prior to deployment in the United States at the same time.

The environmental exposures in Saudi Arabia were leaded diesel, in vehicles and poured on roads to reduce dust; microscopic dust; lack of acclimation from cold to hot extreme; drinking highly chlorinated water from a local source; drinking chlorinated water from a local source; pesticide-laden living environment/compound, cement city; infrequent showers, with oil-contaminated local water; sand fleas; sand flies; basic unsanitary conditions; leaded fuels used in improperly vented interior heaters for tents; work environment, vehicles, parts, saturating clothing with oil, et cetera; lack of bottled water to remain hydrated; rodents; smoke from waste disposal descending over camp; smoke from first oil well fires, started 12 February 1991.

Other hazards were fallout from bombed chemical storage/production facilities; fallout from bombed biological storage/production facilities; Scud attacks that resulted in chemical alarms sounding; DU on task worked on/around and used by returning A–10's flying overhead after firing rounds in Iraq, trailing dust.

After my return to the United States, I became increasingly more ill. I finally went to the hospital in Fort Jackson, SC, on 27 March

1991, and complained of fatigue, sleeplessness, inability to concentrate, headaches, rashes, dizziness, abdominal pain, blood in my stool and urine, and short-term memory loss. Soon after, my wife began having the same illnesses.

The doctors examined me thoroughly and agreed that my symptoms were real and that I did have blood in my stool and urine. They then told me they could do nothing for me, and even though they found physical signs of what could have been internal bleeding, I was sent away with no idea what was wrong with me, no treatment, and no followup in the near future. This was a potentially life-threatening situation. To this day, I still occasionally have the same blood in my stool and urine and have no idea why.

After a few months, I received a compassionate reassignment to Fort Gordon, GA. During my time there, I progressively became worse and tried to be evaluated by the doctors there. I had a series of tests done on 2 September 1992, by the doctors at Eisenhower Medical Center, and the results showed that I had a tendency toward anemia and abnormally high glucose levels. The doctors dismissed the findings and told me to go back to duty, with, again, no idea what was causing the fainting and nausea I constantly experienced.

On 4 November 1993, I ended up in the Army post's emergency room after having passed out standing up while outside doing common task training. Nothing strenuous was involved to induce this reaction.

I was taken to the hospital and put in an area far from any other patients and left to sit on a curtained-off bed. Soon, several doctors pushed into the cramped space and began talking excitedly among themselves about toxicology, poisoning, and the effects usually seen in victims of it. This was said directly about me and my problem.

They talked about me as if I would not understand the jargon, yet I understood all too well that these people were connecting an exposure to a toxin to my condition. I sat up to look at them and began asking questions that left no doubt that I did understand them. The conversations stopped, and all eyes turned to me.

With "hand in the jar" looks, the doctors, who now numbered about 10, looked suddenly about for somewhere else to be. I asked if there was some kind of a problem with intelligent patients coming in this hospital and was told to lie down and be quiet and wait for another doctor. I asked why the change and was again told to be quiet. So I waited. I stayed in the hospital for 2 days hooked up to an IV of fluids mixed with antibiotics of a type I had not heard of. Since I am not a doctor, no surprise there. The surprise came when the doctors told me I could leave and I was not to tell anyone that I had been given antibiotics at all. Again I asked why. I was again told to be quiet.

When I asked what was wrong with me, I was told it was pharyngitis. I asked how they knew so fast, since cultures take a little while to be really sure of the microorganism responsible. As expected, I was told to leave well enough alone, and it seemed to anger the doctor a lot to be put on the spot. It seemed to be the trend in the hospital when dealing with normal questions about abnormal situations. The nurse that had attended most of the "be quiet" sessions let me know some of what had happened to me. She

pointed out that a lot of the returning Saudi vets were coming in sick, same symptoms, and especially right after the flu shots had been given out on the post. She also said that I had gotten mine 2 days before I showed up sick. In other words, she was trying to connect the flu shot and my seeming reaction to it. The timeframe didn't seem very consistent considering—but oh, well.

After all of this, I was forced out of the military because I wanted medical treatment. They sent me home. The assessment and diagnosis they gave me was "benign physical examination; stress syndrome." In other words, a PTSD.

The doctors were all worried that I had a toxic shock reaction to the shot and that it "was to be expected in the Saudi vets as opposed to healthy folks." It seemed that there was a lot more to this than I had first thought, especially if it was treated as if it were a common thing by the doctors and that the doctors were making a connection where they were publicly saying there was not one. No surprise there either.

After looking at the test results from this hospital stay, I was seeing a trend of values that were high or low rather than normal that the doctors were dismissing yet were cropping up in every lab report I had. A pattern was forming.

After all of this, I was forced out of the military because I wanted medical treatment.

Repeatedly I was denied it and got worse as time went by.

Eventually I finished my time allowed and transferred to the Reserves to finish my 8-year obligation.

On September 1, 1994, I went to the VA hospital in Augusta, GA, for my registry exam. I was already aware of the CCEP protocol and the three phases involved since I had access to the documentation concerning that. I and other veterans had met in support groups we had formed and were sharing information we had gathered.

Prior to coming to the VA, I had done several TV interviews with stations in the area. I was known to be outspoken. Since there was a large amount of veterans close to the hospital at Fort Gordon—two full battalions had been deployed from there to Saudi Arabia, and I knew many of the vets who were sick there—I thought this would be a good idea to invite a member of the media to interview me as I went through the program, to let the vets know they had somewhere to go for testing and possibly treatment.

I asked the press representative at the VA if this was OK with them. The reaction was not a good one. He felt it was best for me to leave it to the professionals and called the reporter to tell him what had happened. He informed me that when I tried to talk to the press officer, he was told that, "He and I would be forcibly ejected from the hospital grounds," if any reporter showed up. So we crossed the street and did the interview with the hospital in the background.

When I went back to the hospital after the interview, everything seemed to have changed in a very weird way. All of the people who would not even look at me before were asking me if they could get me things like coffee, and since I was accompanied there by my mother, who drove me there since I had traveled all night to attend the testing, and assumed they would draw a lot of blood, making

me unfit to drive home, as well as another vet, they also got royal treatment.

It seemed like things might be turning for the better when the other vet noted that he had been followed when going to the bathroom. Looking around, my mother noted the same thing happening when one of us moved around. We began to test this just to knock the paranoia theory down, and, sure enough, every time we would move, whenever we moved, the people at the front desk would send someone to see where we went.

I finally surprised one of them and asked what was going on. I was told it was for security reasons, to keep the reporters out of the hospital. I said that was odd since neither I, my mother, or the vet were reporters and the interview was already over. She said it was the administrator's decision, not hers, and went back to her desk, which means they had coordinated with someone in the upper hierarchy, told them what was going on, and received instruction.

After all this happened, I was finally seen by the environmental physicians, and which I have to ask this committee, does anybody know the actual definition that the VA is giving these people as "environmental physician"? The doctors that are seeing the veterans are calling themselves this, but from my understanding, this is a discipline that these people have absolutely no training in. They are putting a name to themselves that they haven't earned, they have no diploma, and no right to say. And I wish this committee would investigate that fully.

As I saw the doctor, I filled out the paperwork with care, attending to all the formalities I knew of, in order to test the system for other vets that may not be as well informed as I. I let the physician see the large package of medical files I was carrying and asked where he wanted them. He answered, "Outside the office." I said they would help establish a pattern of illness for him. He said that was what he was for. I began to see an old pattern forming again I had seen in the DOD, which again supports the idea that if DOD says it's supposed to be done a certain way, the VA is going to follow and tow the line.

DOD basically has subcontracted the VA to take care of the health care for its employees, which are the veterans, and that's a conflict of interest all the way around. The VA has an innate sense of survivability. It's not going to treat us and get rid of its only people that keep it in business. It's going to keep us around to make sure that we keep coming back.

I held on to my copy of the protocol phases and asked him to describe the testing he was going to do today. He said it would be real extensive, a lot of stuff, and he rattled off the basic tests listed on the phase 1 protocol, very simple things. I mentioned this and was told it was the very best they have to offer and this would be all the VA could do for me, period, ever. He said this as I had the protocol papers rolled in my hand. I knew better and had proof.

So after he said this, I asked him again if he would not like to increase the testing scope since the tests I had from other physicians told a real pattern story. He said no. We proceeded through these tests he outlined.

When he was done with what any first-day medical student would have passed over as useless, I showed him the protocol sheets with the three phases on them. He turned a very interesting shade of white and asked me where exactly did I get those from, I was not supposed to have those, and so on. He got rather irate then. I showed the three phrases to him and asked him what we were going to do now. He stammered something about having to go get more papers so he could do tests I requested since he only had 25 patients in the office at the time. Phase 1 consists of only five tests if you include the x-ray. It seemed that a little pressure had worked.

Afterwards I had talked to the doctor in finding out what tests he had done, and they took approximately eight tubes of blood during that time, at one time. It made me woozy, it made me dizzy, but I figured we would actually get somewhere with this. When I received the statement from the VA telling me exactly what had come of this, this very extensive training, very extensive testing, they sent me this letter on September 23rd, which was 22 days after I had had my examination: "The results of your physical examination indicate no problems with your labs or x-rays. However, you should keep all your appointments to Mental Health."

That put it into a very interesting frame. When I compared the documentation that the VA actually had put forward on me, the tests they had run, and I compared them to other documentation I had gotten from medical doctors outside the VA and DOD system, the results were almost identical. Highs were in the same place, and lows were in the same place, and these other doctors had said that I had a severe case of anemia and I had a severe infection of the Epstein-Barr virus, which at that time didn't mean very much to me, but considering what I had been exposed to in my environment and the chronic fatigue I was experiencing at that time, it seemed rather odd that the VA did not pick this up with their own testing. The people interpreting the test results are falling flat on their face. The test results were the same.

[The prepared statement of Mr. Brown follows:]

Statement By

**James Brown**

Director of "Gulfwatch"
An International Veterans'
Information/Support Network

Before the

**House Subcommittee on Human Resources**

January 21, 1997
Washington, DC

## APPRECIATION:

First, I wish to give a statement of appreciation to the members of this committee for having this hearing, and for inviting me to testify today. It is through events like this that the truth can be told, and changes can be made. Due to recent statements and news releases made by the Department of Defense, Central Intelligence Agency and Veteran's Affairs, finally, some actions may be forthcoming that will help to save lives, which is the highest calling of them all.

In my testimony, I will refer to many events, some recent, some historical. But all having a bearing on the state of mind of the institutions I just mentioned. This mentality is one of denial, ignorance, and abuse of power given not as a right, but as a gift. The need to defend one's home and family is a basic one. However, when the responsibility of that defense is given over to another, there is a basic trust passed on which, once broken, may never mend. This broken trust is the real, basic reason we are here today.

Also, my testimony will be divided in 2 parts. Due to the length of thi document, I have decided to do this. The first part deals with the events experienced in the D.O.D./ V.A. registries and systems attempting to gair aid for the problems I and my family encountered. The second will give a background on my experiences in the persian gulf war, and the health related problems my deployment involved.

## INTRODUCTION:

My name is Jim Brown, and I am 32 years old. I was a U. S. Army soldier, rank of specialist E-4, assigned to the 514th Maintenance Company, 548th S & S Battalion, 10th Mountain Division, Ft. Drum, New York from 09/jun/89 to 10/apr/91. I served proudly. My primary job was t fix generators, and to run the computer system for the shop office, and the 1st Sgt. As such, I had an appropriate clearance for sensitive materials, as well as training.

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## 'EALTH HAZARDS AND EXPOSURES

**Shots received before leaving the U.S.**

1) Immune gamma globulin (IGG)
2) Menningacoccal (MGC)
3) Typhoid II
4) Botulinum toxoid
5) Anthrax

**Environmental exposures in Saudi Arabia**

6) Leaded deisel, in vehicles and poured on roads to reduce dust.
7) Powdered, microscopic dust
8) Lack of acclimation from cold to hot extreme environments.
9) Drinking highly chlorinated water from a local source.
10) Pesticide laden living environment/compound (cement city).
11) Infrequent showers, with oil-contaminated local water.
12) Sand fleas.
13) Sand flies.
14) Basic unsanitary conditions.
15) Leaded fuels used in improperly vented interior heaters for tents.
16) Work environment (vehicles/parts saturating clothing with oil, etc.)
17) Lack of bottled water to remain hydrated.
18) Rodents.
19) Smoke from waste disposal descending over camp.
20) smoke from first oil well fires, started 12/feb/91.

## Other hazards

21) Fallout from bombed chemical storage/production facilities.
22) Fallout from bombed biological storage/production facilities.
23) Scud attacks that resulted in chemical alarms sounding.
24) D. U. on tanks worked on/around, and used by returning A-10's flying overhead after firing rounds in Iraq, trailing dust.

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## 'EDICAL HISTORY

(See attached medical files)

I deployed to Saudi Arabia on 25/Sep/90, and returned on 18/Feb/91 to the U.S. I was ill during my deployment, and was seen at sick call soon after the air war started on 17/jan/91 with numerous complaints of nausea, vomiting, cramps, night sweats, and headaches. The doctors who saw me said to "stick it out" and sent me back to my unit.

After my return to the U.S., i became increasingly more ill. I finally went to the hospital on Ft. Jackson, S.C., on 27/mar/91, and complained of fatigue, sleeplessness, inability to concentrate, headaches, rashes, dizziness, abdominal pain, blood in my stool and urine, and short-term memory loss. Soon after, my wife began having the same illnesses.

The doctors examined me thoroughly, and agreed that my symptoms were real, and that I did have blood in my stool and urine. They then told me they could do nothing for me, and sent me home. The assessment and diagnosis they gave me was "benign physical examination; stress syndrome". In other words, a P.T.S.D.

Even though they found physical signs of what could have been internal bleeding, I was sent away with no idea what was wrong with me, no treatment, and no follow up in the near future. This was a potentially life- threatening situation. To this day, I still occasionally have the same blood in my stool and urine, and have no idea why.

After a few months I received a compasionate reassignment to Ft. Gordon, Ga. During my time there, I progressively became worse, and tried to be evaluated by the doctors there. I had a series of tests done on 02/Sep/92 by the doctors at Eisenhower medical center, and the results showed that I had a tendency towards anemia, and abnormally high glucose levels. The doctors dismissed the findings, and told me to go back to duty, with, again, no idea what was causing the fainting and nausea I constantly experienced.

Page 4)

On 04/Nov/93, I ended up in the army post's emergency room, after aving passed out standing up while outside doing common task training. Nothing strenuous was involved to induce this reaction. I was taken to the hospital, and put in an area far from any other patients, and left to sit on a curtained-off bed. Soon, several doctors pushed into the cramped space, and began talking excitedly among themselves about toxicology, poisoning, and the effects usually seen in victims of it.

This was said directly about me and my problem. They talked about me as if I would not understand the jargon, yet I understood all too well that these people were connecting an exposure to a toxin to my condition. I sat up to look at them, and began asking questions that left no doubt that I did understand them. The conversations stopped, and all eyes turned to me.

With "hand-in-the-jar" looks, the doctors (who now numbered about 10) looked suddenly about for somewhere else to be. I asked if there was ɔme kind of a problem with intelligent patients coming in this hospital, and was told to lie down, and be quiet, and wait for another doctor. I asked why the change, and was again told to be quiet. So I waited.

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When I asked what was wrong with me, I was told it was pharyngitis. I asked how they knew so fast, since cultures take a little while to be really sure of the micro-organism responsible. As expected, I was told to leave well enough alone, and it seemed to anger the doctor alot to be put on the spot. It seemed to be the trend in the hospital when dealing with normal questions about abnormal situations.

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The nurse that had attended most of the "be quiet" sessions let me now some of what had happened to me. She pointed out that alot of the returning Saudi vets were coming in sick, same symptoms, and especially right after the flu shots had been given out on the post. She also said that I had gotten mine 2 days before I showed up sick.

The doctors were all worried that I had a toxic/shock reaction to the shot, and that it "...was to be expected in the Saudi vets, as opposed to healthy folks...". It seemed that there was alot more to this than I had first thought, especially if it was treated as if it were a common thing by the doctors. And that the doctors were making a connection where they were publically saying there was not one. No surprise there either. After looking at the test results from this hospital stay, I was seeing a trend of values that were high or low, rather than normal, that the doctors were dismissing, yet were cropping up in every lab report I had. A pattern was forming.

After all of this, I was forced out of the military because I wanted medical treatment. Repeatedly I was denied it, and got worse as time went by. Eventually, I finished my time allowed, and transfered to the reserves to finish my 8 year obligation on 08/Feb/94 (I had 7 months left). On 01/Sep/94, I went to the V.A. hospital in Augusta, Ga., for my registry examination. I already was aware of the C.C.E.P. and the 3 phases involved. I and other veterans had met in support groups we had formed, and were sharing information we had gathered. I had secured a copy of the 3 phases of examination done by the V.A., and knew mostly what to expect.

Prior to coming to the V.A., I had done several t.v. interviews with local stations, and was known as being outspoken. Since there was a large amount of veterans close to the hospital at Ft. Gordon (2 full battalions had deployed from there to Saudi Arabia, and I knew many vets that were sick there) I thought it would be a good idea to invite a member of the media to interview me as I went through the program, to let the vets know they had somewhere to go for testing and maybe treatment.

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I asked the press representative at the V.A. if this was okay with ıem. The reaction was not a good one. I felt that it was best for me to leave it to the professionals, and called the reporter to tell him what had happened. He informed me that when he had tried to call earlier to talk to the press officer, he was told that "...he and I would be forcibly ejected from the hospital grounds..." if any reporters showed up. So, we crossed the street, and did the interview with the hospital in the background. Not a good way to start off.

When I went back into the hospital after the interview, everything seemed to have changed, in a weird way. All the people who would not even look at me before were asking if they could get me things like coffee, and since I was accompanied by my mother (who drove me there, since I had travelled all night to attend the testing, and assumed they would draw alot of blood, making me unfit to drive) as well as another vet, they also got the "royal treatment".

It all seemed like things might be turning for the better when the other vet noted that he had been followed when going to the bathroom. Looking around, I and my mother noted the same thing happening when one of us moved anywhere. We began to test this, just to knock the paranoia theory down, and, sure enough, every time we would move, the people at the front desk would send someone to see where we went.

I finally surprised one of them, and asked what was happening. I was told that it was for security reasons, to keep the reporters out of the hospital. I said that was odd, since neither I, my mother, or the vet were reporters, and the interview was already over. She said it was the administrators decision, not hers, and went back to her desk.

After all this happened, I finally was seen by the "environmental physician". Having an interest in medicine, I asked what particular disciplines he had studied to gain so lofty a title, and was met with a blank stare, as if he did not get the joke, yet felt it was one. I began to feel a little more ill at ease.

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I had filled out the paperwork with care, attending to all the ɔrmalities I knew of, in order to "test" the system for other vets who may not be as well informed as I was. I let the physician see the LARGE package of medical files I was carrying, and asked where he wanted them. He answered "outside the office". I said that they would help establish a pattern of illness for him. He said that was what he was for. I began to see an old pattern forming again.

I held onto my copy of the protocol phases, and asked him to describe the testing he was going to do today. He said it would be really exstensive. Alot of stuff. Then he rattled off the basic tests listed on the phase 1 protocol. Simple stuff that wouldn't really even tell if you were alive when the test was given, much less live up to the new name "environmental physician".

I mentioned this, and was told it was the very best they had to offer, and this would be all the V.A. could do for me. Period. Ever. He said this s the protocol papers rolled in my hand. I knew better. And had proof. So. After he said this I asked again if he would not like to increase the testing scope, since the tests I had from other physicians told a real patterned story. He said I should forget those tests, since the ones I was about to get were so good.

We proceeded to go through the tests he had outlined. When he was done with what any first day medical student would have passed over as useless, I showed him the protocol sheets, with the 3 phases on them. He turned a very interesting shade of white, and asked me "where the &$@& did I get those from.....I was not supposed to have those...." and so on.

He really did get rather irate then. I showed the 3 phases to him, anc asked him what we were going to do now. He stammered something about having to go get more paper so he could do the tests I requested, since he only had 25 pages in his office at the time!! Phase 1 consists of ɔnly 5 tests, if you include the x-ray. It seemed that a little pressure had worked.

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While he was gone to get "the extra paper", I stuck my head out of ıe room to inform the others of what had happened. I was informed of the return of the "watch-dogs" on the vet and my mother again. The doctor returned, a little more composed looking, and began filling out paperwork that ended up being about an inch thick. Big difference from before. Funny problem; none of these seem to be in my records now.

I went to all the labs, had 8 tubes of blood drawn, a urine specimen taken, an x-ray, and was asked if I wanted any coffee or tea. I then told the doctors gathered outside the exam room that from now on, I would be coming back to the hospital with every vet I knew who needed testing, and would personally see to it that they received proper testing and treatment. If a babysitter was what they needed, that was what they would get. I also saw the administrator, to tell him the same thing.

I went back home to S.C., and I tried to make my drill weekend duties, but was unable due to repeated illnesses. I was told by my ommander that I had to have a doctor's excuse to be allowed to miss .ime, so I went to a doctor in S.C. where I was living then.

This was on 10/Sep/94. As I talked to the doctor, he asked me my symptoms. He said he could nail down, medically, what was wrong with me with 2 blood tests. I looked at him a little skeptically, but said okay. He drew 2 tubes of blood, and told me he would call me in a few days with the results. I was billed $113.00 for the tests.

I received the results of my testing from these tests on 19/Sep/94, and was told that they revealed that I had been dangerously anemic for years (which I knew) and that I had an active infection of the epstein-barr virus (which I didn't) and it could be the source of the fatigue I was feeling. The doctor told me that with the test results he had and the earlier ones I had shown him, he was able to back-track the earliest stages of the illness to having begun about the same time-frame as when I was in the gulf war. The doctor did not know at the time of the exam that . had been in the gulf war. I wanted an un-biased opinion.

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After having found all this out, and gotten at least a partial answer or the reasons why I was ill, it came as quite a surprise when I received a letter in the mail, dated 23/Sep/94, only a few days after hearing from the doctor about my illness. This letter was from the V.A., and it said that "The results of your physical examination indicates no problem with your labs or x-rays.....". I was, to say the least frustrated. And angry. In the V.A.'s phase 3 testing there is a simple test, for the epstein-barr virus, that, if done, would show at least that I was ill as defined by modern medicine, not just imagining it as some doctors seem to feel. The V.A. dropped the ball totally, since I received the test, yet it failed to show the problem. Tests, started days apart, yeilding totally different diagnoses, was a bit much to take.

I had researched the epstein-barr virus, and found out several things about it, none good. The fact that the V.A. could miss so fundamental a thing is also not good. From the test results I have seen from my visit to the V.A., I have been able to determine that they yeilded the same results that the many earlier D.O.D. tests had shown for years; anemia, and a chronic infection of the e.b.v. at the very least.

So. What are the lessons learned here ? That over-sight is invaluable. That if I had not been informed as well as I had been, I would have gotten a bums-rush out of the hospital, and been added to the tally of "served customers" that had been given a bill of goods that was rotten.

What happens to the vet who does not have the protocol sheets, or just is not up to the fight that day because of being ill ? Will they suffer, and die, rather than getting the help they need ? Yes. It is already happening now. Too many have died needlessly, when the answers are there; we just need someone competent enough to know that when a test says "high" or "low" that it warrants someones attention. The "h" is for high, the "l" is for low. Simple. Like the "picture of fries" is for "fries" on the cash register nowadays. Simple. If these doctors are that bad off, they could not even work at a fast-food resturaunt, much less be in charge of a human beings life and health. How simple does it have to be ?

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This committee has the power to affect the outcome of these ·agedies. Please help us to put an end to the ignorance and needless deaths. With the recent admissions by the D.O.D. and C.I.A. regarding chem/bio exposures, the testing will have to change to reflect these facts. Since V.A. officials admit they were on hold, waiting for D.O>D. to give them the word, let us say "the word is given", and get the ball rolling.

This concludes the first part of my written testimony. The second follows after.

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This begins the second part of my testimony.

## PREPARATION

My battalion received notice of alert on 05/Aug/90, and readied to deploy to Saudi Arabia in support of an airborne unit unknown to us at the time. Being a light infantry support unit, we were able to attach to any unit in the military. We received our P.O.R. (point of release) orders on the following day, and were told we would soon be leaving. In preparation, we were told to find our paperwork regarding shots and personal affairs and bring them.

My unit was told to report to the battalion classroom on 20/aug/90, where we received our P.O.R. briefing, and first shots. As we were herded through the stations, we were told that we were eventually to receive something unusual. Unusual. Well, Considering where we were supposed to be going, to the desert, this announcement did not really surprise us. At Ft. Drum, we are considered cold weather troops, trained specifically in light fighter warfare tactics in arctic climates, with combat skills useful against the soviets as the main study subject. This includes extensive training in their doctrine. I saw signs of this doctrine in the war.

In this round of shots, we received our immune gamma globulin, or "gg" shots, as well as a shot listed as "mgc", which I have found out is a shot for mennigococcal vaccinations. The "gg" shot was injected as fast as was possible, since there were alot of people. This action went against common medical practice and rules. The shot was 5 cc's, and was injected in under a minute. In every medical journal I have read on the subject, there is a clear warning not to exceed 1 cc per minute.

This warning was not heeded on any of us. The effect is a shock to your immune system that would require rest and avoidance of further insults to the immune system to be corrected naturally by the body. considering what was going on at the time, there was no way for this to

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' appen. This was the first damage to our immune systems, which ›quired time for recovery. There were many more in the next few days.

On 12/Sep/90, we were again herded in for shots. As we went through the stations, we received both the anthrax and the botulinum toxoid shots. We were told what we were getting, and told it was secret, for obvious reasons. If saddam knew what we were ready with, he would change tactics, and we would be vulnerable. And, as trained professionals who deal with doctrine and training every day that fits this same category, this was not unusual. We obeyed.

The shots were annotated on the records of those who had them using lot numbers and a name, conn, in the point of origin slot. No other discussion was warranted, or needed at that point. The odd part was the anthrax shots were annotated in the section reserved for the yellow fever shot. Soon after these shots, many of the soldiers in my unit fell ill with flu-like symptoms and aches in the spots where the shots had been ,iven. We prepared for deployment, and finally left on 25/Sep/90. We landed in Frankfurt, Germany, and stayed overnight in a U.S.O. shelter on the edge of the airport, till our flight left for Saudi Arabia the next day.

## MISSION:

Our mission in Saudi Arabia was to assist any units needing support. In our battalion, we had the following companies: 59th Chemical co., 57th Transportation co., 514th Maintenance co., 229th Dustoff, and 511th M.P. We landed in Dharan, and made our way to a temporary site we named after our battalion commander, LTC. Stanley Walker (Camp Walker). We had 2 M88 tracked recovery vehicles, and I was soon attached to one. I was eventually put in charge of it, and, with a crew of 4, set out looking for recovery missions. We also were responsible for the maintenance of the transports the M1A1 tanks went north on, as well as doing repairs on the hydraulic systems on the tanksand the D.U. systems

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In my travels, I went to Rafha, Hafir Al Batin, Logbase Charlie, Port of 'ammam, Al Jubayl, Kafhji, Hofuf, Sarahr, K.F.M.C., and K.K.M.C. As you can see, I and my crew went to quite a few places during our stay.

## 14/JAN/91

On this day, at about 3 p.m., my commander, a captain, came into my tent, and announced that we were to take a new pill, and again, keep it secret. He was followed by our N.B.C. officer, a sergeant. He had a box and a clipboard with him. In the box were packets of the pyridostigmine bromide nerve agetn pretreatment pill. We were all handed a packet, and told to take only one, while the commander stood and watched, and to store the packet in our gas mask carriers. He said he would tell us if we needed another one. He also said this was in preparation for an attack by Saddam in response to the deadline the next day. after the time was up, 'hat did he have to lose by attacking ? Sound thinking at the time.

I sat on my bunk, waiting for some sign of effects, and felt as if i had only been there for about 10 minutes. My driver came up to me and shook my shoulder, asking what was wrong. I said nothing, why ? He answered that I had been sitting in the same position for over an hour, not moving, and he was ready to go on our next mission. This shocked me, since subjectively I had noticed nothing. Since then, I have learned that blackouts were common after taking the pill.

## ALARMS AND ALERTS

During the months of January and February of 1991, the alarms around my camp went off on a constant basis; so much so that our battalion N.B.C. officer instructed our company N.B.C. officer to remove the batteries. This was due to the frustration of having an alarm go off at ? a.m., and after responding, finding either nothing, or nothing that made sense. If we had been fully informed as to the types of agents available to

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addam, I believe that these false-positives would have met more serious oncern, rather than being dismissed.

One of the agents I am refering to is "gf", also known as "cyclosarin". It was found in massive quantities in Iraq by the U.N. (more than 100 tons, some in binary form). This agent will register sometimes on our equipment, yet will not result in a positive detection or confirmation because of it's chemical differences to known agents listed for our troops to look for. It also was found at Kamisiyah, in the 122mm rockets, mixed with sarin in a 2 to 1 ratio. This mixture would confuse our alarms, and confirmation gear to the point of not being accurately detectable, unless one knew to look for it. This is the first in a long line of failures on the part of D.O.D./C.I.A.

Also, for the record, the statements from D.O.D./C.I.A. that they "found the paperwork on Kamisiyah" is false. They were presented the video tape of the chemical bunker's interior and the document from the nternet site at the same time, in Washington D.C. by the President's Advisory Committee, and were told that if they did not release the information, the committee would do it for them. This was before june.

So, the image that is presented by their statements that they found these things and willingly brought them forward is simply not true. I am the person who released the Kamisiyah document, and should know the chain of events. I and Brian Martin of the 37th Engineering Battalion were the reasons this event occurred. I am not saying this to gain credit, as some have tried to do. This is to point out a pattern of deception on the part of D.O.D./C.I.A. While trying to tell the public to believe them, they are being less than honest about their attempts at being forthcoming with evidence of real events. This must stop. Since these admissions became public knowledge, the D.O.D. and V.A. have been handed an obligation to expand their investigations into what is wrong with the veterans, to include chem/bio contaminations. The testing should reflect that. If it does not, one will have to assume that the answer is not wanted, rather than out of reach.

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## CONCLUSION:

In closing, I wish to say this; for the past 5 and a half years, I and other veterans have wanted one thing. Not money. We want for D.O.D. and V.A. to honor the contract they made with the veterans, and to take care of them. Since the V.A. says it is not capable of supporting the large influx of patients, let's try this instead.

When I put on the U.S. Army's uniform, I never received over-time. I was paid a set rate, and that was that. THERE WAS NEVER A FIGHT FOR "FUNDING". If I was needed, I went, and did the job, just as others do. The main excuses given now as to why there is no care given to gulf war veterans is; lack of funding.

Okay; with that in mind, why do we not make use of the facilities at our disposal right now, and use the personnel on them for treating these veterans ? How many military hospitals have empty beds, and staff that sits around, waiting for something to do ? Almost all of the D.O.D. hospitals fit that category. I have seen it, and researched it.

It is a wasted asset, and to prove it can function this way, ask this; what happens when the red cross goes to a military post, and requests a blood drive ? The personnel from the military hospital are sent to take the blood, and to set up the facilities as if to receive casualties. Casualties like the veterans of the gulf war. The system is already in place, and so is the know-how. Make use of what exists, rather than making sure people die simply because these agencies can not tell the truth. Honor the contract. Help save the lives of veterans, spouses, and their children.

Thank you,
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# *FOR IMMEDIATE RELEASE*

## VETERAN'S ORGANIZATIONS APPROACH U.N. FOR HELP WITH HUMAN RIGHTS VIOLATIONS.

FRIDAY, 06/DEC/96

Due to the actions of the Department of Defense, Central Intelligence Agency, and Veteran's affairs, international veterans of the Persian Gulf War have recently petitioned the United Nations to act on their behalf in an effort to stop human rights violations, and to allow these veterans and their families to address the general assembly of the U.N.

This was done on behalf of all coalition veterans. Representing the veteran's organizations "O.D.S.S.A.", "I.A.G.W.S.", AND "GULFWATCH", Vic Sylvester, president of O.D.S.S.A. hand-carried this message of request to the U.N. headquarters in New York, and was filmed by CNN handing the documents to officials in the office of the High Commission for Human Rights/ Center for Human Rights in the lobby of the U.N.

This message was transmitted from the offices in New York to Geneva on wednesday, 4/dec/96 at 10:00a.m. est and is officially in the system for immediate response by the U.N. general assembly.

For details, please contact:
Vic Sylvester, O.D.S.S.A. (915)368-4667
Brian Martin, I.A.G.W.S. (616)684-5903
Jim Brown, "GULFWATCH" (573)248-0406

Mr. SHAYS. Let me figure out how we proceed. This has been 10 minutes now. I'd like Jim Green——

Mr. GREEN. Mine is not very long.

Mr. SHAYS. Yes, we might come back to you, but I would like—you have eight more pages left in your testimony, and you are also doing some ad-libbing as well. So why don't you make your statement.

Mr. GREEN. OK. How are you doing, Mr. Chairman.

My name is James B. Green, formerly of the U.S. Air Force. On or near October 1990, I was placed on an antiterrorist team. We were told that——

Mr. SHAYS. Let me do this. While he is giving his testimony, if you could get your eight pages down to four and just kind of go through what you think would be good.

Yes, Mr. Green.

Mr. GREEN. Sorry about that.

We were told that we were going to Germany and then possibly the Gulf. I was told to get my shots updated for mobility, so I went and was given a shot and a series of little white pills. We went to Germany and stayed at a hotel, waiting to be assigned. It turned out that another group had come before us and we were sent home.

About a week later, I was assigned to Dover, DE. There I guarded planes and work gates to monitor the coming in and out of the base.

When I first got sick, I broke out in rashes that looked like bull's-eyes, and later they turned into pimples what split open whenever I moved. I now have AIDS-like lesions that come and go on my body, and he saw—Mr. Brown here saw—some of them last night. I got out of the military—excuse my speech. My speech gets slurred sometimes.

Mr. SHAYS. You know, your statement is a little shorter, so you can speak slowly. You have a statement, so why don't you take your time.

Mr. GREEN. OK. Excuse my speech; it does get slurred.

Mr. SHAYS. Take your time.

Mr. GREEN. At one point in time, my entire body was covered with this rash. I got out of the military and immediately went to the doctors. After four visits to the VA, I was given some type of medication that helped with the rash, but it kept coming back in different forms. The health care I received in the military was inadequate.

After receiving the shots and the PB pills, I suffered many symptoms. These included severe headaches, muscle soreness, joint pain, stiffness, memory loss, severe mood swings, loss of appetite, loss of mental capability.

My wife and children have been forced to live a life of hell. They don't know how I am going to act from one day to the next or even hour to hour.

I signed up for the VA Health Registry in 1994. I filled out the paperwork. They sent me to the VA hospital for a Desert Storm exam. I received a better exam from my family doctor. The doctor asked what was wrong and asked me to describe the symptoms. I was then sent for a series of blood work and referred to the mental

health clinic for stress-related problems. Seems awful funny to me that my illness is stress related and I was not even in the theatre.

I am scared to go to the VA hospital for treatment. The government thought it was OK to give us poison once. Why wouldn't they do it again? I am referring to the shots and the PB bills. That is what I believe is making me sick with this illness and probably exposure to things coming from overseas.

I've lost excessive amounts of weight. I've lost about 80 pounds. I was 222 when I got out of the military; I am down to 167 pounds now. My life and my family's lives have been complete hell. I have to drink a six-pack of Ensure almost daily to keep at this weight.

I feel that the government should take responsibility for what it has done to us. This disease is obviously not stress related, as they would like us to believe. I am a perfect example. My jobs weren't stress related, and I am experiencing the same symptoms as others.

My theory rests on the inoculations and the PB pills. As everybody knows, the French troops were not given the experimental pills, and not many of them are sick.

In conclusion, I believe that it is the government's duty to help those that are sick, especially those who were also exposed to the chemicals in the Persian Gulf. They are twice as sick. Let them not fight anymore just to find a way to live day to day. Take responsibility. We weren't sick before, and now we are very sick. We're not asking for much, just a chance to live as normal a life as possible under the circumstances.

Thank you, Mr. Chairman.

Mr. SHAYS. Thank you, Mr. Green. Your testimony is interesting in that you never served in the theatre but you basically took the pills, and you didn't take the PB tablets, did you?

Mr. GREEN. Yes, sir, I took the tablets.

Mr. SHAYS. As well as the shots.

Mr. GREEN. And the shots; yes, sir.

Mr. SHAYS. And you learned that you weren't going in about when?

Mr. GREEN. Well, we went to Germany, and they said go to this hotel and wait and you will be assigned where you are going, and we were—like I said, we were there a week, and then they sent us home, and then they sent me to Dover, DE.

Mr. SHAYS. I just want to come back to Mr. Brown in a moment to finish up his four pages, but your health before you went in the service was——

Mr. GREEN. Excellent.

Mr. SHAYS. Mr. Green.

Mr. GREEN. I was in excellent health. I went through 6 weeks of basic training, 6 weeks of tech school, and 6 weeks of combat training.

Before I went in the military, I was in excellent health. Now I am 100 percent disabled. I am just trying to help these Desert Storm—I am 100 percent disabled for my back, neurologic problems in my back.

Mr. SANDERS. Mr. Green, were any of your comrades who also took these pills affected in any kind of negative way?

Mr. GREEN. A lot of people complained about just like being sick, but nobody ever broke out with the skin rashes and stuff like that. I was the only one, for some reason.

Mr. SHAYS. Mr. Brown, let me just say all of your testimony is just very valuable to this committee and tells us a story totally in conflict with the so-called party line of the VA. I mean, all three of you experienced—now you are on total disability.

Mr. GREEN. Yes, sir. It took 5 years to get that, almost 6 years of fighting the VA to get that, and my back was hurting immediately after I got out of the military. So it took 6 years of fighting to get my 100 percent.

Mr. SHAYS. Mr. Brown.

Mr. PAPPAS. Mr. Chairman.

Mr. SHAYS. Yes.

Mr. PAPPAS. I would just ask Mr. Green a question about the pills and shots that you were administered. How soon from the time you were given these pills or shots did you begin——

Mr. GREEN. To tell you the truth, sir, I really can't recall. I mean, if you asked me what happened last Tuesday, I couldn't really tell you. That's how bad my memory is anymore, just disintegrating.

Mr. SHAYS. Would somebody in your family be able to answer that question?

Mr. GREEN. Yes, my wife would, but she's getting—like he said about his wife, my wife is starting to get the same symptoms. My child has swollen lymph nodes on her neck, the skin rash.

Mr. SHAYS. If you are able to get us that answer——

Mr. GREEN. I can definitely have my wife——

Mr. SHAYS. Write down the question. Do you have a pencil there?

Mr. GREEN. Sure.

Mr. SHAYS. The question is, how soon—you took the pills, the shots and the pills—did you become ill, OK?

Mr. GREEN. Yes, sir, I'll get that to you.

[The information referred to was not available at the time of press.]

Mr. SHAYS. Mr. Brown, why don't you finish up. Again, your testimony is very valuable to us, so thank you for condensing what is left.

Mr. BROWN. Yes, sir. As far as my experiences with the VA, the main problem I had with them all the way around is, I got the exact same treatment from them that I did from the Department of Defense: Basically, there's nothing wrong with you, go about your business, and if there is, don't worry about it, we know better.

When I finished up at the VA and had to end up spending my own money, which I didn't happen to have that much of, because I had been put out of the military for speaking out about this, I ended up spending my own money on this, and ended up finding out some answers that I should have gotten from the VA to begin with.

And when I went back and started comparing notes with Medicare papers—and a half, I submitted those to Mr. Newman for the record, my medical records. You can look through these. And compared from 1991, 1992, 1993, 1994, all the way through there, every one of the tests comes out the same.

The only one out of the entire gamut that I got any answers from was a private physician I ended paying money to. There wasn't any treatment they had. They told us, "We can't treat that, you have to go back to the government because they are the ones that messed you up to begin with."

When you look through these papers, there's no way you can reconcile that going back there is going to get me treatment, for him, for him, any of us, unless pressure is put on the VA and DOD. Unless accountability is put on these individuals, I don't see any kind of change coming about.

Like Dr. Murphy and Mr. Kizer here, if they make a misstatement or perjure themselves before the committee, that's something they can have put back on them. There are consequences for these people, as you well know. That's the only way I can see we're going to get any.

DOD is the same way. They know the fat's in the fire and they are about to burn. That's why they came forward with the facts about Khamisiyah. It wasn't somebody in the CIA that was listening to the radio and washing dishes. That wasn't it. A video came forward, the documentation came forward, they were advised of it by the President's Advisory Committee's counsel, Jim Turner, and as of that time when they were advised of the fact that this video and this document fit together, they knew the gig was up. They had to come forward and make their statement first. And that is when June 21st came forward.

Until and unless that gets out of the way, the VA is going to follow in DOD's footsteps. As DOD goes, so do they. Where VA messed me over, there is a contract between DOD, VA, and the veteran. "Honor the contract" is the bottom line. We fulfilled our side of the contract. We're not asking for money. We're not asking for anything but our health back. I had a job to begin with.

Mr. SHAYS. You may not be asking for money, but there is one question, properly diagnose, properly treat, and properly compensate.

Mr. BROWN. Right.

Mr. SHAYS. If you are not able to support your family because of your illness, you might need compensation.

Mr. BROWN. It comes down to that. If I had the option between being treated and put back in the work force, more or less, and being able to be put back to my job, that's it for me, I am done; let me earn my own way. I did before all this other junk started.

That's one of the things I've been after from the get-go. I want these people to put us back where we were, if that's at all possible. The documentation I've seen points in the direction that there is some form, if not a cure, a treatment, that at least can keep us where we are, if not backtrack us some. As Dr. Haley talked about, there is a way. So for VA and DOD to wait until we all die off and there's 20 left and then talk about compensation and treatment, that's not it.

One of things I wanted to submit for testimony also is this list of cancers. There are 2,045 cancers listed on this. This is from the VA data base in Hines, IL, the VMAG there. This lists in fiscal year 1991 through 1995 the amount of cancers that were in the VA

system. We've been told there's only a couple of hundred. This is a couple of thousand.

Mr. SHAYS. Is that of Gulf war veterans?

Mr. BROWN. Yes. It reads at the top, "Persian Gulf War Veterans with neoplasms by diagnosis and age group, fiscal year 1991." It has the diagnostic codes which they have in their system and no one else does, the IDC9ZM codes, "malignant neoplasms of," and then they fill in the blanks. For 1991, there was 51; for 1992, there was 250. Now, this is not in addition, with the 51 incorporated in it. These are 250 that occurred in the fiscal year of 1992.

Mr. SHAYS. I will be happy to have you submit that, and we would ask the VA to respond to it.

Mr. BROWN. Yes, sir. Thank you very much for that. There is no way for VA to say there is no pattern to this illness. There's nothing that makes us stand out from the background of everybody else. We're no different from anyone else. That's ridiculous, and it's got to stop, because people are dying from this.

[The information referred to follows:]

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1991

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| Unknown | Information Missing From Faxed Source Document | 0 | 1 | 1 | 0 | 1 | 3 |
| 1540 | Malignant Neoplasm of Rectosigmoid Junction | 0 | 0 | 1 | 0 | 0 | 1 |
| 1622 | Malignant Neoplasm of Main Bronchus | 0 | 0 | 0 | 1 | 0 | 1 |
| 1625 | Malignant Neoplasm of Lower Lobe, Bronchus or Lung | 0 | 0 | 1 | 0 | 0 | 1 |
| 1628 | Malignant Neoplasm of Other Parts of Bronchus or Lung | 0 | 0 | 0 | 0 | 1 | 1 |
| 1725 | Malignant Melanoma of Kin of Trunk, Except Scrotum | 0 | 1 | 0 | 0 | 0 | 1 |
| 1729 | Melanoma of Skin, Site Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1733 | Other Malig Neoplasm of Skin or Other and Unspecified Parts of Fa | 0 | 0 | 0 | 1 | 0 | 1 |
| 1800 | Malignant Neoplasm of Endocervix | 0 | 1 | 0 | 0 | 0 | 1 |
| 1869 | Malignant Neoplasm of Other and Unspecified Testis | 0 | 1 | 0 | 0 | 0 | 1 |
| 1876 | Malignant Neoplasm of Spermatic Cord | 0 | 1 | 0 | 0 | 0 | 1 |
| 1916 | Malignant Neoplasm of Cerebellum Nos | 1 | 0 | 0 | 0 | 0 | 1 |
| 1917 | Malignant Neoplasm of Brain Stem | 0 | 0 | 1 | 0 | 0 | 1 |
| 1919 | Malignant Neoplasm of Brain, Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1960 | Secondary/Unspecified Malig Neoplasm of Lymph Nodes of Head/Face/ | 1 | 0 | 0 | 0 | 0 | 1 |
| 1961 | Secondary/Unspecified Malig Neoplasm of Intrathoracic Lymph Nodes | 0 | 0 | 0 | 0 | 1 | 1 |
| 1962 | Secondary/Unspecified Malig Neoplasm of Intra-Abdominal Lymph Nod | 0 | 0 | 1 | 0 | 2 | 3 |
| 1963 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Axilla/Upper | 0 | 0 | 2 | 0 | 0 | 2 |
| 1977 | Malignant Neoplasm of Liver, Specified as Secondary | 1 | 1 | 0 | 0 | 0 | 2 |
| 1985 | Secondary Malignant Neoplasm of Bone and Bone Marrow | 0 | 1 | 0 | 0 | 0 | 1 |
| 1988 | Secondary Malignant Neoplasm of Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1991 | Other Malignant Neoplasm of Unspecified Site | 2 | 0 | 1 | 0 | 0 | 3 |
| 20152 | Hodgkin's Disease, Nodular Sclerosis, Intrathoracic Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20191 | Hodgkin's Disease, Unspecified Type, L. Nodes of Head/Face/Neck | 0 | 0 | 1 | 0 | 0 | 1 |
| 20197 | Hodgkin's Disease, Unspecified Type, Involving Spleen | 1 | 0 | 0 | 0 | 0 | 1 |
| 20198 | Hodgkin's Disease, Unspecified Type, Involv L. Nodes of Multiple S | 1 | 0 | 0 | 0 | 0 | 1 |
| 20285 | Other Malignant Lymphomas Involving L. Nodes of Inguinal Reg/Lower | 0 | 0 | 0 | 1 | 0 | 1 |
| 20288 | Other Malignant Lymphomas Involving Lymph Nodes of Multiple Sites | 1 | 0 | 0 | 0 | 0 | 1 |
| 2030 | Multiple Myeloma | 0 | 0 | 0 | 0 | 1 | 1 |
| 2038 | Other Immunoproliferative Neoplasms | 0 | 0 | 1 | 0 | 0 | 1 |
| 2040 | Lymphoid Leukemia, Acute | 1 | 0 | 1 | 0 | 0 | 2 |
| 2051 | Myeloid Leukemia, Chronic | 1 | 1 | 0 | 0 | 0 | 2 |
| 2144 | Lipoma of Spermatic Cord | 0 | 2 | 0 | 1 | 0 | 3 |
| 2148 | Lipoma of Other Specified Sites | 0 | 1 | 1 | 0 | 0 | 2 |
| 2331 | Carcinoma In Situ of Cervix Uteri | 0 | 1 | 0 | 0 | 0 | 1 |
| 2350 | Neoplasm of Uncertain Behavior of Major Salivary Glands | 0 | 0 | 1 | 0 | 0 | 1 |
| 2367 | Neoplasm of Uncertain Behavior of Bladder | 0 | 0 | 0 | 0 | 1 | 1 |
| 2386 | Neoplasm of Uncertain Behavior of Plasma Cells | 0 | 0 | 0 | 1 | 0 | 1 |
| Totals | | 10 | 14 | 15 | 5 | 7 | 51 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1992



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| Unknown | Information Missing From Faxed Source Document | 0 | 4 | 3 | 8 | 2 | 17 |
| 1539 | Malignant Neoplasm of Colon, Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1540 | Malignant Neoplasm of Rectosigmoid Junction | 0 | 0 | 1 | 0 | 0 | 1 |
| 1541 | Malignant Neoplasm of Rectum | 0 | 0 | 1 | 0 | 0 | 1 |
| 1543 | Malignant Neoplasm of Anus, Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1570 | Malignant Neoplasm of Head of Pancreas | 0 | 0 | 1 | 0 | 0 | 1 |
| 1579 | Malignant Neoplasm of Pancreas, Part Unspecified | 0 | 0 | 0 | 0 | 1 | 1 |
| 1622 | Malignant Neoplasm of Main Bronchus | 0 | 0 | 0 | 1 | 1 | 2 |
| 1623 | Malignant Neoplasm of Upper Lobe, Bronchus or Lung | 0 | 1 | 2 | 3 | 1 | 7 |
| 1625 | Malignant Neoplasm of Lower Lobe, Bronchus or Lung | 1 | 0 | 0 | 0 | 1 | 2 |
| 1628 | Malignant Neoplasm of Other Parts of Bronchus or Lung | 0 | 0 | 0 | 0 | 2 | 2 |
| 1629 | Malignant Neoplasm of Bronchus and Lung, Unspecified | 0 | 0 | 1 | 1 | 0 | 2 |
| 1704 | Malignant Neoplasm of Scapula and Long Bones of Upper Limb | 0 | 1 | 0 | 0 | 0 | 1 |
| 1707 | Malignant Neoplasm of Long Bones of Lower Limb | 1 | 1 | 0 | 0 | 0 | 2 |
| 1713 | Malignant Neoplasm of Connective & Oth Soft Tissue of Lower Limb/Hip | 0 | 1 | 0 | 0 | 0 | 1 |
| 1725 | Malignant Melanoma of Skin of Trunk, Except Scrotum | 0 | 0 | 1 | 0 | 0 | 1 |
| 1726 | Malignant Melanoma of Skin of Upper Limb, Including Shoulder | 0 | 0 | 0 | 1 | 0 | 1 |
| 1727 | Malignant Melanoma of Skin of Lower Limb, Including Hip | 1 | 0 | 0 | 0 | 0 | 1 |
| 1728 | Malignant Melanoma of Other Specified Sites of Skin | 0 | 0 | 1 | 0 | 0 | 1 |
| 1730 | Other Malignant Neoplasm of Skin of Lip | 0 | 0 | 1 | 0 | 0 | 1 |
| 1732 | Other Malignant Neoplasm of Skin of Ear & External Auditory Canal | 0 | 0 | 0 | 0 | 1 | 1 |
| 1733 | Other Malig Neoplasm of Skin or Other and Unspecified Parts of Fa | 0 | 0 | 1 | 0 | 1 | 2 |
| 1735 | Other Malignant Neoplasm of Skin of Trunk, Except Scrotum | 0 | 0 | 1 | 0 | 0 | 1 |
| 1745 | Malignant Neoplasm of Lower-Outer Quadrant of Female Breast | 0 | 1 | 0 | 0 | 0 | 1 |
| 1748 | Malignant Neoplasm of Other Specified Sites of Female Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1809 | Malignant Neoplasm of Cervix Uteri, Unspecified | 1 | 1 | 0 | 0 | 0 | 2 |
| 1857 | Malignant Neoplasm of Prostate | 0 | 0 | 0 | 1 | 0 | 1 |
| 1869 | Malignant Neoplasm of Other and Unspecified Testis | 2 | 2 | 2 | 0 | 0 | 6 |
| 1881 | Malignant Neoplasm of Dome of Urinary Bladder | 0 | 0 | 0 | 1 | 0 | 1 |
| 1885 | Malignant Neoplasm of Bladder Neck | 0 | 0 | 0 | 1 | 0 | 1 |
| 1888 | Malignant Neoplasm of Other Specified Sites of Bladder | 0 | 0 | 0 | 1 | 0 | 1 |
| 1890 | Malignant Neoplasm of Kidney, Except Pelvis | 0 | 0 | 1 | 0 | 1 | 2 |
| 1891 | Malignant Neoplasm of Renal Pelvis | 0 | 0 | 1 | 0 | 1 | 2 |
| 1910 | Malignant Neoplasm of Cerebrum, Except Lobes and Ventricles | 1 | 1 | 0 | 0 | 0 | 2 |
| 1911 | Malignant Neoplasm of Frontal Lobe | 0 | 0 | 1 | 0 | 0 | 1 |
| 1913 | Malignant Neoplasm of Parietal Lobe | 2 | 0 | 2 | 0 | 0 | 4 |
| 1915 | Malignant Neoplasm of Ventricles | 1 | 0 | 0 | 0 | 0 | 1 |
| 1917 | Malignant Neoplasm of Brain Stem | 0 | 1 | 1 | 0 | 0 | 2 |
| 1918 | Malignant Neoplasm of Other Parts of Brain | 0 | 1 | 0 | 0 | 0 | 1 |
| 1919 | Malignant Neoplasm of Brain, Unspecified | 0 | 3 | 2 | 0 | 0 | 5 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1992



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1937 | Malignant Neoplasm of Thyroid Gland | 2 | 1 | 0 | 0 | 0 | 3 |
| 1952 | Malignant Neoplasm of Abdomen | 1 | 0 | 0 | 0 | 0 | 1 |
| 1960 | Secondary/Unspecified Malig Neoplasm of Lymph Nodes of Head/Face/ | 0 | 0 | 0 | 1 | 0 | 1 |
| 1961 | Secondary/Unspecified Malig Neoplasm of Intrathoracic Lymph Nodes | 0 | 1 | 1 | 1 | 0 | 3 |
| 1962 | Secondary/Unspecified Malig Neoplasm of Intra-Abdominal Lymph Nod | 0 | 0 | 3 | 0 | 0 | 3 |
| 1963 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Axilla/Upper | 0 | 1 | 1 | 0 | 0 | 2 |
| 1965 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Inguinal/Low | 0 | 0 | 1 | 0 | 0 | 1 |
| 1970 | Secondary Malignant Neoplasm of Lung | 0 | 4 | 2 | 2 | 0 | 8 |
| 1971 | Secondary Malignant Neoplasm of Mediastinum | 0 | 1 | 0 | 1 | 1 | 3 |
| 1972 | Secondary Malignant Neoplasm of Pleura | 0 | 1 | 1 | 1 | 1 | 4 |
| 1974 | Secondary Malignant Neoplasm of Small Intestine Including Duodenu | 0 | 0 | 1 | 0 | 0 | 1 |
| 1976 | Secondary Malignant Neoplasm of Retroperitoneum and Peritoneum | 0 | 0 | 0 | 1 | 0 | 1 |
| 1977 | Malignant Neoplasm of Liver, Specified as Secondary | 1 | 1 | 2 | 2 | 0 | 6 |
| 1987 | Secondary Malignant Neoplasm of Adrenal Gland | 0 | 0 | 1 | 0 | 0 | 1 |
| 19889 | Secondary Malignant Neoplasm of Other Specified Sites | 0 | 1 | 1 | 3 | 1 | 6 |
| 1990 | Disseminated Malignant Neoplasm | 0 | 1 | 0 | 0 | 0 | 1 |
| 1991 | Other Malignant Neoplasm of Unspecified Site | 2 | 0 | 1 | 2 | 1 | 6 |
| 20088 | Oth Varients of Lymphosarcoma/Reticulosarcoma - L. Nodes of Mult Sit | 0 | 2 | 0 | 0 | 0 | 2 |
| 20151 | Hodgkin's Disease, Nodular Sclerosis, L. Nodes Head/Face/Neck | 1 | 0 | 0 | 0 | 0 | 1 |
| 20152 | Hodgkin's Disease, Nodular Sclerosis, Intrathoracic Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20162 | Hodgkin's Disease, Mixed Cellularity, Intrathoracic Lymph Nodes | 1 | 0 | 0 | 0 | 0 | 1 |
| 20190 | Hodgkin's Disease, Unspecified Type, Unspecified Site | 1 | 0 | 0 | 0 | 0 | 1 |
| 20193 | Hodgkin's Disease, Unspecified Type, Intra-Abdominal Lymph Nodes | 1 | 0 | 0 | 0 | 0 | 1 |
| 20280 | Other Malignant Lymphomas, Unspecified Site | 0 | 2 | 0 | 0 | 0 | 2 |
| 20282 | Other Malignant Lymphomas Involving Intrathoracic Lymph Nodes | 0 | 3 | 0 | 0 | 0 | 3 |
| 20284 | Other Malignant Lymphomas Involving L. Nodes of Acilla/Upper Limb | 0 | 1 | 0 | 0 | 0 | 1 |
| 20285 | Other Malignant Lymphomas Involving L. Nodes of Inguinal Reg/Lower | 0 | 0 | 0 | 1 | 0 | 1 |
| 20288 | Other Malignant Lymphomas Involving Lymph Nodes of Multiple Sites | 1 | 0 | 0 | 0 | 0 | 1 |
| 20300 | Multiple Myeloma W/O Mention of Remission | 0 | 1 | 1 | 1 | 2 | 5 |
| 20380 | Other Immunoproliferative Neoplasms W/O Mention of Remission | 0 | 0 | 1 | 0 | 0 | 1 |
| 2040 | Lymphoid Leukemia, Acute | 0 | 0 | 1 | 0 | 0 | 1 |
| 20401 | Acute Lymphoid Leukemia in Remission | 2 | 1 | 0 | 0 | 0 | 3 |
| 20410 | Chronic Lymphoid Leukemia W/O Mention of Remission | 0 | 0 | 1 | 0 | 0 | 1 |
| 20500 | Acute Myeloid Leukemia W/O Mention of Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20501 | Acute Myeloid Leukemia in Remission | 1 | 0 | 0 | 0 | 0 | 1 |
| 20510 | Chronic Myeloid Leukemia W/O Mention of Remission | 0 | 2 | 1 | 1 | 0 | 4 |
| 20800 | Acute Leukemia of Unspecified Cell Type W/O Mention of Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 2108 | Benign Neoplasm of Hypopharynx | 1 | 0 | 0 | 0 | 0 | 1 |
| 2111 | Benign Neoplasm of Stomach | 1 | 0 | 0 | 0 | 0 | 1 |
| 2113 | Benign Neoplasm of Colon | 0 | 1 | 2 | 1 | 0 | 4 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1992



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2114 | Benign Neoplasm of Rectum and Anal Canal | 0 | 0 | 0 | 1 | 0 | 1 |
| 2120 | Benign Neoplasm of Nasal Cavities, Middle Ear, and Accessory Sinu | 0 | 1 | 0 | 0 | 0 | 1 |
| 2121 | Benign Neoplasm of Larynx | 0 | 1 | 0 | 0 | 0 | 1 |
| 2123 | Benign Neoplasm of Bronchus and Lung | 0 | 0 | 0 | 1 | 0 | 1 |
| 2129 | Benign Neoplasm of Respiratory/Intrathoracic Organs, Site Unspecl | 1 | 0 | 0 | 0 | 0 | 1 |
| 2135 | Benign Neoplasm of Short Bones of Upper Limb | 0 | 1 | 0 | 0 | 0 | 1 |
| 2138 | Benign Neoplasm of Short Bones of Lower Limb | 0 | 0 | 0 | 2 | 0 | 2 |
| 2141 | Lipoma of Other Skin and Subcutaneous Tissue | 3 | 4 | 1 | 0 | 0 | 8 |
| 2144 | Lipoma of Spermatic Cord | 5 | 6 | 4 | 0 | 0 | 15 |
| 2148 | Lipoma of Other Specified Sites | 0 | 1 | 1 | 0 | 0 | 2 |
| 2154 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Thorax | 1 | 0 | 0 | 0 | 0 | 1 |
| 2158 | Oth Benign Neoplasm of Connective & Oth Soft Tissue Spec S | 0 | 2 | 0 | 0 | 0 | 2 |
| 2161 | Benign Neoplasm of Eyelid, Including Canthus | 0 | 1 | 0 | 0 | 0 | 1 |
| 2165 | Benign Neoplasm of Skin of Trunk, Except Scrotum | 1 | 0 | 0 | 0 | 0 | 1 |
| 2167 | Benign Neoplasm of Skin of Lower Limb, Including Hip | 1 | 0 | 0 | 0 | 0 | 1 |
| 2177 | Benign Neoplasm of Breast | 0 | 1 | 1 | 0 | 0 | 2 |
| 2182 | Benign Neoplasm of Subserous Leiomyoma of Uterus | 0 | 1 | 0 | 0 | 0 | 1 |
| 2189 | Benign Neoplasm of Leiomyoma of Uterus, Unspecified | 0 | 2 | 2 | 0 | 0 | 4 |
| 2207 | Benign Neoplasm of Ovary | 1 | 0 | 0 | 0 | 0 | 1 |
| 2212 | Benign Neoplasm of Vulva | 0 | 1 | 0 | 0 | 0 | 1 |
| 2252 | Benign Neoplasm of Cerebral Meninges | 0 | 1 | 0 | 0 | 0 | 1 |
| 2267 | Benign Neoplasm of Thyroid Glands | 0 | 0 | 2 | 0 | 0 | 2 |
| 2273 | Benign Neoplasm of Pituitary Gland and Craniopharyngeal Duct | 0 | 2 | 0 | 1 | 0 | 3 |
| 2274 | Benign Neoplasm of Pineal Gland | 0 | 1 | 0 | 0 | 0 | 1 |
| 22801 | Hemangioma of Skin and Subcutaneous Tissue | 1 | 1 | 0 | 0 | 0 | 2 |
| 22802 | Hemangioma of Intracranial Structures | 0 | 0 | 0 | 1 | 0 | 1 |
| 2298 | Benign Neoplasm of Other Specified Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 2331 | Carcinoma In Situ of Cervix Uteri | 1 | 3 | 0 | 0 | 0 | 4 |
| 2351 | Neoplasm of Uncertain Behavior of Lip, Oral Cavity, and Pharynx | 0 | 0 | 0 | 1 | 0 | 1 |
| 2353 | Neoplasm of Uncertain Behavior of Liver and Biliary Passages | 0 | 0 | 0 | 1 | 0 | 1 |
| 2375 | Neoplasm of Uncertain Behavior of Brain and Spinal Cord | 1 | 0 | 0 | 0 | 0 | 1 |
| 2380 | Neoplasm of Uncertain Behavior of Bone and Articular Cartilage | 1 | 1 | 0 | 0 | 0 | 2 |
| 2384 | Polycythemia Vera | 1 | 0 | 0 | 0 | 0 | 1 |
| 2386 | Neoplasm of Uncertain Behavior of Plasma Cells | 0 | 0 | 0 | 1 | 0 | 1 |
| 2387 | Neoplasm of Uncertain Behavior of Oth Lymphatic/Rematopoietic Tis | 0 | 1 | 1 | 0 | 0 | 2 |
| 2396 | Neoplasm of Unspecified Nature of Brain | 0 | 0 | 0 | 2 | 0 | 2 |
| 2398 | Neoplasm of Unspecified Nature of Other Specified Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| Totals | | 44 | 81 | 60 | 47 | 18 | 250 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1993



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| Unknown | Information Missing From Faxed Source Document | 2 | 3 | 5 | 2 | 3 | 15 |
| 1479 | Malignant Neoplasm of Nasopharynx, Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1505 | Malignant Neoplasm of Lower Third of Esophagus | 0 | 1 | 0 | 0 | 0 | 1 |
| 1509 | Malignant Neoplasm of Esophagus, Unspecified | 0 | 0 | 0 | 1 | 0 | 1 |
| 1519 | Malignant Neoplasm of Stomach, Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1522 | Malignant Neoplasm of Ileum | 0 | 0 | 1 | 0 | 0 | 1 |
| 1532 | Malignant Neoplasm of Descending Colon | 0 | 1 | 0 | 0 | 0 | 1 |
| 1533 | Malignant Neoplasm of Sigmoid Colon | 0 | 0 | 1 | 0 | 0 | 1 |
| 1539 | Malignant Neoplasm of Colon, Unspecified | 0 | 0 | 2 | 0 | 0 | 2 |
| 1540 | Malignant Neoplasm of Rectosigmoid Junction | 0 | 1 | 1 | 0 | 0 | 2 |
| 1541 | Malignant Neoplasm of Rectum | 0 | 0 | 2 | 0 | 1 | 3 |
| 1550 | Malignant Neoplasm of Liver, Primary | 1 | 1 | 0 | 0 | 0 | 2 |
| 1552 | Malignant Neoplasm of Liver, Not Specified as Primary or Secondar | 0 | 0 | 1 | 0 | 0 | 1 |
| 1570 | Malignant Neoplasm of Head of Pancreas | 0 | 0 | 1 | 0 | 0 | 1 |
| 1572 | Malignant Neoplasm of Tail of Pancreas | 0 | 1 | 0 | 0 | 0 | 1 |
| 1579 | Malignant Neoplasm of Pancreas, Part Unspecified | 0 | 0 | 1 | 1 | 0 | 2 |
| 1589 | Malignant Neoplasm of Peritoneum, Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1610 | Malignant Neoplasm of Glottis | 1 | 0 | 0 | 0 | 0 | 1 |
| 1623 | Malignant Neoplasm of Upper Lobe, Bronchus or Lung | 0 | 0 | 3 | 2 | 0 | 5 |
| 1624 | Malignant Neoplasm of Middle Lobe, Bronchus or Lung | 0 | 0 | 0 | 1 | 0 | 1 |
| 1625 | Malignant Neoplasm of Lower Lobe, Bronchus or Lung | 0 | 1 | 0 | 0 | 0 | 1 |
| 1628 | Malignant Neoplasm of Other Parts of Bronchus or Lung | 0 | 0 | 0 | 0 | 1 | 1 |
| 1629 | Malignant Neoplasm of Bronchus and Lung, Unspecified | 0 | 0 | 2 | 2 | 0 | 4 |
| 1642 | Malignant Neoplasm of Anterior Mediastinum | 0 | 0 | 0 | 1 | 0 | 1 |
| 1703 | Malignant Neoplasm of Ribs, Sternum, and Clavicle | 0 | 1 | 0 | 0 | 0 | 1 |
| 1704 | Malignant Neoplasm of Scapula and Long Bones of Upper Limb | 0 | 1 | 1 | 0 | 0 | 2 |
| 1707 | Malignant Neoplasm of Long Bones of Lower Limb | 1 | 0 | 0 | 0 | 0 | 1 |
| 1710 | Malig Neoplasm of Connective & Other Soft Tissue of Head/Face/Nec | 1 | 0 | 0 | 0 | 0 | 1 |
| 1717 | Malig Neoplasm of Connective & Oth Soft Tissue of Trunk, Unspecif | 1 | 0 | 0 | 0 | 0 | 1 |
| 1723 | Malignant Melanoma of Skin of Other & Unspecified Parts of Face | 0 | 1 | 0 | 0 | 0 | 1 |
| 1727 | Malignant Melanoma of Skin of Lower Limb, Including Hip | 0 | 0 | 0 | 1 | 0 | 1 |
| 1729 | Melanoma of Skin, Site Unspecified | 0 | 0 | 0 | 1 | 0 | 1 |
| 1730 | Other Malignant Neoplasm of Skin of Lip | 0 | 0 | 0 | 1 | 0 | 1 |
| 1731 | Other Malignant Neoplasm of Skin of Eyelid, Including Canthus | 0 | 0 | 1 | 0 | 0 | 1 |
| 1732 | Other Malignant Neoplasm of Skin of Ear & External Auditory Canal | 0 | 0 | 0 | 1 | 0 | 1 |
| 1733 | Other Malig Neoplasm of Skin or Other and Unspecified Parts of Fa | 0 | 1 | 0 | 0 | 0 | 1 |
| 1735 | Other Malignant Neoplasm of Skin of Trunk, Except Scrotum | 0 | 1 | 0 | 0 | 0 | 1 |
| 1736 | Other Malignant Neoplasm of Skin of Upper Limb, Including Shoulde | 0 | 0 | 0 | 1 | 0 | 1 |
| 1737 | Other Malignant Neoplasm of Skin of Lower Limb, Including Hip | 0 | 2 | 0 | 0 | 0 | 2 |
| 1738 | Other Malignant Neoplasm of Other Specified Sites of Skin | 0 | 1 | 0 | 0 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1739 | Other Malignant Neoplasm of Skin, Site Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1746 | Malignant Neoplasm of Axillary Tail of Female Breast | 0 | 1 | 0 | 0 | 0 | 1 |
| 1749 | Malignant Neoplasm of Breast (Female), Unspecified | 1 | 0 | 1 | 0 | 0 | 2 |
| 1750 | Malignant Neoplasm of Nipple and Areola of Male Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1760 | Kaposi's Sarcoma, Skin | 0 | 1 | 0 | 0 | 0 | 1 |
| 1761 | Kaposi's Sarcoma, Soft Tissue | 0 | 0 | 1 | 0 | 0 | 1 |
| 1768 | Kaposi's Sarcoma, Other Specified Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 1800 | Malignant Neoplasm of Endocervix | 0 | 0 | 0 | 1 | 0 | 1 |
| 1857 | Malignant Neoplasm of Prostate | 0 | 0 | 0 | 2 | 0 | 2 |
| 1860 | Malignant Neoplasm of Undescended Testis | 0 | 1 | 0 | 0 | 0 | 1 |
| 1869 | Malignant Neoplasm of Other and Unspecified Testis | 6 | 9 | 1 | 0 | 0 | 16 |
| 1881 | Malignant Neoplasm of Dome of Urinary Bladder | 0 | 0 | 0 | 1 | 0 | 1 |
| 1901 | Malignant Neoplasm of Orbit | 0 | 1 | 0 | 0 | 0 | 1 |
| 1910 | Malignant Neoplasm of Cerebrum, Except Lobes and Ventricles | 0 | 2 | 1 | 0 | 0 | 3 |
| 1911 | Malignant Neoplasm of Frontal Lobe | 0 | 0 | 1 | 0 | 1 | 2 |
| 1912 | Malignant Neoplasm of Temporal Lobe | 0 | 0 | 2 | 0 | 0 | 2 |
| 1913 | Malignant Neoplasm of Parietal Lobe | 1 | 2 | 0 | 0 | 0 | 3 |
| 1914 | Malignant Neoplasm of Occipital Lobe | 0 | 1 | 0 | 0 | 0 | 1 |
| 1915 | Malignant Neoplasm of Ventricles | 0 | 0 | 1 | 0 | 0 | 1 |
| 1918 | Malignant Neoplasm of Other Parts of Brain | 0 | 1 | 0 | 0 | 0 | 1 |
| 1919 | Malignant Neoplasm of Brain, Unspecified | 0 | 1 | 4 | 1 | 0 | 6 |
| 1922 | Malignant Neoplasm of Spinal Cord | 0 | 0 | 0 | 1 | 0 | 1 |
| 1937 | Malignant Neoplasm of Thyroid Gland | 1 | 1 | 2 | 0 | 0 | 4 |
| 1941 | Malignant Neoplasm of Parathyroid Gland | 0 | 1 | 0 | 0 | 0 | 1 |
| 1943 | Malignant Neoplasm of Pituitary Gland and Craniopharyngeal Duct | 1 | 0 | 0 | 0 | 0 | 1 |
| 1951 | Malignant Neoplasm of Thorax | 0 | 0 | 1 | 0 | 0 | 1 |
| 1952 | Malignant Neoplasm of Abdomen | 1 | 0 | 0 | 0 | 0 | 1 |
| 1960 | Secondary/Unspecified Malig Neoplasm of Lymph Nodes of Head/Face/ | 0 | 1 | 2 | 0 | 0 | 3 |
| 1961 | Secondary/Unspecified Malig Neoplasm of Intrathoracic Lymph Nodes | 0 | 0 | 1 | 1 | 0 | 2 |
| 1962 | Secondary/Unspecified Malig Neoplasm of Intra-Abdominal Lymph Nod | 0 | 1 | 0 | 0 | 0 | 1 |
| 1963 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Axilla/Upper | 0 | 1 | 2 | 0 | 1 | 4 |
| 1970 | Secondary Malignant Neoplasm of Lung | 4 | 2 | 4 | 1 | 1 | 12 |
| 1972 | Secondary Malignant Neoplasm of Pleura | 0 | 0 | 1 | 1 | 0 | 2 |
| 1973 | Secondary Malignant Neoplasm of Other Respiratory Organs | 1 | 0 | 0 | 0 | 0 | 1 |
| 1975 | Secondary Malignant Neoplasm of Large Intestine and Rectum | 1 | 0 | 0 | 0 | 0 | 1 |
| 1976 | Secondary Malignant Neoplasm of Retroperitoneum and Peritoneum | 1 | 0 | 1 | 0 | 0 | 2 |
| 1977 | Malignant Neoplasm of Liver, Specified as Secondary | 3 | 3 | 3 | 4 | 1 | 14 |
| 1978 | Secondary Malignant Neoplasm of Other Digestive Organs and Spleen | 1 | 1 | 1 | 1 | 0 | 4 |
| 1980 | Secondary Malignant Neoplasm of Kidney | 0 | 1 | 1 | 1 | 0 | 3 |
| 1981 | Secondary Malignant Neoplasm of Other Urinary Organs | 0 | 1 | 0 | 0 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1982 | Secondary Malignant Neoplasm of Skin | 0 | 0 | 1 | 0 | 0 | 1 |
| 1983 | Secondary Malignant Neoplasm of Brain and Spinal Cord | 2 | 3 | 1 | 5 | 1 | 12 |
| 1984 | Secondary Malignant Neoplasm of Other Parts of Nervous System | 1 | 0 | 0 | 0 | 0 | 1 |
| 1985 | Secondary Malignant Neoplasm of Bone and Bone Marrow | 2 | 2 | 2 | 7 | 2 | 15 |
| 1987 | Secondary Malignant Neoplasm of Adrenal Gland | 0 | 0 | 0 | 1 | 0 | 1 |
| 19882 | Secondary Malignant Neoplasm of Genital Organs | 0 | 2 | 0 | 0 | 0 | 2 |
| 19889 | Secondary Malignant Neoplasm of Other Specified Sites | 1 | 2 | 5 | 2 | 0 | 10 |
| 1990 | Disseminated Malignant Neoplasm | 2 | 0 | 2 | 0 | 0 | 4 |
| 1991 | Other Malignant Neoplasm of Unspecified Site | 1 | 1 | 1 | 1 | 1 | 5 |
| 20001 | Reticulosarcoma Involving Lymph Nodes of Head, Face, and Neck | 0 | 0 | 1 | 0 | 0 | 1 |
| 20018 | Lymphosarcoma Involving Lymph Nodes of Multiple Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 20021 | Burkitt's Tumor or Lymphoma Involving Lymph Nodes of Head/Face/Ne | 1 | 0 | 0 | 0 | 0 | 1 |
| 20151 | Hodgkin's Disease, Nodular Sclerosis, L. Nodes Head/Face/Neck | 0 | 1 | 0 | 0 | 0 | 1 |
| 20152 | Hodgkin's Disease, Nodular Sclerosis, Intrathoracic Lymph Nodes | 1 | 1 | 0 | 0 | 0 | 2 |
| 20161 | Hodgkin's Disease, Mixed Cellularity, L. Nodes of Head/Face/Neck | 1 | 0 | 0 | 0 | 0 | 1 |
| 20162 | Hodgkin's Disease, Mixed Cellularity, Intrathoracic Lymph Nodes | 1 | 0 | 0 | 0 | 0 | 1 |
| 20164 | Hodgkin's Disease, Mixed Cellularity, L. Nodes of Axilla/Upper Lim | 0 | 0 | 1 | 0 | 0 | 1 |
| 20190 | Hodgkin's Disease, Unspecified Type, Unspecified Site | 2 | 1 | 1 | 0 | 0 | 4 |
| 20198 | Hodgkin's Disease, Unspecified Type, Involv L. Nodes of Multiple S | 1 | 1 | 1 | 0 | 0 | 3 |
| 20280 | Other Malignant Lymphomas, Unspecified Site | 0 | 2 | 1 | 0 | 0 | 3 |
| 20281 | Other Malignant Lymphomas Involving Lymph Nodes of Head, Face, & | 0 | 0 | 1 | 0 | 0 | 1 |
| 20282 | Other Malignant Lymphomas Involving Intrathoracic Lymph Nodes | 1 | 0 | 0 | 0 | 0 | 1 |
| 20283 | Other Malignant Lymphomas Involving Intra-Abdominal Lymph Nodes | 0 | 0 | 1 | 0 | 0 | 1 |
| 20400 | Acute Lymphoid Leukemia W/O Mention of Remission | 3 | 2 | 1 | 0 | 0 | 6 |
| 20401 | Acute Lymphoid Leukemia in Remission | 1 | 0 | 0 | 0 | 0 | 1 |
| 20410 | Chronic Lymphoid Leukemia W/O Mention of Remission | 1 | 0 | 0 | 0 | 0 | 1 |
| 20480 | Other Lymphoid Leukemia W/O Mention of Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20500 | Acute Myeloid Leukemia W/O Mention of Remission | 3 | 0 | 1 | 0 | 0 | 4 |
| 20510 | Chronic Myeloid Leukemia W/O Mention of Remission | 2 | 4 | 1 | 0 | 0 | 7 |
| 20511 | Chronic Myeloid Leukemia In Remission | 1 | 0 | 0 | 0 | 0 | 1 |
| 20890 | Unspecified Leukemia W/O Mention of Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 2102 | Benign Neoplasm of Major Salivary Glands | 0 | 0 | 2 | 0 | 0 | 2 |
| 2111 | Benign Neoplasm of Stomach | 0 | 1 | 0 | 0 | 0 | 1 |
| 2112 | Benign Neoplasm of Duodenum, Jejunum, and Ileum | 1 | 0 | 0 | 0 | 0 | 1 |
| 2113 | Benign Neoplasm of Colon | 1 | 4 | 3 | 8 | 0 | 16 |
| 2114 | Benign Neoplasm of Rectum and Anal Canal | 0 | 1 | 1 | 0 | 0 | 2 |
| 2121 | Benign Neoplasm of Larynx | 0 | 1 | 0 | 0 | 0 | 1 |
| 2123 | Benign Neoplasm of Bronchus and Lung | 1 | 0 | 0 | 0 | 0 | 1 |
| 2126 | Benign Neoplasm of Thymus | 0 | 0 | 1 | 0 | 0 | 1 |
| 2130 | Benign Neoplasm of Bones of Skull and Face | 0 | 0 | 2 | 1 | 0 | 3 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2131 | Benign Neoplasm of Lower Jaw Bone | 2 | 0 | 0 | 0 | 0 | 2 |
| 2132 | Benign Neoplasm of Vertebral Column, Excluding Sacrum and Coccyx | 0 | 0 | 1 | 0 | 0 | 1 |
| 2133 | Benign Neoplasm of Ribs, Sternum, and Clavicle | 1 | 0 | 0 | 0 | 0 | 1 |
| 2135 | Benign Neoplasm of Short Bones of Upper Limb | 0 | 0 | 0 | 1 | 0 | 1 |
| 2136 | Benign Neoplasm of Pelvic Bones, Sacrum, and Coccyx | 0 | 2 | 0 | 0 | 0 | 2 |
| 2137 | Benign Neoplasm of Long Bones of Lower Limb | 2 | 2 | 0 | 0 | 0 | 4 |
| 2138 | Benign Neoplasm of Short Bones of Lower Limb | 0 | 2 | 0 | 0 | 0 | 2 |
| 2141 | Lipoma of Other Skin and Subcutaneous Tissue | 3 | 4 | 3 | 0 | 0 | 10 |
| 2142 | Lipoma of Intrathoracic Organs | 0 | 1 | 0 | 0 | 0 | 1 |
| 2143 | Lipoma of Intra-Abdominal Organs | 1 | 0 | 1 | 0 | 0 | 2 |
| 2144 | Lipoma of Spermatic Cord | 11 | 7 | 2 | 0 | 0 | 20 |
| 2148 | Lipoma of Other Specified Sites | 1 | 3 | 1 | 0 | 1 | 6 |
| 2149 | Lipoma, Unspecified Sites | 0 | 0 | 1 | 1 | 0 | 2 |
| 2152 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Upper Limb/S | 1 | 1 | 0 | 1 | 0 | 3 |
| 2153 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Lower Limb/H | 0 | 1 | 0 | 0 | 0 | 1 |
| 2161 | Benign Neoplasm of Eyelid, Including Canthus | 1 | 1 | 0 | 0 | 0 | 2 |
| 2162 | Benign Neoplasm of Ear and External Auditory Canal | 1 | 0 | 0 | 0 | 0 | 1 |
| 2163 | Benign Neoplasm of Skin of Other and Unspecified Parts of Face | 0 | 1 | 2 | 0 | 0 | 3 |
| 2164 | Benign Neoplasm of Scalp and Skin of Neck | 0 | 1 | 0 | 0 | 0 | 1 |
| 2165 | Benign Neoplasm of Skin of Trunk, Except Scrotum | 2 | 4 | 1 | 0 | 0 | 7 |
| 2166 | Benign Neoplasm of Skin of Upper Limb, Including Shoulder | 0 | 1 | 0 | 0 | 0 | 1 |
| 2167 | Benign Neoplasm of Skin of Lower Limb, Including Hip | 0 | 0 | 1 | 0 | 0 | 1 |
| 2169 | Benign Neoplasm of Skin, Site Unspecified | 0 | 1 | 2 | 0 | 0 | 3 |
| 2177 | Benign Neoplasm of Breast | 3 | 2 | 2 | 1 | 0 | 8 |
| 2181 | Benign Neoplasm of Intramural Leiomyoma of Uterus | 0 | 1 | 2 | 0 | 0 | 3 |
| 2189 | Benign Neoplasm of Leiomyoma of Uterus, Unspecified | 1 | 3 | 9 | 0 | 0 | 13 |
| 2198 | Benign Neoplasm of Other Specified Parts of Uterus | 0 | 1 | 0 | 0 | 0 | 1 |
| 2207 | Benign Neoplasm of Ovary | 0 | 2 | 0 | 0 | 0 | 2 |
| 2212 | Benign Neoplasm of Vulva | 0 | 1 | 0 | 0 | 0 | 1 |
| 2250 | Benign Neoplasm of Brain | 1 | 0 | 0 | 0 | 0 | 1 |
| 2251 | Benign Neoplasm of Cranial Nerves | 0 | 1 | 0 | 0 | 0 | 1 |
| 2252 | Benign Neoplasm of Cerebral Meninges | 0 | 0 | 2 | 0 | 0 | 2 |
| 2267 | Benign Neoplasm of Thyroid Glands | 0 | 0 | 1 | 1 | 0 | 2 |
| 2271 | Benign Neoplasm of Parathyroid Gland | 0 | 0 | 0 | 0 | 1 | 1 |
| 22802 | Hemangioma of Intracranial Structures | 0 | 1 | 0 | 0 | 0 | 1 |
| 22804 | Hemangioma of Intra-Abdominal Structures | 1 | 0 | 0 | 0 | 0 | 1 |
| 2298 | Benign Neoplasm of Other Specified Sites | 2 | 1 | 0 | 0 | 0 | 3 |
| 2330 | Carcinoma In Situ of Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 2331 | Carcinoma In Situ of Cervix Uteri | 3 | 1 | 0 | 0 | 0 | 4 |
| 2348 | Carcinoma In Situ of Other Specified Sites | 1 | 0 | 0 | 0 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2355 | Neoplasm of Uncertain Behavior of Other/Unspecified Digestive Org | 0 | 1 | 0 | 0 | 0 | 1 |
| 2357 | Neoplasm of Uncertain Behavior of Trachea, Bronchus, and Lung | 1 | 1 | 0 | 0 | 0 | 2 |
| 2359 | Neoplasm of Uncertain Behavior of Other/Unspecified Respiratory O | 1 | 0 | 0 | 0 | 0 | 1 |
| 2360 | Neoplasm of Uncertain Behavior of Uterus | 0 | 0 | 1 | 0 | 0 | 1 |
| 2363 | Neoplasm of Uncertain Behavior of Other/Unspec Female Genital Org | 0 | 1 | 0 | 0 | 0 | 1 |
| 2372 | Neoplasm of Uncertain Behavior of Adrenal Gland | 0 | 0 | 1 | 0 | 0 | 1 |
| 2374 | Neoplasm of Uncertain Behavior of Other/Unspecified Endocrine Gla | 0 | 1 | 0 | 0 | 0 | 1 |
| 2375 | Neoplasm of Uncertain Behavior of Brain and Spinal Cord | 2 | 2 | 0 | 0 | 0 | 4 |
| 23770 | Neurofibromatosis Unspecified | 0 | 1 | 1 | 0 | 0 | 2 |
| 23771 | Neurofibromatosis Type I (Von Recklinghausen's Disease) | 1 | 0 | 0 | 0 | 0 | 1 |
| 23772 | Neurofibromatosis Type II (Acoustic Neurofibromatosis) | 1 | 0 | 0 | 0 | 0 | 1 |
| 2380 | Neoplasm of Uncertain Behavior of Bone and Articular Cartilage | 1 | 2 | 0 | 1 | 0 | 4 |
| 2381 | Neoplasm of Uncertain Behavior of Connective and Other Soft Tissu | 0 | 1 | 1 | 0 | 0 | 2 |
| 2383 | Neoplasm of Uncertain Behavior of Breast | 0 | 1 | 1 | 0 | 0 | 2 |
| 2384 | Polycythemia Vera | 0 | 0 | 1 | 1 | 0 | 2 |
| 2388 | Neoplasm of Uncertain Behavior of Other Specified Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 2391 | Neoplasm of Uncertain Behavior of Respiratory System | 0 | 0 | 1 | 0 | 0 | 1 |
| 2392 | Neoplasm of Unspecified Nature of Bone, Soft Tissue, and Skin | 1 | 0 | 0 | 0 | 0 | 1 |
| 2393 | Neoplasm of Unspecified Nature of Breast | 1 | 0 | 0 | 0 | 0 | 1 |
| 2397 | Neoplasm of Unspecified Nature of Endocrine Glands/Oth Parts Nerv | 1 | 0 | 0 | 0 | 0 | 1 |
| Totals | | 108 | 142 | 127 | 62 | 15 | 454 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1994



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| Unknown | Information Missing From Faxed Source Document | 12 | 16 | 3 | 4 | 2 | 37 |
| 1449 | Malignant Neoplasm of Floor of Mouth, Part Unspecified | 0 | 0 | 0 | 0 | 1 | 1 |
| 1460 | Malignant Neoplasm of Tonsil | 0 | 0 | 0 | 1 | 0 | 1 |
| 1500 | Malignant Neoplasm of Cervical Esophagus | 0 | 1 | 0 | 0 | 0 | 1 |
| 1503 | Malignant Neoplasm of Upper Third of Esophagus | 0 | 0 | 1 | 0 | 0 | 1 |
| 1510 | Malignant Neoplasm of Cardia | 0 | 0 | 0 | 1 | 0 | 1 |
| 1519 | Malignant Neoplasm of Stomach, Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1522 | Malignant Neoplasm of Ileum | 0 | 0 | 0 | 1 | 0 | 1 |
| 1531 | Malignant Neoplasm of Transverse Colon | 0 | 0 | 1 | 0 | 0 | 1 |
| 1536 | Malignant Neoplasm of Ascending Colon | 0 | 0 | 0 | 1 | 0 | 1 |
| 1539 | Malignant Neoplasm of Colon, Unspecified | 0 | 2 | 0 | 2 | 0 | 4 |
| 1540 | Malignant Neoplasm of Rectosigmoid Junction | 0 | 0 | 3 | 2 | 0 | 5 |
| 1541 | Malignant Neoplasm of Rectum | 0 | 1 | 0 | 0 | 0 | 1 |
| 1543 | Malignant Neoplasm of Anus, Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1550 | Malignant Neoplasm of Liver, Primary | 1 | 0 | 0 | 0 | 0 | 1 |
| 1570 | Malignant Neoplasm of Head of Pancreas | 0 | 0 | 1 | 0 | 0 | 1 |
| 1574 | Malignant Neoplasm of Islets of Langerhans | 0 | 0 | 0 | 1 | 0 | 1 |
| 1579 | Malignant Neoplasm of Pancreas, Part Unspecified | 0 | 1 | 1 | 0 | 0 | 2 |
| 1611 | Malignant Neoplasm of Supraglottis | 0 | 0 | 0 | 1 | 1 | 2 |
| 1619 | Malignant Neoplasm of Larynx, Unspecified | 0 | 0 | 0 | 1 | 0 | 1 |
| 1623 | Malignant Neoplasm of Upper Lobe, Bronchus or Lung | 0 | 0 | 1 | 4 | 1 | 6 |
| 1625 | Malignant Neoplasm of Lower Lobe, Bronchus or Lung | 0 | 0 | 1 | 1 | 0 | 2 |
| 1629 | Malignant Neoplasm of Bronchus and Lung, Unspecified | 0 | 2 | 4 | 3 | 2 | 11 |
| 1639 | Malignant Neoplasm of Pleura, Unspecified | 0 | 0 | 0 | 0 | 1 | 1 |
| 1642 | Malignant Neoplasm of Anterior Mediastinum | 0 | 0 | 0 | 1 | 0 | 1 |
| 1702 | Malig Neoplasm of Vertebral Column, Excluding Sacrum and Coccyx | 1 | 0 | 0 | 0 | 0 | 1 |
| 1703 | Malignant Neoplasm of Ribs, Sternum, and Clavicle | 0 | 1 | 0 | 0 | 0 | 1 |
| 1704 | Malignant Neoplasm of Scapula and Long Bones of Upper Limb | 0 | 0 | 0 | 1 | 0 | 1 |
| 1706 | Malignant Neoplasm of Pelvic Bones, Sacrum, and Coccyx | 1 | 1 | 0 | 0 | 0 | 2 |
| 1712 | Malig Neoplasm of Connective & Other Soft Tissue of Upper Limb/SHOU | 0 | 2 | 0 | 0 | 0 | 2 |
| 1713 | Malig Neoplasm of Connective & Oth Soft Tissue of Lower Limb/Hip | 0 | 1 | 0 | 0 | 0 | 1 |
| 1715 | Malig Neoplasm of Connective & Oth Soft Tissue of Abdomen | 0 | 1 | 0 | 0 | 0 | 1 |
| 1719 | Malig Neoplasm of Connective & Oth Soft Tissue, Site Unspecified | 0 | 0 | 0 | 1 | 0 | 1 |
| 1722 | Malignant Melanoma of Skin of Ear and External Auditory Canal | 0 | 0 | 1 | 0 | 0 | 1 |
| 1725 | Malignant Melanoma of Skin of Trunk, Except Scrotum | 1 | 2 | 2 | 0 | 1 | 6 |
| 1726 | Malignant Melanoma of Skin of Upper Limb, Including Shoulder | 0 | 0 | 0 | 1 | 0 | 1 |
| 1728 | Malignant Melanoma of Skin of Other Specified Sites of Skin | 0 | 1 | 0 | 0 | 1 | 2 |
| 1729 | Melanoma of Skin, Site Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1733 | Other Malig Neoplasm of Skin or Other and Unspecified Parts of Fa | 0 | 0 | 1 | 0 | 0 | 1 |
| 1734 | Other Malignant Neoplasm of Scalp and Skin of Neck | 0 | 0 | 1 | 0 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1735 | Other Malignant Neoplasm of Skin of Trunk, Except Scrotum | 1 | 0 | 1 | 0 | 0 | 2 |
| 1736 | Other Malignant Neoplasm of Skin of Upper Limb, Including Shoulde | 0 | 0 | 1 | 0 | 0 | 1 |
| 1737 | Other Malignant Neoplasm of Skin of Lower Limb, Including Hip | 0 | 1 | 0 | 0 | 0 | 1 |
| 1744 | Malignant Neoplasm of Upper-Outer Quadrant of Female Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1748 | Malignant Neoplasm of Other Specified Sites of Female Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1749 | Malignant Neoplasm of Breast (Female), Unspecified | 0 | 1 | 1 | 0 | 0 | 2 |
| 1760 | Kaposi's Sarcoma, Skin | 0 | 2 | 1 | 0 | 0 | 3 |
| 1763 | Kaposi's Sarcoma, Gastrointestinal Sites | 0 | 1 | 0 | 1 | 0 | 2 |
| 1765 | Kaposi's Sarcoma, Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 1768 | Kaposi's Sarcoma, Other Specified Sites | 0 | 2 | 0 | 0 | 0 | 2 |
| 1769 | Kaposi's Sarcoma, Unspecified | 0 | 4 | 0 | 0 | 0 | 4 |
| 1797 | Malignant Neoplasm of Uterus, Part Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1809 | Malignant Neoplasm of Cervix Uteri, Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1885 | Malignant Neoplasm of Bladder Neck | 0 | 0 | 0 | 1 | 0 | 1 |
| 1888 | Malignant Neoplasm of Other Specified Sites of Bladder | 0 | 1 | 1 | 0 | 0 | 2 |
| 1889 | Malignant Neoplasm of Bladder, Part Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1890 | Malignant Neoplasm of Kidney, Except Pelvis | 1 | 1 | 1 | 0 | 0 | 3 |
| 1910 | Malignant Neoplasm of Cerebrum, Except Lobes and Ventricles | 0 | 1 | 1 | 0 | 0 | 2 |
| 1911 | Malignant Neoplasm of Frontal Lobe | 0 | 1 | 7 | 1 | 0 | 9 |
| 1912 | Malignant Neoplasm of Temporal Lobe | 0 | 1 | 1 | 0 | 0 | 2 |
| 1913 | Malignant Neoplasm of Parietal Lobe | 0 | 0 | 1 | 0 | 1 | 2 |
| 1914 | Malignant Neoplasm of Occipital Lobe | 0 | 1 | 0 | 0 | 0 | 1 |
| 1916 | Malignant Neoplasm of Cerebellum Nos | 0 | 1 | 0 | 0 | 0 | 1 |
| 1918 | Malignant Neoplasm of Other Parts of Brain | 0 | 1 | 1 | 0 | 0 | 2 |
| 1919 | Malignant Neoplasm of Brain, Unspecified | 1 | 2 | 3 | 0 | 0 | 6 |
| 1921 | Malignant Neoplasm of Cerebral Meninges | 0 | 0 | 0 | 0 | 1 | 1 |
| 1922 | Malignant Neoplasm of Spinal Cord | 1 | 0 | 1 | 0 | 0 | 2 |
| 1937 | Malignant Neoplasm of Thyroid Gland | 4 | 3 | 3 | 2 | 0 | 12 |
| 1943 | Malignant Neoplasm of Pituitary Gland and Craniopharyngeal Duct | 2 | 0 | 0 | 0 | 0 | 2 |
| 1950 | Malignant Neoplasm of Head, Face, and Neck | 0 | 0 | 0 | 1 | 0 | 1 |
| 1952 | Malignant Neoplasm of Abdomen | 0 | 1 | 0 | 0 | 0 | 1 |
| 1955 | Malignant Neoplasm of Lower Limb | 0 | 0 | 1 | 0 | 0 | 1 |
| 1960 | Secondary/Unspecified Malig Neoplasm of Lymph Nodes of Head/Face/ | 0 | 2 | 0 | 0 | 1 | 3 |
| 1961 | Secondary/Unspecified Malig Neoplasm of Intrathoracic Lymph Nodes | 1 | 1 | 0 | 0 | 0 | 2 |
| 1962 | Secondary/Unspecified Malig Neoplasm of Intra-Abdominal Lymph Nod | 1 | 3 | 1 | 1 | 0 | 6 |
| 1965 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Inguinal/Low | 0 | 1 | 0 | 0 | 0 | 1 |
| 1968 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Multiple Site | 0 | 0 | 0 | 1 | 0 | 1 |
| 1970 | Secondary Malignant Neoplasm of Lung | 2 | 10 | 1 | 4 | 1 | 18 |
| 1971 | Secondary Malignant Neoplasm of Mediastinum | 0 | 1 | 0 | 0 | 0 | 1 |
| 1972 | Secondary Malignant Neoplasm of Pleura | 0 | 1 | 0 | 0 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1975 | Secondary Malignant Neoplasm of Large Intestine and Rectum | 2 | 1 | 0 | 0 | 0 | 3 |
| 1976 | Secondary Malignant Neoplasm of Retroperitoneum and Peritoneum | 1 | 2 | 0 | 1 | 0 | 4 |
| 1977 | Malignant Neoplasm of Liver, Specified as Secondary | 0 | 5 | 5 | 6 | 1 | 17 |
| 1978 | Secondary Malignant Neoplasm of Other Digestive Organs and Spleen | 1 | 0 | 0 | 1 | 0 | 2 |
| 1980 | Secondary Malignant Neoplasm of Kidney | 0 | 1 | 0 | 1 | 0 | 2 |
| 1981 | Secondary Malignant Neoplasm of Other Urinary Organs | 0 | 1 | 0 | 0 | 0 | 1 |
| 1982 | Secondary Malignant Neoplasm of Skin | 1 | 1 | 0 | 0 | 0 | 2 |
| 1983 | Secondary Malignant Neoplasm of Brain and Spinal Cord | 1 | 6 | 3 | 3 | 1 | 14 |
| 1984 | Secondary Malignant Neoplasm of Other Parts of Nervous System | 0 | 1 | 1 | 0 | 0 | 2 |
| 1985 | Secondary Malignant Neoplasm of Bone and Bone Marrow | 0 | 9 | 6 | 5 | 1 | 21 |
| 1986 | Secondary Malignant Neoplasm of Ovary | 0 | 1 | 0 | 0 | 0 | 1 |
| 1987 | Secondary Malignant Neoplasm of Adrenal Gland | 0 | 1 | 0 | 0 | 0 | 1 |
| 19889 | Secondary Malignant Neoplasm of Other Specified Sites | 1 | 4 | 7 | 1 | 2 | 15 |
| 1990 | Disseminated Malignant Neoplasm | 0 | 1 | 1 | 0 | 0 | 2 |
| 1991 | Other Malignant Neoplasm of Unspecified Site | 1 | 2 | 0 | 0 | 0 | 3 |
| 20002 | Reticulosarcoma Involving Intrathoracic Lymph Nodes | 0 | 0 | 1 | 0 | 0 | 1 |
| 20003 | Reticulosarcoma Involving Intra-Abdominal Lymph Nodes | 0 | 0 | 0 | 1 | 0 | 1 |
| 20018 | Lymphosarcoma Involving Lymph Nodes of Multiple Sites | 1 | 1 | 0 | 0 | 0 | 2 |
| 20020 | Burkitt's Tumor or Lymphoma, Unspecified Site | 0 | 2 | 0 | 0 | 0 | 2 |
| 20028 | Burkitt's Tumor or Lymphoma Involving L. Nodes of Multiple Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 20088 | Oth Varients of Lymphosarcoma/Reticulosarcoma L. Nodes of Mult Sit | 0 | 1 | 0 | 1 | 0 | 2 |
| 20150 | Hodgkin's Disease, Nodular Sclerosis, Unspecified Site | 0 | 1 | 0 | 0 | 0 | 1 |
| 20152 | Hodgkin's Disease, Nodular Sclerosis, Intrathoracic Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20154 | Hodgkin's Disease, Nodular Sclerosis, L. Nodes of Axilla/Upper Lim | 0 | 0 | 1 | 0 | 0 | 1 |
| 20191 | Hodgkin's Disease, Unspecified Type, L. Nodes of Head/Face/Neck | 1 | 1 | 1 | 0 | 0 | 3 |
| 20194 | Hodgkin's Disease, Unspecified Type, L. Nodes of Axilla/Upper Lim | 0 | 2 | 0 | 0 | 0 | 2 |
| 20198 | Hodgkin's Disease, Unspecified Type, Involv L. Nodes of Multiple S | 1 | 1 | 0 | 0 | 0 | 2 |
| 20201 | Nodular Lymphoma Involving Lymph Nodes of Head, Face, and Neck | 1 | 0 | 0 | 0 | 0 | 1 |
| 20208 | Nodular Lymphoma Involving Lymph Nodes of Multiple Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 20218 | Mycosis Fungoides Involving Lymph Nodes of Multiple Sites | 1 | 0 | 0 | 0 | 0 | 1 |
| 20280 | Other Malignant Lymphomas, Unspecified Site | 1 | 0 | 6 | 1 | 0 | 8 |
| 20281 | Other Malignant Lymphomas Involving Lymph Nodes of Head, Face, & | 0 | 1 | 2 | 1 | 0 | 4 |
| 20288 | Other Malignant Lymphomas Involving Lymph Nodes of Multiple Sites | 1 | 2 | 1 | 0 | 0 | 4 |
| 20300 | Multiple Myeloma W/O Mention of Remission | 1 | 0 | 1 | 3 | 2 | 7 |
| 20400 | Acute Lymphoid Leukemia W/O Mention of Remission | 4 | 1 | 0 | 0 | 0 | 5 |
| 20410 | Chronic Lymphoid Leukemia W/O Mention of Remission | 0 | 0 | 0 | 1 | 0 | 1 |
| 20411 | Chronic Lymphoid Leukemia in Remission | 1 | 0 | 0 | 0 | 0 | 1 |
| 20500 | Acute Myeloid Leukemia W/O Mention of Remission | 3 | 3 | 0 | 0 | 0 | 6 |
| 20501 | Acute Myeloid Leukemia in Remission | 0 | 0 | 1 | 0 | 0 | 1 |
| 20510 | Chronic Myeloid Leukemia W/O Mention of Remission | 1 | 4 | 1 | 0 | 0 | 6 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 20511 | Chronic Myeloid Leukemia in Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20601 | Acute Monocytic Leukemia in Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20800 | Acute Leukemia of Unspecified Cell type W/O Mention of Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 2101 | Benign Neoplasm of Tongue | 0 | 1 | 0 | 0 | 0 | 1 |
| 2102 | Benign Neoplasm of Major Salivary Glands | 0 | 0 | 1 | 2 | 0 | 3 |
| 2104 | Benign Neoplasm of Other and Unspecified Parts of Mouth | 1 | 1 | 1 | 0 | 0 | 3 |
| 2111 | Benign Neoplasm of Stomach | 1 | 0 | 0 | 0 | 0 | 1 |
| 2113 | Benign Neoplasm of Colon | 1 | 7 | 8 | 11 | 0 | 27 |
| 2114 | Benign Neoplasm of Rectum and Anal Canal | 0 | 2 | 0 | 0 | 0 | 2 |
| 2115 | Benign Neoplasm of Liver and Biliary Passages | 0 | 0 | 1 | 0 | 0 | 1 |
| 2121 | Benign Neoplasm of Larynx | 0 | 1 | 0 | 0 | 0 | 1 |
| 2123 | Benign Neoplasm of Bronchus and Lung | 1 | 0 | 0 | 0 | 0 | 1 |
| 2125 | Benign Neoplasm of Mediastinum | 0 | 1 | 0 | 0 | 0 | 1 |
| 2126 | Benign Neoplasm of Thymus | 0 | 1 | 1 | 0 | 0 | 2 |
| 2134 | Benign Neoplasm of Scapula and Long Bones of Upper Limb | 1 | 0 | 0 | 0 | 0 | 1 |
| 2137 | Benign Neoplasm of Long Bones of Lower Limb | 0 | 2 | 1 | 0 | 0 | 3 |
| 2138 | Benign Neoplasm of Short Bones of Lower Limb | 2 | 2 | 0 | 0 | 0 | 4 |
| 2139 | Benign Neoplasm of Bone and Articular Cartilage, Site Unspecified | 0 | 2 | 0 | 0 | 0 | 2 |
| 2140 | Lipoma of Skin and Subcutaneous Tissue | 0 | 0 | 1 | 0 | 0 | 1 |
| 2141 | Lipoma of Other Skin and Subcutaneous Tissue | 3 | 12 | 11 | 3 | 0 | 29 |
| 2143 | Lipoma of Intra-Abdominal Organs | 0 | 0 | 1 | 0 | 0 | 1 |
| 2144 | Lipoma of Spermatic Cord | 0 | 5 | 7 | 1 | 0 | 13 |
| 2148 | Lipoma of Other Specified Sites | 0 | 1 | 4 | 1 | 0 | 6 |
| 2149 | Lipoma, Unspecified Sites | 0 | 2 | 0 | 0 | 0 | 2 |
| 2150 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Head/Face/Ne | 0 | 0 | 1 | 0 | 0 | 1 |
| 2152 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Upper Limb/S | 0 | 3 | 1 | 0 | 0 | 4 |
| 2153 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Lower Limb/H | 0 | 2 | 1 | 1 | 0 | 4 |
| 2154 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Thorax | 1 | 1 | 0 | 0 | 0 | 2 |
| 2155 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Abdomen | 0 | 2 | 0 | 0 | 0 | 2 |
| 2156 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Pelvis | 0 | 1 | 0 | 0 | 0 | 1 |
| 2157 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Trunk, Unspe | 0 | 0 | 1 | 0 | 0 | 1 |
| 2158 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Other Spec S | 0 | 0 | 1 | 0 | 0 | 1 |
| 2161 | Benign Neoplasm of Eyelid, Including Canthus | 0 | 0 | 1 | 0 | 0 | 1 |
| 2163 | Benign Neoplasm of Skin of Other and Unspecified Parts of Face | 0 | 2 | 0 | 0 | 1 | 3 |
| 2164 | Benign Neoplasm of Scalp and Skin of Neck | 1 | 0 | 1 | 0 | 0 | 2 |
| 2167 | Benign Neoplasm of Skin of Lower Limb, Including Hip | 0 | 1 | 0 | 1 | 0 | 2 |
| 2169 | Benign Neoplasm of Skin, Site Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 2172 | Benign Neoplasm of Breast | 0 | 3 | 7 | 1 | 0 | 11 |
| 2180 | Benign Neoplasm of Submucous Leiomyoma of Uterus | 0 | 0 | 3 | 1 | 0 | 4 |
| 2181 | Benign Neoplasm of Intramural Leiomyoma of Uterus | 0 | 0 | 1 | 0 | 0 | 1 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1994



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2182 | Benign Neoplasm of Subserous Leiomyoma of Uterus | 0 | 1 | 0 | 0 | 0 | 1 |
| 2189 | Benign Neoplasm of Leiomyoma of Uterus, Unspecified | 0 | 12 | 8 | 2 | 0 | 22 |
| 2191 | Benign Neoplasm of Corpus Uteri | 0 | 1 | 0 | 0 | 0 | 1 |
| 2207 | Benign Neoplasm of Ovary | 1 | 1 | 0 | 0 | 0 | 2 |
| 2220 | Benign Neoplasm of Testis | 1 | 0 | 0 | 0 | 0 | 1 |
| 2221 | Benign Neoplasm of Penis | 0 | 1 | 0 | 0 | 0 | 1 |
| 22381 | Benign Neoplasm of Urethra | 1 | 0 | 0 | 0 | 0 | 1 |
| 2241 | Benign Neoplasm of Orbit | 0 | 0 | 1 | 0 | 0 | 1 |
| 2250 | Benign Neoplasm of Brain | 1 | 1 | 0 | 0 | 0 | 2 |
| 2251 | Benign Neoplasm of Cranial Nerves | 0 | 3 | 0 | 0 | 0 | 3 |
| 2267 | Benign Neoplasm of Thyroid Glands | 0 | 1 | 2 | 1 | 0 | 4 |
| 2270 | Benign Neoplasm of Adrenal Gland | 0 | 0 | 1 | 0 | 0 | 1 |
| 2271 | Benign Neoplasm of Parathyroid Gland | 0 | 1 | 1 | 0 | 0 | 2 |
| 2273 | Benign Neoplasm of Pituitary Gland and Craniopharyngeal Duct | 0 | 1 | 0 | 0 | 0 | 1 |
| 22801 | Hemangioma of Skin and Subcutaneous Tissue | 0 | 1 | 0 | 0 | 0 | 1 |
| 22802 | Hemangioma of Intracranial Structures | 1 | 2 | 1 | 0 | 0 | 4 |
| 22809 | Hemangioma of Other Sites | 0 | 2 | 0 | 1 | 0 | 3 |
| 2281 | Lymphangioma, Any Site | 0 | 1 | 0 | 0 | 0 | 1 |
| 2298 | Benign Neoplasm of Other Specified Sites | 0 | 1 | 1 | 0 | 0 | 2 |
| 2303 | Carcinoma In Situ of colon | 0 | 1 | 0 | 0 | 0 | 1 |
| 2306 | Carcinoma In Situ of Anus, Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 2325 | Carcinoma In Situ of Skin of Trunk, Except Scrotum | 0 | 1 | 0 | 0 | 0 | 1 |
| 2330 | Carcinoma In Situ of Breast | 0 | 0 | 0 | 1 | 0 | 1 |
| 2331 | Carcinoma In Situ of Cervix Uteri | 2 | 3 | 0 | 0 | 0 | 5 |
| 2352 | Neoplasm of Uncertain Behavior of Stomach, Intestines, and Rectum | 0 | 1 | 0 | 0 | 0 | 1 |
| 2357 | Neoplasm of Uncertain Behavior of Trachea, Bronchus, and Lung | 0 | 3 | 0 | 0 | 0 | 3 |
| 2367 | Neoplasm of Uncertain Behavior of Bladder | 0 | 0 | 1 | 0 | 0 | 1 |
| 2370 | Neoplasm of Uncertain Behavior of Pituitary Gland & Craniopharyn | 1 | 0 | 0 | 0 | 0 | 1 |
| 2374 | Neoplasm of Uncertain Behavior of Other/Unspecified Endocrine Gla | 0 | 0 | 1 | 0 | 0 | 1 |
| 2375 | Neoplasm of Uncertain Behavior of Brain and Spinal Cord | 2 | 1 | 1 | 0 | 0 | 4 |
| 23770 | Neurofibromatosis Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 2380 | Neoplasm of Uncertain Behavior of Bone and Articular Cartilage | 0 | 1 | 0 | 0 | 0 | 1 |
| 2381 | Neoplasm of Uncertain Behavior of Connective and Other Soft Tissu | 1 | 0 | 0 | 0 | 0 | 1 |
| 2382 | Neoplasm of Uncertain Behavior of Skin | 0 | 1 | 0 | 0 | 0 | 1 |
| 2384 | Polycythemia Vera | 0 | 0 | 0 | 2 | 0 | 2 |
| 2386 | Neoplasm of Uncertain Behavior of Plasma Cells | 0 | 0 | 0 | 2 | 0 | 2 |
| 2387 | Neoplasm of Uncertain Behavior of Oth Lymphatic/Hematopoietic Tis | 0 | 1 | 0 | 0 | 0 | 1 |
| 2388 | Neoplasm of Uncertain Behavior of Other Specified Sites | 0 | 0 | 1 | 0 | 0 | 1 |
| 2390 | Neoplasm of Uncertain Behavior of Digestive System | 0 | 0 | 1 | 0 | 0 | 1 |
| 2392 | Neoplasm of Unspecified Nature of Bone, Soft Tissue, and Skin | 0 | 1 | 0 | 1 | 0 | 2 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2395 | Neoplasm of Unspecified Nature of Other Genitourinary Organs | 0 | 1 | 0 | 0 | 0 | 1 |
| 2398 | Neoplasm of Unspecified Nature of Other Specified Sites | 0 | 1 | 0 | 1 | 0 | 2 |
| Totals | | 78 | 244 | 168 | 98 | 22 | 610 |

Persian War Veterans with Neoplasms by DX and age group
Fiscal Year 1995



| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| Unknown | Information Missing From Faxed Source Document | | | | | | |
| 1410 | Malignant Neoplasm of Base of Tongue | 0 | 0 | 0 | 1 | 0 | 1 |
| 1420 | Malignant Neoplasm of Parotid Gland | 0 | 0 | 0 | 1 | 0 | 1 |
| 1452 | Malignant Neoplasm of Hard Palate | 0 | 0 | 0 | 1 | 0 | 1 |
| 1460 | Malignant Neoplasm of Tonsil | 0 | 0 | 1 | 0 | 0 | 1 |
| 1461 | Malignant Neoplasm of Tonsillar Fossa | 0 | 1 | 0 | 0 | 0 | 1 |
| 1471 | Malignant Neoplasm of Posterior Wall of Nasopharynx | 0 | 0 | 0 | 0 | 1 | 1 |
| 1478 | Malignant Neoplasm of Other Specified Sites of Nasopharynx | 0 | 0 | 1 | 0 | 0 | 1 |
| 1508 | Malignant Neoplasm of Other Specified Part of Esophagus | 0 | 0 | 0 | 1 | 0 | 1 |
| 1515 | Malignant Neoplasm of Lesser Curvature of Stomach, Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1518 | Malignant Neoplasm of Other Specified Sites of Stomach | 0 | 1 | 0 | 0 | 0 | 1 |
| 1519 | Malignant Neoplasm of Stomach, Unspecified | 0 | 2 | 1 | 0 | 0 | 3 |
| 1520 | Malignant Neoplasm of Duodenum | 1 | 0 | 0 | 0 | 0 | 1 |
| 1531 | Malignant Neoplasm of Transverse Colon | 0 | 0 | 1 | 0 | 0 | 1 |
| 1533 | Malignant Neoplasm of Sigmoid Colon | 0 | 0 | 0 | 1 | 0 | 1 |
| 1534 | Malignant Neoplasm of Cecum | 0 | 0 | 0 | 0 | 2 | 2 |
| 1538 | Malignant Neoplasm of Ascending Colon | 0 | 0 | 1 | 0 | 0 | 1 |
| 1539 | Malignant Neoplasm of Colon, Unspecified | 1 | 0 | 3 | 2 | 0 | 6 |
| 1540 | Malignant Neoplasm of Rectosigmoid Junction | 0 | 0 | 2 | 0 | 0 | 2 |
| 1541 | Malignant Neoplasm of Rectum | 0 | 0 | 1 | 1 | 0 | 2 |
| 1550 | Malignant Neoplasm of Liver, Primary | 0 | 1 | 0 | 0 | 0 | 1 |
| 1552 | Malignant Neoplasm of Liver, Not Specified as Primary or Secondary | 0 | 0 | 1 | 0 | 0 | 1 |
| 1579 | Malignant Neoplasm of Pancreas, Part Unspecified | 0 | 0 | 0 | 1 | 0 | 1 |
| 1610 | Malignant Neoplasm of Glottis | 0 | 0 | 1 | 2 | 0 | 3 |
| 1623 | Malignant Neoplasm of Upper Lobe, Bronchus or Lung | 0 | 0 | 1 | 4 | 1 | 6 |
| 1625 | Malignant Neoplasm of Lower Lobe, Bronchus or Lung | 0 | 0 | 1 | 1 | 0 | 2 |
| 1628 | Malignant Neoplasm of Other Parts of Bronchus or Lung | 0 | 0 | 0 | 2 | 1 | 3 |
| 1629 | Malignant Neoplasm of Bronchus and Lung, Unspecified | 0 | 0 | 1 | 4 | 2 | 7 |
| 1630 | Malignant Neoplasm of Parietal Pleura | 0 | 1 | 0 | 0 | 0 | 1 |
| 1648 | Malignant Neoplasm of Other Parts of Mediastinum | 1 | 0 | 0 | 0 | 0 | 1 |
| 1703 | Malignant Neoplasm of Ribs, Sternum, and Clavicle | 0 | 1 | 1 | 0 | 0 | 2 |
| 1707 | Malignant Neoplasm of Long Bones of Lower Limb | 1 | 0 | 0 | 0 | 0 | 1 |
| 1709 | Malignant Neoplasm of Bone & Articular Cartilage, Site Unspecified | 1 | 0 | 0 | 0 | 0 | 1 |
| 1712 | Malig Neoplasm of Connective & Other Soft Tissue of Upper Limb/SHOU | 0 | 1 | 0 | 0 | 0 | 1 |
| 1713 | Malig Neoplasm of Connective & Oth Soft Tissue of Lower Limb/Hip | 0 | 2 | 0 | 1 | 0 | 3 |
| 1715 | Malig Neoplasm of Connective & Oth Soft Tissue of Abdomen | 0 | 1 | 0 | 0 | 0 | 1 |
| 1725 | Malignant Melanoma of Skin of Trunk, Except Scrotum | 0 | 2 | 0 | 0 | 0 | 2 |
| 1726 | Malignant Melanoma of Skin of Upper Limb, Including Shoulder | 0 | 0 | 1 | 0 | 0 | 1 |
| 1727 | Malignant Melanoma of Skin of Lower Limb, Including Hip | 1 | 0 | 0 | 0 | 0 | 1 |
| 1728 | Malignant Melanoma of Skin of Other Specified Sites of Skin | 0 | 1 | 0 | 0 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1729 | Melanoma of Skin, Site Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1732 | Other Malignant Neoplasm of Skin of Ear & External Auditory Canal | 0 | 0 | 0 | 1 | 0 | 1 |
| 1733 | Other Malig Neoplasm of Skin or Other and Unspecified Parts of Fa | 0 | 1 | 0 | 4 | 0 | 5 |
| 1735 | Other Malignant Neoplasm of Skin of Trunk, Except Scrotum | 0 | 0 | 1 | 1 | 0 | 2 |
| 1742 | Malignant Neoplasm of Upper-Inner Quadrant of Female Breast | 0 | 0 | 0 | 1 | 0 | 1 |
| 1744 | Malignant Neoplasm of Upper-Outer Quadrant of Female Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1748 | Malignant Neoplasm of Other Specified Sites of Female Breast | 0 | 0 | 1 | 0 | 0 | 1 |
| 1749 | Malignant Neoplasm of Breast (Female), Unspecified | 1 | 1 | 1 | 1 | 0 | 4 |
| 1760 | Kaposi's Sarcoma, Skin | 0 | 3 | 1 | 0 | 0 | 4 |
| 1761 | Kaposi's Sarcoma, Soft Tissue | 0 | 1 | 1 | 0 | 0 | 2 |
| 1763 | Kaposi's Sarcoma, Gastrointestinal Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 1764 | Kaposi's Sarcoma, Lung | 0 | 1 | 0 | 0 | 0 | 1 |
| 1768 | Kaposi's Sarcoma, Other Specified Sites | 0 | 1 | 1 | 0 | 0 | 2 |
| 1769 | Kaposi's Sarcoma, Unspecified | 0 | 3 | 1 | 0 | 0 | 4 |
| 1830 | Malignant Neoplasm of Ovary | 0 | 0 | 1 | 1 | 0 | 2 |
| 1857 | Malignant Neoplasm of Prostate | 0 | 0 | 0 | 4 | 3 | 7 |
| 1860 | Malignant Neoplasm of Undescended Testis | 0 | 1 | 0 | 0 | 0 | 1 |
| 1869 | Malignant Neoplasm of Other and Unspecified Testis | 5 | 6 | 2 | 0 | 0 | 13 |
| 1879 | Malignant Neoplasm of Male Genital Organ, Site Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1881 | Malignant Neoplasm of Dome of Urinary Bladder | 0 | 0 | 2 | 0 | 0 | 2 |
| 1888 | Malignant Neoplasm of Other Specified Sites of Bladder | 0 | 0 | 1 | 1 | 0 | 2 |
| 1889 | Malignant Neoplasm of Bladder, Part Unspecified | 1 | 0 | 0 | 2 | 0 | 3 |
| 1890 | Malignant Neoplasm of Kidney, Except Pelvis | 0 | 1 | 6 | 1 | 0 | 8 |
| 1891 | Malignant Neoplasm of Renal Pelvis | 0 | 0 | 0 | 1 | 0 | 1 |
| 1909 | Malignant Neoplasm of Eye, Site Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 1910 | Malignant Neoplasm of Cerebrum, Except Lobes and Ventricles | 0 | 1 | 1 | 0 | 0 | 2 |
| 1911 | Malignant Neoplasm of Frontal Lobe | 0 | 2 | 4 | 0 | 1 | 7 |
| 1912 | Malignant Neoplasm of Temporal Lobe | 1 | 2 | 1 | 0 | 0 | 4 |
| 1913 | Malignant Neoplasm of Parietal Lobe | 0 | 6 | 0 | 0 | 0 | 6 |
| 1915 | Malignant Neoplasm of Ventricles | 0 | 0 | 1 | 0 | 0 | 1 |
| 1916 | Malignant Neoplasm of Cerebellum Nos | 0 | 0 | 1 | 0 | 0 | 1 |
| 1918 | Malignant Neoplasm of Other Parts of Brain | 0 | 1 | 0 | 1 | 0 | 2 |
| 1919 | Malignant Neoplasm of Brain, Unspecified | 0 | 0 | 4 | 2 | 0 | 6 |
| 1922 | Malignant Neoplasm of Spinal Cord | 0 | 1 | 1 | 0 | 0 | 2 |
| 1929 | Malignant Neoplasm of Nervous System, Part Unspecified | 0 | 1 | 0 | 0 | 0 | 1 |
| 1937 | Malignant Neoplasm of Thyroid Gland | 1 | 6 | 1 | 1 | 0 | 9 |
| 1940 | Malignant Neoplasm of Adrenal Gland | 0 | 1 | 0 | 0 | 0 | 1 |
| 1941 | Malignant Neoplasm of Parathyroid Gland | 0 | 1 | 0 | 0 | 0 | 1 |
| 1943 | Malignant Neoplasm of Pituitary Gland and Craniopharyngeal Duct | 1 | 2 | 0 | 0 | 0 | 3 |
| 1950 | Malignant Neoplasm of Head, Face, and Neck | 0 | 0 | 0 | 1 | 0 | 1 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 1960 | Secondary/Unspecified Malig Neoplasm of Lymph Nodes of Head/Face/ | 1 | 2 | 0 | 0 | 0 | 3 |
| 1961 | Secondary/Unspecified Malig Neoplasm of Intrathoracic Lymph Nodes | 1 | 1 | 0 | 0 | 0 | 2 |
| 1962 | Secondary/Unspecified Malig Neoplasm of Intra-Abdominal Lymph Nod | 2 | 4 | 2 | 0 | 0 | 8 |
| 1963 | Secondary/Unspecified Malig Neoplasm of L. Nodes of Axilla/Upper | 1 | 0 | 3 | 0 | 0 | 4 |
| 1969 | Secondary/Unspecified Malig Neoplasm of Lymph Nodes, Site Unspeci | 0 | 0 | 1 | 0 | 0 | 1 |
| 1970 | Secondary Malignant Neoplasm of Lung | 1 | 5 | 7 | 1 | 2 | 16 |
| 1971 | Secondary Malignant Neoplasm of Mediastinum | 0 | 1 | 1 | 0 | 0 | 2 |
| 1972 | Secondary Malignant Neoplasm of Pleura | 0 | 3 | 1 | 2 | 0 | 6 |
| 1973 | Secondary Malignant Neoplasm of Other Respiratory Organs | 0 | 1 | 0 | 0 | 0 | 1 |
| 1974 | Secondary Malignant Neoplasm of Small Intestine Including Duddenu | 0 | 1 | 0 | 1 | 0 | 2 |
| 1975 | Secondary Malignant Neoplasm of Large Intestine and Rectum | 1 | 2 | 0 | 1 | 0 | 4 |
| 1976 | Secondary Malignant Neoplasm of Retroperitoneum and Peritoneum | 0 | 2 | 3 | 0 | 0 | 5 |
| 1977 | Malignant Neoplasm of Liver, Specified as Secondary | 0 | 6 | 9 | 5 | 1 | 21 |
| 1978 | Secondary Malignant Neoplasm of Other Digestive Organs and Spleen | 0 | 4 | 1 | 1 | 0 | 6 |
| 1980 | Secondary Malignant Neoplasm of Kidney | 0 | 0 | 2 | 1 | 0 | 3 |
| 1982 | Secondary Malignant Neoplasm of Skin | 0 | 1 | 0 | 0 | 0 | 1 |
| 1983 | Secondary Malignant Neoplasm of Brain and Spinal Cord | 1 | 2 | 3 | 1 | 2 | 9 |
| 1984 | Secondary Malignant Neoplasm of Other Parts of Nervous System | 0 | 0 | 2 | 0 | 0 | 2 |
| 1985 | Secondary Malignant Neoplasm of Bone and Bone Marrow | 0 | 5 | 7 | 8 | 0 | 20 |
| 1986 | Secondary Malignant Neoplasm of Ovary | 0 | 1 | 1 | 0 | 0 | 2 |
| 1987 | Secondary Malignant Neoplasm of Adrenal Gland | 0 | 0 | 3 | 0 | 0 | 3 |
| 19882 | Secondary Malignant Neoplasm of Genital Organs | 0 | 0 | 2 | 0 | 0 | 2 |
| 19889 | Secondary Malignant Neoplasm of Other Specified Sites | 1 | 1 | 2 | 3 | 1 | 8 |
| 1990 | Disseminated Malignant Neoplasm | 0 | 1 | 1 | 0 | 0 | 2 |
| 1991 | Other Malignant Neoplasm of Unspecified Site | 1 | 1 | 2 | 1 | 0 | 5 |
| 20000 | Reticulosarcoma, Unspecified Site | 0 | 1 | 0 | 0 | 0 | 1 |
| 20003 | Reticulosarcoma Involving Intra-Abdominal Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20011 | Lymphosarcoma Involving Lymph Nodes of Head, Face, and Neck | 0 | 2 | 0 | 0 | 0 | 2 |
| 20018 | Lymphosarcoma Involving Lymph Nodes of Multiple Sites | 1 | 1 | 0 | 0 | 0 | 2 |
| 20087 | Oth Varients of Lymphosarcoma/Reticulosarcoma - Spleen | 0 | 0 | 1 | 0 | 0 | 1 |
| 20088 | Oth Varients of Lymphosarcoma/Reticulosarcoma L. Nodes of Mult Sit | 0 | 0 | 0 | 1 | 0 | 1 |
| 20110 | Hodgkin's Granuldma, Unspecified Site | 0 | 1 | 0 | 0 | 0 | 1 |
| 20150 | Hodgkin's Disease, Nodular Sclerosis, Unspecified Site | 0 | 1 | 0 | 0 | 0 | 1 |
| 20151 | Hodgkin's Disease, Nodular Sclerosis, L. Nodes Head/Face/Neck | 2 | 1 | 0 | 0 | 0 | 3 |
| 20152 | Hodgkin's Disease, Nodular Sclerosis, Intrathoracic Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20163 | Hodgkin's Disease, Mixed Cellularity, Intra-Abdominal Lymph Nodes | 0 | 0 | 0 | 1 | 0 | 1 |
| 20164 | Hodgkin's Disease, Mixed Cellularity, L. Nodes of Axilla/Upper Lim | 0 | 1 | 0 | 0 | 0 | 1 |
| 20190 | Hodgkin's Disease, Unspecified Type, Unspecified Site | 3 | 6 | 1 | 0 | 0 | 10 |
| 20191 | Hodgkin's Disease, Unspecified Type, L. Nodes of Head/Face/Neck | 1 | 0 | 0 | 0 | 0 | 1 |
| 20192 | Hodgkin's Disease, Unspecified Type, Intrathoracic Lymph Nodes | 3 | 1 | 0 | 0 | 0 | 4 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 20194 | Hodgkin's Disease, Unspecified Type, L. Nodes of Axilla/Upper Lim | 0 | 1 | 0 | 0 | 0 | 1 |
| 20195 | Hodgkin's Disease, Unspecified Type, L. Nodes of Inguinal Reg/Low | 0 | 1 | 0 | 0 | 0 | 1 |
| 20198 | Hodgkin's Disease, Unspecified Type, Involv L. Nodes of Multiple S | 0 | 0 | 2 | 0 | 0 | 2 |
| 20200 | Nodular Lymphoma, Unspecified Site | 1 | 0 | 0 | 0 | 0 | 1 |
| 20202 | Nodular Lymphoma Involving Intrathoracic Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20240 | Leukemic Reticuldenddtheliosis, Unspecified Site | 0 | 0 | 1 | 1 | 0 | 2 |
| 20280 | Other Malignant Lymphomas, Unspecified Site | 0 | 5 | 2 | 0 | 0 | 7 |
| 20281 | Other Malignant Lymphomas Involving Lymph Nodes of Head, Face, & | 0 | 1 | 2 | 2 | 0 | 5 |
| 20282 | Other Malignant Lymphomas Involving Intrathoracic Lymph Nodes | 0 | 0 | 2 | 0 | 0 | 2 |
| 20285 | Other Malignant Lymphomas Involving L. Nodes of Inguinal Reg/Lower | 0 | 1 | 0 | 0 | 0 | 1 |
| 20286 | Other Malignant Lymphomas Involving Intrapelvic Lymph Nodes | 0 | 1 | 0 | 0 | 0 | 1 |
| 20288 | Other Malignant Lymphomas Involving Lymph Nodes of Multiple Sites | 0 | 1 | 1 | 1 | 0 | 3 |
| 20300 | Multiple Myeloma W/O Mention of Remission | 0 | 1 | 2 | 4 | 1 | 8 |
| 20400 | Acute Lymphoid Leukemia W/O Mention of Remission | 0 | 5 | 0 | 0 | 0 | 5 |
| 20401 | Acute Lymphoid Leukemia In Remission | 3 | 1 | 0 | 0 | 0 | 4 |
| 20410 | Chronic Lymphoid Leukemia W/O Mention of Remission | 0 | 1 | 2 | 0 | 0 | 3 |
| 20500 | Acute Myeloid Leukemia W/O Mention of Remission | 0 | 5 | 1 | 1 | 0 | 7 |
| 20501 | Acute Myeloid Leukemia in Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20510 | Chronic Myeloid Leukemia W/O Mention of Remission | 2 | 1 | 2 | 2 | 0 | 7 |
| 20511 | Chronic Myeloid Leukemia in Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20530 | Myeloid Sarcoma W/O Mention of Remission | 0 | 0 | 2 | 0 | 0 | 2 |
| 20591 | Unspecified Myeloid Leukemia In Remission | 0 | 1 | 0 | 0 | 0 | 1 |
| 20801 | Acute Leukemia of Unspecified Cell Type In Remission | 2 | 0 | 0 | 0 | 0 | 2 |
| 2101 | Benign Neoplasm of Tongue | 0 | 1 | 0 | 0 | 0 | 1 |
| 2102 | Benign Neoplasm of Major Salivary Glands | 0 | 0 | 0 | 1 | 0 | 1 |
| 2113 | Benign Neoplasm of Colon | 3 | 8 | 11 | 8 | 2 | 32 |
| 2114 | Benign Neoplasm of Rectum and Anal Canal | 1 | 0 | 0 | 1 | 0 | 2 |
| 2120 | Benign Neoplasm of Nasal Cavities, Middle Ear, and Accessory Sinu | 0 | 2 | 0 | 0 | 0 | 2 |
| 2121 | Benign Neoplasm of Larynx | 0 | 2 | 1 | 0 | 0 | 3 |
| 2123 | Benign Neoplasm of Bronchus and Lung | 0 | 1 | 0 | 0 | 0 | 1 |
| 2125 | Benign Neoplasm of Mediastinum | 0 | 0 | 1 | 0 | 0 | 1 |
| 2130 | Benign Neoplasm of Bones of Skull and Face | 0 | 0 | 1 | 0 | 0 | 1 |
| 2134 | Benign Neoplasm of Scapula and Long Bones of Upper Limb | 0 | 0 | 1 | 0 | 0 | 1 |
| 2135 | Benign Neoplasm of Short Bones of Upper Limb | 1 | 1 | 0 | 0 | 0 | 2 |
| 2136 | Benign Neoplasm of Pelvic Bones, Sacrum, and Coccyx | 0 | 0 | 1 | 0 | 0 | 1 |
| 2137 | Benign Neoplasm of Long Bones of Lower Limb | 1 | 2 | 0 | 0 | 0 | 3 |
| 2138 | Benign Neoplasm of Short Bones of Lower Limb | 0 | 1 | 1 | 1 | 0 | 3 |
| 2140 | Lipoma of Skin and Subcutaneous Tissue | 0 | 0 | 0 | 0 | 1 | 1 |
| 2141 | Lipoma of Other Skin and Subcutaneous Tissue | 2 | 4 | 10 | 1 | 1 | 18 |
| 2143 | Lipoma of Intra-Abdominal Organs | 0 | 2 | 0 | 0 | 0 | 2 |

| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2148 | Lipoma of Other Specified Sites | 1 | 2 | 4 | 1 | 1 | 9 |
| 2150 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Head/Face/Ne | 0 | 1 | 1 | 1 | 0 | 3 |
| 2153 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Lower Limb/H | 1 | 0 | 1 | 0 | 0 | 2 |
| | | 0 | 1 | 0 | 0 | 0 | 1 |
| 2157 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Trunk, Unspe | 0 | 1 | 0 | 0 | 0 | 1 |
| 2158 | Oth Benign Neoplasm of Connective & Oth Soft Tissue, Other Spec S | 0 | 0 | 1 | 0 | 0 | 1 |
| 2160 | Benign Neoplasm of Skin of Lip | 0 | 1 | 0 | 0 | 0 | 1 |
| 2163 | Benign Neoplasm of Skin of Other and Unspecified Parts of Face | 1 | 2 | 0 | 0 | 0 | 3 |
| 2164 | Benign Neoplasm of Scalp and Skin of Neck | 0 | 0 | 1 | 0 | 0 | 1 |
| 2165 | Benign Neoplasm of Skin of Trunk, Except Scrotum | 0 | 1 | 0 | 0 | 0 | 1 |
| 2166 | Benign Neoplasm of Skin of Upper Limb, Including Shoulder | 0 | 1 | 1 | 0 | 0 | 2 |
| 2167 | Benign Neoplasm of Skin of Lower Limb, Including Hip | 0 | 1 | 0 | 0 | 0 | 1 |
| 2169 | Benign Neoplasm of Skin, Site Unspecified | 0 | 2 | 2 | 0 | 0 | 4 |
| 2177 | Benign Neoplasm of Breast | 0 | 2 | 2 | 3 | 0 | 7 |
| 2180 | Benign Neoplasm of Submucous Leiomyoma of Uterus | 0 | 1 | 2 | 0 | 0 | 3 |
| 2181 | Benign Neoplasm of Intramural Leiomyoma of Uterus | 0 | 1 | 4 | 0 | 0 | 5 |
| 2182 | Benign Neoplasm of Subserous Leiomyoma of Uterus | 0 | 2 | 2 | 0 | 0 | 4 |
| 2189 | Benign Neoplasm of Leiomyoma of Uterus, Unspecified | 20 | 11 | 20 | 2 | 0 | 35 |
| 2190 | Benign Neoplasm of Cervix Uteri | 0 | 0 | 2 | 0 | 0 | 2 |
| 2191 | Benign Neoplasm of Corpus Uteri | 0 | 1 | 2 | 0 | 0 | 3 |
| 2207 | Benign Neoplasm of Ovary | 1 | 2 | 1 | 0 | 0 | 4 |
| 2220 | Benign Neoplasm of Testis | 0 | 1 | 0 | 0 | 0 | 1 |
| 2224 | Benign Neoplasm of Scrotum | 0 | 0 | 1 | 0 | 0 | 1 |
| 2231 | Benign Neoplasm of Renal Pelvis | 0 | 1 | 0 | 0 | 0 | 1 |
| 22381 | Benign Neoplasm of Urethra | 0 | 1 | 0 | 0 | 0 | 1 |
| 2250 | Benign Neoplasm of Brain | 1 | 0 | 0 | 0 | 0 | 1 |
| 2251 | Benign Neoplasm of Cranial Nerves | 1 | 0 | 0 | 0 | 0 | 1 |
| 2252 | Benign Neoplasm of Cerebral Meninges | 0 | 1 | 0 | 0 | 0 | 1 |
| 2267 | Benign Neoplasm of Thyroid Glands | 0 | 1 | 0 | 0 | 0 | 1 |
| 2270 | Benign Neoplasm of Adrenal Gland | 0 | 0 | 1 | 0 | 0 | 1 |
| 2271 | Benign Neoplasm of Parathyroid Gland | 0 | 1 | 2 | 0 | 2 | 5 |
| 2273 | Benign Neoplasm of Pituitary Gland and Craniopharyngeal Duct | 0 | 5 | 0 | 0 | 1 | 6 |
| 22800 | Hemangioma of Unspecified Site | 0 | 1 | 0 | 0 | 0 | 1 |
| 22802 | Hemangioma of Intracranial Structures | 1 | 2 | 0 | 2 | 0 | 5 |
| 22809 | Hemangioma of Other Sites | 0 | 1 | 1 | 0 | 0 | 2 |
| 2298 | Benign Neoplasm of Other Specified Sites | 1 | 1 | 2 | 0 | 0 | 4 |
| 2304 | Carcinoma In Situ of Rectum | 0 | 1 | 0 | 0 | 0 | 1 |
| 2312 | Carcinoma In Situ of Bronchus and Lung | 0 | 1 | 0 | 0 | 0 | 1 |
| 2331 | Carcinoma In Situ of Cervix Uteri | 1 | 4 | 1 | 0 | 0 | 6 |

Persian War Veterans with Neoplasms by DX and age group
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| Diagnostic Code | Diagnostic Name | < 25 | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 64 | Total |
|---|---|---|---|---|---|---|---|
| 2333 | Carcinoma In Situ of Other and Unspecified Female Genital Organs | 0 | 0 | 0 | 1 | 0 | 1 |
| 2352 | Neoplasm of Uncertain Behavior of Stomach, Intestines, and Rectum | 0 | 0 | 1 | 0 | 0 | 1 |
| 2357 | Neoplasm of Uncertain Behavior of Trachea, Bronchus, and Lung | 0 | 1 | 1 | 1 | 0 | 3 |
| 2360 | Neoplasm of Uncertain Behavior of Uterus | 0 | 0 | 1 | 0 | 0 | 1 |
| 23770 | Neurofibromatosis Unspecified | 0 | 0 | 1 | 0 | 0 | 1 |
| 23772 | Neurofibromatosis Type II (Acoustic Neurofibromatois) | 0 | 0 | 1 | 0 | 0 | 1 |
| 2380 | Neoplasm of Uncertain Behavior of Bone and Articular Cartilage | 0 | 1 | 0 | 0 | 0 | 1 |
| 2382 | Neoplasm of Uncertain Behavior of Skin | 0 | 0 | 2 | 0 | 0 | 2 |
| 2386 | Neoplasm of Uncertain Behavior of Plasma Cells | 0 | 0 | 1 | 0 | 0 | 1 |
| 2387 | Neoplasm of Uncertain Behavior of Oth Lymphatic/Hematopoietic Tis | 1 | 3 | 1 | 0 | 0 | 5 |
| 2388 | Neoplasm of Uncertain Behavior of Other Specified Sites | 0 | 1 | 0 | 0 | 0 | 1 |
| 2390 | Neoplasm of Uncertain Behavior of Digestive System | 0 | 2 | 0 | 0 | 0 | 2 |
| 2392 | Neoplasm of Unspecified Nature of Bone, Soft Tissue, and Skin | 0 | 2 | 0 | 0 | 0 | 2 |
| 2394 | Neoplasm of Unspecified Nature of Bladder | 0 | 2 | 0 | 0 | 0 | 2 |
| 2396 | Neoplasm of Unspecified Nature of Brain | 0 | 2 | 0 | 0 | 0 | 2 |
| Totals | | 67 | 252 | 221 | 114 | 26 | 680 |

Mr. SHAYS. Mr. Kornkven, are there any points you would like to make in addition before we adjourn?

Mr. KORNKVEN. I believe my testimony and the recommendation are an initial starting point. Tomorrow I will be meeting with Dr. Rostker and Mr. Gober at the VA, and we're encouraged that finally they are opening up a dialog with us. We will see over the next few months how everything will be improving on this issue.

Mr. SHAYS. And you will stay in touch with us to let us know how you think that is going.

Mr. KORNKVEN. Yes, sir, and I do hope that things will start to change now.

Mr. SHAYS. Mr. Green, do you have any other comment you would like to make to the committee?

Mr. GREEN. No, sir. My main worry is the children and my wife, as he was saying, with whatever it is that we have going over to them, and that's my main worry. And my—I care about my life, but they are my life, you know.

Mr. SHAYS. I wish I had the three of you go first, and that way I could make reference to your testimony, which has been the practice we wanted. We may just decide that if they can't wait, we will just tell them to come later. But I wish I had asked all the witnesses before the issue of what type of exposure a spouse has to chemical disorders, if that is the case.

Mr. KORNKVEN. Sir, if I may.

Mr. SHAYS. Sure.

Mr. KORNKVEN. I have provided some information to Mr. Newman concerning the questions we'll have for Dr. Rostker and Mr. Gober, and some of the questions are rather pointed, and you may want to followup those questions in the future.

One last comment, I guess, is if the VA can do something about the registry. For this data base to be a truly useful tool, it needs to be updated. This is my paperwork, sir, since 1992. This is what is in the Registry concerning that paperwork: two pages. It needs to be updated.

Thank you.

Mr. PAPPAS. Mr. Chairman.

Mr. SHAYS. Yes. The gentleman may ask any questions he wants. It has been nice to have you there.

Mr. PAPPAS. Thank you.

For Mr. Kornkven, is that how you pronounce your name?

Mr. KORNKVEN. Yes, sir.

Mr. PAPPAS. In your testimony you mentioned something about an arbitrary 2-year limit, and I am not familiar with what you were speaking about.

Mr. KORNKVEN. Public Law 103–446 was passed, I believe, 2 or 4 November 1994 to specifically address Gulf war veterans' health problems.

There are 13 prevalent symptoms that Gulf war veterans have been reporting that are considered undiagnosed by the VA. With that legislation, it calls for a Gulf war veteran to have reported their health problems within 2 years of leaving the Persian Gulf. That is the 2-year timeframe. That 2-year timeframe must be extended, because many Gulf war veterans are falling just outside of that 2-year timeframe. We did not know of some of the programs

that were going on in inside the VA until well after this 2-year timeframe.

I'd like to note as well with that statement that the VA be instructed to follow that law. I say follow that law. The 2-year timeframe, with myself personally, I returned in August 1991, which means symptoms should have been reported by August 1993. This registry paperwork is January 1993, yet every one of the problems that I had requested service connection for were denied. The law was ignored.

Mr. SHAYS. Was not what, I am sorry?

Mr. KORNKVEN. The symptoms or the diagnoses or the health problems that I had reported to the VA and requested service connection for were denied, even though they were reported within this 2-year timeframe. And I'd like to note as well, on that 2-year timeframe, it appeared many veterans that just after that law was passed were suddenly diagnosed with any kind of frivolous title diagnosis.

Mr. GREEN. It seems they wanted to pin—I am sorry, I didn't mean—it seemed like they were trying to put PTSD on all of us. That's their magic, you know: This is what you have, PTSD, all three of us. They all say we have PTSD. It's not PTSD; it's not in our heads. I have rashes and lesions I can show you. I don't think y'all want to—but I mean, it's not in our heads.

Mr. SHAYS. Mr. Green, we know it is not in your head. I think the second panel can point us in a direction where they didn't, in their studies, see PTSD as a likely diagnosis. So I know this has been extraordinarily frustrating and life threatening, and as someone who sent you all there, I feel, as do other Members, a tremendous responsibility to make it right.

If there's no other comment, I am going to call this hearing—yes, sir, Mr. Brown.

Mr. BROWN. Sir, one more thing that I would like to add for the record. If you would, please ask the VA and DOD exactly what are the ICDM codes for chemical and biological injuries. They don't have them in their data base at all. They don't exist. They have to take a lot of different symptoms that look like they fit into that category and then throw them at the problem. That is why you have somebody walking in with one problem or three or four problems.

I've asked the doctors at the VA if they have them, and there's no way—it is like going to a Burger King and asking one of the kids behind the counter to give you a burger with extra onions but there isn't a picture they can push. It is the same mentality; they give you a blank stare, like, "Excuse me." That is what we have at the VA right now. DOD is doing the same thing.

Yet what is chemical warfare? What is biological warfare? This isn't something you run into working at the local grocery store. This is military-based. So is DOD; so is VA. By that, they should have the code in there first for this type of warfare. They should. They don't.

Mr. SHAYS. That is an excellent point I am happy you made, and I am glad you felt compelled to make it.

Any other points?

Mr. BROWN. Thank you.

Mr. GREEN. Thank you for having us.

Mr. KORNKVEN. Yes, thank you, sir.

Mr. SHAYS. Sure.

Mr. PAPPAS. My statement——

Mr. SHAYS. Yes, your statement will be submitted for the record, and it has been great having you.

Mr. PAPPAS. Thank you.

Mr. SHAYS. Thank you, gentlemen. This hearing is adjourned.

[Whereupon, at 4:37 p.m., the committee was adjourned.]

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