



HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

12/1/91

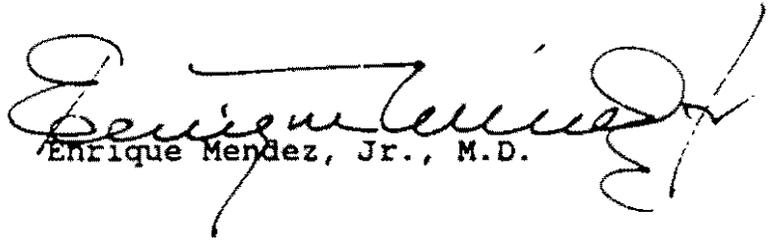
MEMORANDUM FOR SURGEON GENERAL OF THE ARMY
SURGEON GENERAL OF THE NAVY
SURGEON GENERAL OF THE AIR FORCE

SUBJECT: Clinical Information on Leishmania

REFERENCE: DoD Message dated 8 November 1991, subject line
Deferral of Military Donors

Per our discussions, the attached information paper is provided for immediate dissemination to all appropriate personnel to include all clinicians.

I request that you disseminate this information as rapidly as possible to allay unwarranted anxiety on the part of our patients and clinicians.


Enrique Mendez, Jr., M.D.

Attachement:
As stated

#567

Dear Doctor:

This is to inform you of a viscerotropic form of leishmaniasis due to the parasite Leishmania tropica among military personnel who deployed to Southwest Asia (SWA) during the Gulf War. To date, seven cases have been diagnosed at Walter Reed Army Medical Center. Normally, an infection with Leishmania tropica results in cutaneous lesions only; however, all of these cases were free of cutaneous lesions and, in each case, the parasite was recovered from the bone marrow. These new cases are distinct from the traditional cutaneous form of leishmaniasis of which 15 Gulf related cases have been diagnosed and treated at Walter Reed Army Medical Center.

Epidemiologic risk factors for this viscerotropic form are not well defined at this time. These seven soldiers were members of several different Army units widely scattered throughout the SWA theater of operations in both field and urban settings. Navy, Marine, Air Force and civilian personnel who were stationed within the theater of operations are also considered at risk of exposure.

The natural history of this viscerotropic form of L. tropica is not known. The fact that it has not been clinically apparent in the many travelers to and inhabitants of that region suggests that infections are rare, and/or largely subclinical. Based on the current cases, the clinical appearance is much less severe than that seen in classical visceral leishmaniasis (Kala Azar) caused by L. donovani. As with other parasitic and infectious diseases in the immunosuppressed patient, L. tropica has the potential for causing serious illness.

The clinical spectrum for these cases was variable and nonspecific. Four of the six symptomatic cases had an acute syndrome which included a high fever with rigors and malaise, accompanied by mild anemia and low grade elevation of liver enzymes (AST and ALT). Two cases had a subacute onset, presenting with gastrointestinal complaints which included watery, fecal-leucocyte-negative diarrhea (of small volumes), nausea, and non-focal abdominal pain that evolved over time to left upper quadrant pain with hepatosplenomegaly. Headaches and chronic irritating cough were also seen in some cases. One of the seven cases was completely asymptomatic and diagnosed on the basis of epidemiologic follow-up of an index case.

The incubation period is difficult to accurately measure. However, in these cases, the onset of symptoms varied from weeks to months after leaving SWA.

A serum Indirect Immunofluorescent Antibody (IFA) test is available at Walter Reed Army Institute of Research (WRAIR) through the Walter Reed Army Medical Center, however, there is no commercially available serologic test currently available in the United States to confirm infection. With this test, in patients

with suggestive signs and symptoms of this leishmania infection, a serum IFA equal to or greater than 1:32 suggests infection. Diagnosis can be confirmed by identifying the organism in tissue and culturing a bone marrow aspirate. Smears of the aspirate were negative by Giemsa stain, but the organism was detected at WRAIR using anti-leishmania monoclonal antibodies tagged with fluorescein.

The treatment of choice is sodium stibogluconate (Pentostam), an investigational new drug (IND) produced by Wellcome Trust of Great Britain. It is available under protocol to military physicians at Walter Reed Army Medical Center through Walter Reed Army Institute of Research, Washington, DC and to civilian physicians from the Centers for Disease Control (CDC), Atlanta, Georgia. Five of these seven cases were treated with sodium stibogluconate. In two of these five cases, treatment was discontinued early because of thrombocytopenia. Following treatment, all five patients recovered, returned to duty and are being followed. A sixth case was asymptomatic, therefore, not treated with sodium stibogluconate and is being followed closely. The seventh and most recent case is still under care at Walter Reed Army Medical Center.

The military Medical Departments are actively increasing their case finding efforts by heightening awareness of both military and civilian physicians to this clinical situation. Since many of our military personnel who deploy to the Gulf were reservist who, if ill, would visit their personal civilian physician in the private sector, the CDC and FDA are participating in this effort.

Transmission of the organism is by the bite of a sandfly. Man is an incidental host. Person-to-person transmission of this form has not been reported.

There have been five cases reported in the world literature of visceral leishmaniasis (L. donovani) transmitted through blood transfusions. No case of transfusion-associated transmission has been reported with L. tropica, but a theoretical risk exists. Therefore, as a conservative safety precaution due to this theoretical risk and the absence of a simple screening test, the Assistant Secretary of Defense (Health Affairs) has directed the military services to defer, until further notice, all personnel from blood donation who were stationed in Saudi Arabia, Kuwait, Iraq, Bahrain, Qatar, United Arab Emirates, Oman and Yemen from 1 August 1990 and thereafter.

Blood products already collected from Gulf War returnees currently in the inventory are not being withdrawn because of the very low risk of contamination balanced against the risk of a sudden shortfall of critical blood supplies. Under current procedures, donors who were symptomatic or blood units with an elevated ALT level would have already been excluded. None of the identified cases have donated blood and all patients with any form of leishmaniasis are permanently deferred from future donations.

A blood donation history will be taken from any future case and, if positive, a complete lookback for that case will be conducted.

The potential threat of exotic pathogens in Southwest Asia was reviewed by military medical planners prior to the Gulf War and is outlined by the New England Journal of Medicine article published on 21 March 1991 by Gasser, et al, and Supplement Number 1 to Reviews of Infectious Disease, January 1991 by Oldfield, et al. These are excellent references for practicing physicians.

Any physician who suspects leishmaniasis involving Department of Defense service personnel should contact the appropriate service Infectious Disease Consultant.

U.S. Air Force: Gregory Melcher, MD
MAJ, USAF
Wilford Hall Medical Center
Lackland Air Force Base
San Antonio, TX 78236
COM. TEL: (512) 670-7444
DSN: 554-7444
FAX: (512) 675-0173

U.S. Navy/Marines: Edward Oldfield, MD
CAPT, USN
Naval Hospital
San Diego, CA 92134
COM. TEL: (619) 233-2215
DSN: 987-2215
FAX: (619) 532-7484

U.S. Army: Charles N. Oster, MD or Alan Magill, MD
COL, USA MAJ, USA

Infectious Disease Service
Walter Reed Army Medical Center
Washington, DC 20307
COM. TEL: (202) 576-0585/0586
DSN: 291-0585/0586
FAX: (202) 576-2478

We recommend that, for other individuals, the CDC be contacted.

Centers for Disease Control
Atlanta, Georgia 30333
Drug Request: (404) 639-3670 (Monday-Friday)
or
(404) 639-2888 (Evening, Weekend, Holiday)

SIGNATURE

DEPARTMENT OF DEFENSE
OPERATIONS DESERT SHIELD/DESERT STORM
HEALTH EFFECTS SURVEILLANCE PROGRAMS

Since the earliest stages of the deployment of our troops to the Persian Gulf region during Operation Desert Shield, the Department of Defense has taken measures to monitor personnel for potential adverse health effects. During Operation Desert Shield, a surveillance system for the epidemiological monitoring of the occurrence rates of diseases and non-battle related injuries was in place. This monitoring system identified that the rates of illnesses and non-battle injuries were lower during both Operations Desert Shield and Desert Storm than in any previous deployment of U.S. Forces. In addition, this system allowed us to identify that there were no acute health effects from exposure to the smoke from the oil well fires in Kuwait.

As a part of the immediate actions taken to determine the acute health effects being experienced by individuals exposed to smoke from the oil well fires, the U.S. Navy conducted an epidemiological study of 2700 Marines in Theater to see if sick call rates correlated to potentially greater exposure. This study used self-reported questionnaires to identify each individual's potential level of exposure and any medical symptoms they were experiencing. The initial analysis indicated slightly increased levels of respiratory symptoms for Marines who were closer to the fire. However, there was no evidence of any serious, acute health effects.

In April, 1991, the Department established a Tri-Service working group on the Health Effects of the Kuwaiti Oil Well Fire smoke. This group is composed of personnel with expertise in occupational medicine, preventive medicine, environmental health, and industrial hygiene. In addition to the working group members from DoD, the Department has called upon individuals from the Department of Veterans Affairs, the Centers for Disease Control, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, the Armed Forces Institute of Pathology, and the Armed Forces Epidemiology Board.

The purpose of this working group is to develop and implement programs to identify adverse health effects which troops who served in the Persian Gulf may potentially experience and to recommend appropriate action to be taken to protect the health of our troops. Two major initiatives are currently underway to accomplish these goals; 1) the Kuwait Oil Fire Health Risk Assessment for DoD Troops, and 2) the Kuwait Oil Fire Biologic Surveillance Initiative. The interpretation of these studies is interdependent and the final report of their findings is expected to be completed in December, 1992.

The Health Risk Assessment is a study conducted in Kuwait and Saudi Arabia to determine the levels of contaminants that existed in the Region during the time the oil well fires were burning. In addition, this study will develop estimates of the levels of exposure individuals may have experienced while deployed in the Region. The protocol used in this survey is a multidisciplinary, matrixed plan based upon the Environmental Protection Agency's risk assessment guidance for Superfund sites.

The Biologic Surveillance Initiative is a prospective study of the health effects of deployment in the Persian Gulf Region being conducted on 4700 Soldiers of the 11th Armored Cavalry Regiment. The data for this study were collected during the period June 1 through October 14, 1991. These data include answers to health questionnaires, pulmonary function tests, the use of medical treatment facilities, personal diaries, and various analyses of biological specimens from a sample of individuals. This study is being conducted in collaboration with investigators from the Occupational Safety and Health Administration, the National Cancer Institute, the Center for Disease Control, and the Johns Hopkins Medical Institutions.

While these scientific activities are being conducted to delineate the potential health risks, action has also been taken to assure that individuals who may potentially be at risk for adverse health effects can be identified in the future. In November, 1991, the Department began working with the Department of Veterans Affairs to establish a registry of the individuals who served in the Persian Gulf Region. This registry will consist of a data base of all daily ground locations of military combat units that operated in the theater during Operations Desert Shield/Desert Storm. In addition, the Military Departments, the Joint Staff, and all other offices with relevant information have been directed to preserve all Persian Gulf records that contain information about troop rosters and unit grid coordinate locations.

In addition to these epidemiological studies, the Department has investigated four reports of disease clusters among individuals who served in the Persian Gulf. In November, 1991, seven unusual cases of infection with the parasite, *Leishmania tropica*, were identified. These cases, as well as about 15 cases of typical *L. tropica* infection, have been successfully treated at Walter Reed Army Medical Center. Also, a major research effort has been launched to develop tests to assist in the early diagnosis of infection with this parasite. Until the magnitude of the problem with this infection is confirmed, Service members who deployed have been barred from

donating blood as a precaution against contamination of the nation's blood supply. Each of the Services have disseminated information to all DoD health care providers, information about the signs, symptoms, and treatment of individuals who are infected with this parasite. The Reserves, the National Guard, the Centers for Disease Control, the State and Territorial Epidemiologists, and the State and Territorial Public Health Laboratory Directors have also been provided this information, an advisory about blood donations from Service members who served in the Persian Gulf, and procedures for referring individuals who are suspected of having this disease to appropriate sources of care.

The second reported disease cluster related to the perception of increased occurrences of miscarriages among U.S. Army personnel returning from Kuwait and Saudi Arabia and their families. The Office of the Surgeon General of the Army evaluated the incidence of spontaneous abortions at several of the Army's community hospitals on posts from which soldiers were deployed. Data obtained for the periods May through August of 1991 were compared with similar data from 1990. In all locations, the miscarriage rates were considerably lower than the national average which approximates 15 percent. Additionally, no difference was found in the rates for 1991 compared to 1990.

The third potential disease cluster relates to the incidence of post-traumatic stress disorder (PTSD) among personnel participating in Operation Desert Storm. As outlined in the Department's report to Congress last year, which will be updated this month, estimates based on our experience to date suggest that the maximum expected incidence of clinical PTSD among troops who served in the Persian Gulf, based on the total in theater force, would be about 100 individuals. All individuals diagnosed with post-traumatic stress disorder have received treatment. Based on the expectation that there will not be a sharp increase in PTSD cases, the present mental health resources will be sufficient to provide the necessary rehabilitative services. The Department will continue to monitor this potential problem closely.

The fourth reported disease cluster occurred among 120 reservists assigned to the 123rd ARCOM. These individuals complained of a variety of health related symptoms including chronic fatigue, joint/muscle aches, hair loss, aching teeth, bleeding gums, and thick saliva. A series of medical evaluations were conducted during March and April, 1992, including an assessment by an Epidemiologic Consultant Service (EPICON) team. The assessments concluded that most of the symptoms were due to unrelated medical, dermatological,

orthopedic, and dental problems. No evidence of a common toxic, environmental, vaccine-related, or microwave exposure causation was identified. Nonetheless, we will continue with follow-up evaluations.

The Department of Defense is aggressively evaluating each reported disease cluster and assuring that individuals receive necessary treatment for identified medical conditions. To date, there is no objective evidence to suggest any common causation for the symptoms/conditions that have been observed. This process of disease cluster surveillance will continue until it is clear that no outbreak of illness, caused by exposures during service in Kuwait and Saudi Arabia, will occur among individuals deployed to the Persian Gulf. In addition, the Department is currently designing an epidemiologic comparison study to be conducted in 1994 as the first of a series of recurrent studies to investigate the potential occurrence of adverse health effects resulting from service during Operations Desert Shield and Desert Storm.



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0111



May 14, 1992

REPLY TO
ATTENTION OF

MEMORANDUM THRU DIRECTOR OF THE ARMY STAFF F. DAVID GOLEMAN, LTC, GS, ADAS
21 MAY 1992

FOR THE DEPUTY CHIEF OF STAFF FOR PERSONNEL
THE SURGEON GENERAL

SUBJECT: Change in Policy for a Particular
Disease Category

Particular details have come to my attention concerning soldiers of the Reserve Components who served in Southwest Asia and subsequently contracted Leishmaniasis. I have learned that this disease has a considerable and varied latency, or incubation, period between the time of exposure and development of symptoms. I also understand that if these soldiers had developed symptoms prior to their release from active duty, they would have qualified under our regulations to remain on active duty for treatment.

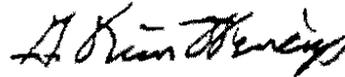
Although these soldiers are currently having their medical needs met, I do not like the perception that they are being penalized for not developing symptoms prior to REFRAD, when in fact this was through no fault of theirs and in fact the disease was contracted during their deployment in service to their country.

Please implement immediately the offer to each Reserve Component soldier diagnosed and being treated for Leishmaniasis the option to be returned to active duty for the duration of their acute phase treatment. The return should start the date the soldier is admitted to Walter Reed Army Medical Center for their evaluation for treatment. Also insure that each one has been placed on Incapacitation Pay effective from the time symptoms developed or diagnosis was made (whichever date resulted in incapacitation) through their return to active duty, or completion of acute phase treatment if return to active duty is declined.

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This is an exception to our recall to active duty for medical treatment policy for this specific disease entity only and should not effect any prior or future decisions concerning any other disease or injury.



G. Kim Wincup
Assistant Secretary of the Army
(Manpower and Reserve Affairs)

OPERATIONS
SUPPORT DIRECTORATE

ROUTINE
 F 131200Z NOV 91
 FM CORFORSCOM FT MCPHERSON GA//FCMD-PM//
 TO AIG 9879 AIG 9169
 F 021853Z NOV 91
 FM DA WASH DC//HDDA//SGPS-CP-9//
 TO COR USAHSC FT SAM HOUSTON TX// COR 7TH MEDCOM HEIDELBERG GERM
 COR18THMEDCOM SEQUOIA KOR // AIG 7446//

DISCONTINUED EARLY BECAUSE OF THROMBOCYTOPENIA. FOLLOWING TREATMENT, ALL FIVE PATIENTS RECOVERED, RETURNED TO DUTY AND ARE BEING FOLLOWED. A SIXTH CASE WAS ASYMPTOMATIC, THEREFORE, NOT TREATED WITH SODIUM STIBOGLUCONATE AND IS BEING FOLLOWED CLOSELY THE SEVENTH AND MOST RECENT CASE IS STILL UNDER CARE AT WALTER REED ARMY MEDICAL CENTER.

- UNCLAS SECTION 01 OF 02
 SUBJECT: LEISHMANIASIS IDENTIFIED IN SOLDIERS RETURNING FROM SOUTHWEST ASIA (SWA)
1. THIS IS TO INFORM YOU OF A VISCEROTROPIC FORM OF LEISHMANIASIS DUE TO THE PARASITE LEISHMANIA TROPICA AMONG MILITARY PERSONNEL WHO DEPLOYED TO SOUTHWEST ASIA (SWA) DURING THE GULF WAR. TO DATE, SEVEN CASES HAVE BEEN DIAGNOSED AT WALTER REED ARMY MEDICAL CENTER. NORMALLY, AN INFECTION WITH LEISHMANIA TROPICA RESULTS IN CUTANEOUS LESIONS ONLY; HOWEVER, ALL OF THESE CASES WERE FREE OF CUTANEOUS LESIONS AND, IN EACH CASE, THE PARASITE WAS RECOVERED FROM THE BONE MARROW. THESE NEW CASES ARE DISTINCT FROM THE TRADITIONAL CUTANEOUS FORM OF LEISHMANIASIS OF WHICH IS GULF RELATED CASES HAVE BEEN DIAGNOSED AND TREATED AT WALTER REED ARMY MEDICAL CENTER.
 2. EPIDEMIOLOGIC RISK FACTORS FOR THIS VISCEROTROPIC FORM ARE NOT WELL DEFINED AT THIS TIME. THESE SEVEN SOLDIERS WERE MEMBERS OF SEVERAL DIFFERENT ARMY UNITS WIDELY SCATTERED THROUGHOUT THE SWA THEATER OF OPERATIONS IN BOTH FIELD AND URBAN SETTINGS. NAVY MARINE, AIR FORCE AND CIVILIAN PERSONNEL WHO WERE STATIONED WITHIN THE THEATER OF OPERATIONS ARE ALSO CONSIDERED AT RISK OF EXPOSURE.
 3. THE NATURAL HISTORY OF THIS VISCEROTROPIC FORM OF L. TROPICA IS NOT KNOWN. THE FACT THAT THIS HAS NOT BEEN CLINICALLY APPARENT IN THE MANY TRAVELERS TO AND INHABITANTS OF THAT REGION SUGGESTS THAT INFECTIONS ARE RARE, AND/OR LARGELY SUBCLINICAL. BASED ON THE CURRENT CASES, THE CLINICAL APPEARANCE IS MUCH LESS SEVERE THAN THAT SEEN IN CLASSICAL VISCERAL LEISHMANIASIS (KALA AZAR) CAUSED BY L. DONOVANI. AS WITH OTHER PARASITIC AND INFECTIOUS DISEASES IN THE IMMUNOSUPPRESSED PATIENT, L. TROPICA HAS THE POTENTIAL FOR CAUSING SERIOUS ILLNESS.
 4. THE CLINICAL SPECTRUM FOR THESE CASES WAS VARIABLE AND NONSPECIFIC. FOUR OF THE SIX SYMPTOMATIC CASES HAD AN ACUTE SYNDROME WHICH INCLUDED A HIGH FEVER WITH RIGORS AND MALAISE, ACCOMPANIED BY MILD ANEMIA AND LOW GRADE ELEVATION OF LIVER ENZYMES (AST AND ALT). TWO CASES HAD A SUBACUTE ONSET, PRESENTING WITH GASTROINTESTINAL COMPLAINTS WHICH INCLUDED WATERY, FECAL-LEUCOCYTE-NEGATIVE DIARRHEA (OF SMALL VOLUMES), NAUSEA, AND NON-FOCAL ABDOMINAL PAIN THAT EVOLVED OVER TIME TO LEFT UPPER QUADRANT PAIN WITH HEPATOSPLENOMEGALY, HEADACHES AND CHRONIC IRRITATING COUGH WERE ALSO SEEN IN SOME CASES. ONE OF THE SEVEN CASES WAS COMPLETELY ASYMPTOMATIC AND DIAGNOSED ON THE BASIS OF EPIDEMIOLOGIC FOLLOW-UP OF AN INDEX CASE.
 5. THE INCUBATION PERIOD IS DIFFICULT TO ACCURATELY MEASURE. HOWEVER, IN THESE CASES, THE ONSET OF SYMPTOMS VARIED FROM WEEKS TO MONTHS AFTER LEAVING SWA.
 6. A SERUM INDIRECT IMMUNOFLUORESCENT ANTIBODY (IFA) TEST IS AVAILABLE AT WALTER REED ARMY INSTITUTE OF RESEARCH (WRAIR) THROUGH THE WALTER REED ARMY MEDICAL CENTER. HOWEVER, THERE IS NO COMMERCIALLY AVAILABLE SEROLOGIC TEST CURRENTLY AVAILABLE IN THE UNITED STATES TO CONFIRM INFECTION. WITH THIS TEST, IN PATIENTS WITH SUGGESTIVE SIGNS AND SYMPTOMS OF THIS LEISHMANIA INFECTION, A SERUM IFA EQUAL TO OR GREATER THAN 1:32 SUGGESTS INFECTION. DIAGNOSIS CAN BE CONFIRMED BY IDENTIFYING THE ORGANISM IN TISSUE AN CULTURING A BONE MARROW ASPIRATE. SMEARS OF THE ASPIRATE WERE NEGATIVE BY GIEMSA STAIN, BUT THE ORGANISM WAS DETECTED AT WRAIR USING ANTI-LEISHMANIA MONOCLONAL ANTIBODIES TAGGED WITH FLUORESCCEIN.
 7. THE TREATMENT OF CHOICE IS SODIUM STIBOGLUCONATE (PENTOSTAM) AN INVESTIGATIONAL NEW DRUG (IND) PRODUCED BY WELLCOME TRUST OF GREAT BRITAIN. IT IS AVAILABLE UNDER PROTOCOL TO MILITARY PHYSICIANS AT WALTER REED ARMY MEDICAL CENTER THROUGH WALTER REED ARMY INSTITUTE FOR RESEARCH, WASHINGTON, DC AND TO CIVILIAN PHYSICIANS FROM THE CENTERS FOR DISEASE CONTROL (CDC), ATLANTA, GEORGIA.
 8. FIVE OF THESE SEVEN CASES WERE TREATED WITH SODIUM STIBOGLUCONATE. IN TWO OF THESE FIVE CASES, TREATMENT WAS

9. THE MILITARY MEDICAL DEPARTMENTS ARE ACTIVELY INCREASING THEIR CASE FINDING EFFORTS BY HEIGHTENING AWARENESS OF BOTH MILITARY AND CIVILIAN PHYSICIANS TO THIS CLINICAL SITUATION. SINCE MANY OF OUR MILITARY PERSONNEL WHO DEPLOYED TO THE GULF WERE RESERVISTS WHO, IF ALL, WOULD VISIT THEIR PERSONAL CIVILIAN PHYSICIAN IN THE PRIVATE SECTOR, THE CDC AND FDA ARE PARTICIPATING IN THIS EFFORT.
10. TRANSMISSION OF THE ORGANISM IS BY THE BITE OF A SANDFLY. MAN IS AN INCIDENTAL HOST. PERSON-TO-PERSON TRANSMISSION OF THIS FORM HAS NOT BEEN REPORTED.
11. THERE HAVE BEEN FIVE CASES REPORTED IN THE WORLD LITERATURE OF VISCERAL LEISHMANIASIS (L. DONOVANI) TRANSMITTED THROUGH BLOOD TRANSFUSIONS. NO CASE OF TRANSFUSION-ASSOCIATED TRANSMISSION HAS BEEN REPORTED WITH L. TROPICA BUT A THEORETICAL RISK EXISTS. THEREFORE, AS A CONSERVATIVE SAFETY PRECAUTION DUE TO THIS THEORETICAL RISK AND THE ABSENCE OF A SIMPLE SCREENING TEST, THE ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS) HAS DIRECTED MILITARY SERVICES TO DEFER UNTIL FURTHER NOTICE ALL PERSONNEL FROM BLOOD DONATION WHO WERE STATIONED IN SAUDI ARABIA, KUWAIT, IRAQ, BAHRAIN, QATAR, UNITED ARAB EMIRATES, OMAN AND YEMAN FROM 1 AUGUST 1990 AND THEREAFTER.
12. BLOOD PRODUCTS ALREADY COLLECTED FROM GULF WAR RETURNEES CURRENTLY IN THE INVENTORY ARE NOT BEING WITHDRAWN BECAUSE OF THE VERY LOW RISK OF CONTAMINATION BALANCED AGAINST THE RISK OF A SUDDEN SHORTFALL OF CRITICAL BLOOD SUPPLIES. UNDER CURRENT PROCEDURES, DONORS WHO WERE SYMPTOMATIC OR BLOOD UNITS WITH AN ELEVATED ALT LEVEL WOULD HAVE ALREADY BEEN EXCLUDED. NONE OF THE IDENTIFIED CASES HAS DONATED BLOOD AND ALL PATIENTS WITH ANY FORM OF LEISHMANIASIS ARE PERMANENTLY DEFERRED FROM FUTURE DONATIONS. BLOOD DONATION HISTORY WILL BE TAKEN FROM ANY FUTURE CASE AND, IF POSITIVE, A COMPLETE LOOKBACK FOR THAT CASE WILL BE CONDUCTED.
13. THE POTENTIAL THREAT OF EXOTIC PATHOGENS IN SOUTHWEST ASIA IS REVIEWED BY MILITARY MEDICAL PLANNERS PRIOR TO THE GULF WAR AND IS OUTLINED BY THE NEW ENGLAND JOURNAL OF MEDICINE ARTICLE PUBLISHED ON 21 MARCH 1991 BY GASSER, ET AL, AND SUPPLEMENT NUMBER 3 TO REVIEWS OF INFECTIOUS DISEASE, JANUARY 1991 BY OLDFIELD, ET AL. THESE ARE EXCELLENT REFERENCES FOR PRACTICING PHYSICIANS.
14. ANY PHYSICIAN WHO SUSPECTS LEISHMANIASIS INVOLVING DEPARTMENT OF DEFENSE SERVICE PERSONNEL SHOULD CONTACT THE APPROPRIATE SERVICE INFECTIOUS DISEASE CONSULTANT.

U.S. AIR FORCE: GREGORY MELCHER, MD
 MAJ, USAF
 WILFORD HALL MEDICAL CENTER
 LACELAND AIR FORCE BASE

BT
 UNCLAS FINAL SECTION OF 02
 SAN ANTONIO, TX 78236
 COM. TEL: (512) 670-7444
 OSW: 554-7444
 FAX: (512) 675-0173

U.S. NAVY/MARINES: EDWARD OLDFIELD, MD
 CAPT, USN
 NAVAL HOSPITAL
 SAN DIEGO, CA 92134
 COM. TEL: (619) 532-7475
 OSN: 522-7475
 FAX: (619) 532-7484

U.S. ARMY: CHARLES N. OSTER, MD OR ALAN MAGILL, MD
 COL, USA MAJ, USA
 INFECTIOUS DISEASE SERVICE
 WALTER REED ARMY MEDICAL CENTER
 WASHINGTON, DC 20307
 COM. TEL: (202) 576-0585/0586
 OSN: 291-0585/0586
 FAX: (202) 576-2478

WE RECOMMEND THAT, FOR OTHER INDIVIDUALS THE CDC BE CONTACTED CENTERS FOR DISEASE CONTROL
 ATLANTA, GEORGIA 30333
 DRUG REQUEST: (404) 639-3670 (MONDAY-FRIDAY)

ACTION OASG(3)
 INFO RETURN TO MRO(1) DAAR(3) SCB REVIEW(1)

(M)

OR
 (404) 639-2888 (EVENING, WEEKEND, HOLIDAY)

ARMY SECTIONAL MSG

MCN=91317/25435

TOR=91317/1609Z

TAD=91317/1633Z

CDSN=MA0334

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 121853Z NOV 91
 02 SECT MSG

UNCLASSIFIED

OPERATIONS
SUPPORT DIRECTORATE

REQUEST IMMEDIATE DISSEMINATION TO ALL APPROPRIATE PERSONNEL
TO INCLUDE ALL CLINICIANS AND BLOOD BANKERS.
POINTS OF CONTACT ARE COL PEAKE, DSN: 289-0141 OR (703)
756-0141, COL ERDMANN, DSN: 289-0125 OR (703) 756-0125; COL
TOMLINSON, DSN: 289-0135 OR (703) 756-0135, OFFICE OF THE SURGEON
GENERAL. BT

UNCLASSIFIED



DEPARTMENT OF THE ARMY
OFFICE OF THE SURGEON GENERAL
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258



REPLY TO
ATTENTION OF

SGPS-PSA

26 May 1992

MEMORANDUM FOR Chairman, Leishmaniasis Committee

SUBJECT: Minutes of the Administrative Subcommittee of the Triservice Committee on Surveillance and Control of L. tropica among Gulf War Returnees

1. This committee meeting was held at 1430 hours, 22 May 1992, in Room 674, Skyline 6, Office of the Army Surgeon General. Attendees were:

NAME	Organization	Telephone/Fax
COL C. Oster	WRAMC	202-576-0587/
COL P. Tomlinson	USA OTSG PM	703-756-0124/0163
COL W.E. Savage	NGB	703-756-2799/4731
COL D. McKnight	USA OTSG NG Liaison	703-756-8048/
LTC R.B. Chapman	USA OTSG PAD (Chairman)	703-756-0102/0163
LTC S. Scanlon	USA OTSG USAR Liaison	703-756-8056/0243
MAJ P. Marcieski	USA OTSG PAD	703-756-0105/0163
MAJ R. Lipnick	USA OTSG PM	703-756-0357/0163
MAJ M. Coleman	USA NGB	703-756-7772/1225
CPT M. Poulsen	USAF Health Care Ops	202-767-5066-6208
MSG N. Rodriguez	USA OCAR	703-696-2965/226-5300
Ms. K. Posey	DVA	202-535-7375/
Ms. L. Hawkins	VA Med Center, Wash, DC	202-745-8248/
Ms. T. Wortzel	USA OTSG Med Standards	703-756-0150/0163
Ms. C. Vannerman	USA OTSG Med Standards	703-756-0157/0163
Mr. L.C. Procter	USA NGB	703-756-0752/4731
Ms. V. Stephanakis	USA OTSG Public Affairs	703-756-8022/4670

2. Business:

a. LTC Chapman opened the meeting, welcomed and thanked the attendees for their interest and support by attending this meeting, and distributed a packet of historical documents (Encl 1) containing clinical and administrative information regarding Leishmaniasis.

He stated the purposes of the meeting.

(1) To evaluate the effectiveness of the procedures put in place in December 1991 to identify, evaluate and treat SM suspected of having Leishmaniasis.

(2) To refine these procedures as necessary, and emphasize "getting the word out" to potentially infected SM.

SGPS-PSA

SUBJECT: Minutes of the Administrative Subcommittee of the Triservice Committee on Surveillance and Control of L. tropica among Gulf War Returnees

b. COL Oster presented an informative summary of the various types of Leishmaniasis and the connection with Operation Desert Shield/Storm.

He then presented several problems reported to him by SM who were eventually referred to WRAMC, and the difficulties they encountered getting into, and through the system.

COL Oster also proposed that a clinical algorithm be developed to standardize the initial evaluation of suspected SM, which will assist primary care clinicians, and the Infectious Disease Service staff at WRAMC, to initially identify and evaluate potential Leishmaniasis patients. This would also allow initial evaluation and follow up to be conducted at the local level where it would be more convenient for the patient. This would also assist the staff at WRAMC manage the cases more efficiently and effectively.

COL Oster suggested that the algorithm be patterned after the "Hepatitis C Program" procedures. After much supportive discussion, it was recommended that COL Oster pursue this recommendation for an algorithm. If approved by all necessary parties, to include OASD Health Affairs, then dissemination of this algorithm, with additional instructions, would be made throughout the country.

c. Ms. Posey then informed the committee that the VA was in the process of obtaining approval to implement a Registry of Desert Storm Veterans as these patients present themselves for care at a VA facility. This was of interest to the DOD attendees as a potential source of identifying SM with other than Leishmaniasis. It was noted, however, that the patients that were being followed at military facilities would not be in the VA registry, although eventually would become DVA beneficiaries.

COL Oster stated that WRAMC and WRAIR are in the process of developing a registry for patients evaluated at WRAMC. It would be desired to share this information with the DVA.

Ms. Posey gave the names and telephone number of the Chief, Infectious Disease at the VA Medical Center in Washington, D.C., Dr. Fred Gordon, and his assistant, Dr. Sacks, to COL Oster for future contact (202-745-8301) and information sharing.

d. Ms. Hawkins asked if it were possible for the DVA patients that are referred to WRAMC to stay at the VA Medical Center in Washington, D.C. while they are being evaluated/treated at WRAMC. COL Oster replied that this may work to a limited degree with some patients, however the patients' responses to some tests and treatment could leave them too ill for transferring back and forth.

SGPS-PSA

SUBJECT: Minutes of the Administrative Subcommittee of the Triservice Committee on Surveillance and Control of L.tropica among Gulf War Returnees

e. LTC Chapman then asked everyone to re-energize their respective commands and agencies to be alert to the SM who are yet to present themselves for care. It is critical that these SM, once identified, are evaluated according to the instructions of the staff at WRAMC. If required, units, ARPERCEN, the NGB, the DVA, need to facilitate timely referral of these SM to WRAMC.

It was decided that the guidance and procedures presently in place would be emphasized and followed. Additional guidance would wait upon a decision regarding the acceptance and implementation of a clinical algorithm to address the initial evaluation of Leishmaniasis.

It was further decided that a Public Affairs approach to "getting the word" out would not be advisable as the symptoms of Leishmaniasis were vague and general and that SM would unnecessarily worry, wrongfully refer themselves for evaluation.

f. The recent decision of the Office of the Assistant Secretary of the Army, dated 21 May 1992, offering Army Reserve Component soldiers with symptoms of Leishmaniasis, to be placed back on active duty for the duration of the acute phase treatment was briefly discussed. Procedures to implement this decision were yet to be worked out.

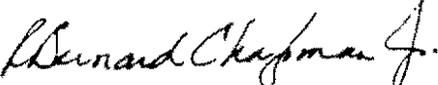
3. Summary of actions to be taken:

a. Reemphasize to all appropriate commands and agencies the procedures to identify and assist SM who present with symptoms of Leishmaniasis with the evaluation and treatment process, and to administratively assist the SM with necessary orders and other entitlements. ACTION: All Attendees.

b. Develop a clinical algorithm for review, necessary approvals, and implementation throughout the U.S. which will standardize the initial evaluation of SM who present themselves with symptoms of Leishmaniasis. ACTION: COL Oster.

4 The meeting adjourned at 1600 hours, 22 May 1992.

Encl


R. Bernard Chapman, Jr.
LTC, MS
Asst. Chief, Patient
Administration Division

LEISHMANIASIS MEETING

02 MAY 1992

AGENDA

1. 1430 - a. Welcome. LTC Chapman
- b. Purposes.
 - * To evaluate the effectiveness of the procedures put in place Dec 91 to identify, evaluate and treat SM suspected of having Leishmaniasis.
 - * To refine procedures as necessary, and emphasize "getting the word out."
- c. Introductions
2. Background development of current policy for identifying and evaluating SM suspected of having Leishmaniasis. LTC Chapman
3. Summary of feedback from SM who have been identified and "processed through the system" to be evaluated at WRAMC. COL Ester
4. Discussion. All
5. Adjournment. LTC Chapman

MEMORANDUM FROM COL BERMAN

SUBJECT: Minutes of 9th meeting--4 May 92

1. Attendees were: COL Oster, COL Sadoff, COL Berman (Chair), LTC Perkins, LTC Ballou, MAJ Nuzum, MAJ Magill, MAJ Grogl, Dr. Nacy, Dr. Leiby.

2. Chair's report:

COLs Berman, Schuster, Salvado presented the program to MRDC on 17 Apr 92. The diagnostic initiatives IFA, ELISA, Western Blot, PCR were approved by MRDC to approximately the amounts on the appended spreadsheet. Skin test was not approved, because of the concern that it might require too long (1 1/2 yrs) to produce a product. Work on leishmania survival in blood was approved, to the amount shown on the spreadsheet, but tropism of New and Old World Leishmania was not approved. Patient diagnosis on new cases, data management, sample shipping, and consultation was approved to the amount shown.

The working group thought that a skin test was as likely as any other diagnostic test to be useful in the ODS patients and that funding for the test should be approved. The working group also thought that tropism of Leishmania tropica to blood (as opposed to tropism of Leishmania in general to organs in general) was as relevant to the management of the ODS patients as the approved work on Leishmania survival in blood, and should be approved for funding.

3. Diagnostic Initiatives:

a1) IFA-slide test: The IFA initiative was divided up into the IFA slide test and a new diagnostic modality, the FACS test.

The IFA slide test was used on paired samples, originally collected for a survey of tick-borne diseases, from 209 ODS troops. 11 paired samples showed a 4-fold rise from pre to post deployment. No sample showed an 8-fold or higher rise; there were approximately 53 samples with a 2-fold rise. [None of 49 (?) Marines on board a ship showed a 4-fold rise]. If we assume that a 4-fold rise is diagnostic of infection, then 5% of this ODS unit was infected with Leishmania.

a2) IFA-FACS: Deliberately infected monocytes are fixed with paraformaldehyde, permeabilized with saponin, reacted with fluorescent anti-leishmania antibody, and subjected to fluorescent activated flow cytometry. Infected monocytes are more fluorescent than uninfected monocytes, and one infected monocyte can be detected in the midst of 33,000 uninfected monocytes. This technique shows promise for the detection of infected monocytes in blood.

b,c) ELISA: LTC Martin (USAMRU-K) grows Leishmania in protein free media, then collects the media which contains Leishmania-excreted proteins. These proteins can be used on a Western blot, and bands recognized by patient's sera can be eluted. The eluted bands can be used in an ELISA. This procedure works well for L donovani: excreted, eluted bands are the basis for a successful ELISA that recognizes serum from L donovani infected patients, but does not recognize sera from L tropica cutaneously infected patients. LTC Martin is now attempting the same approach to originating an ELISA using L tropic excreted factor that recognizes the serum of our viscerotropic L tropica patients. LTC Martin will be TDY to WRAIR in ~June 92 to demonstrate his results and procedures.

d) PCR: responses to RFP are being considered,

e) Skin test:

1. CDI proposes contracting for 1000 doses of L tropica skin test material for \$71K. If this material has only slight reactivity (defined as <3 mm induration) in normal volunteers (80K test), then CDI proposes to GMP manufacture 500,000 doses in-house in a new GMP facility for \$300K. The contracts for all these procedures require about 12 weeks. If funding is received by 1 Jun 92, most contracts can probably be let by Sep 92 (although work will not start immediately in all contracts). Some contracts can not be let by the deadline of Sep 92: this work will have to be performed in house gratis.

2. Wellcome has been contracted about their L major antigen, presently being used in the US

by Dr. Neva. There is no more material at Wellcome; Wellcome has no intention of making more: the facility in which the material was made is no longer GMP and will not be upgraded.

3. The WHO stated that their L major antigen is being produced at the Pasteur Institute, Teheran, and that there are large amounts (100,000 doses) available for a nominal price (1K for 10,000 doses). This antigen is presently being used by the NIH with NIH human use approval but without an IND. For MRDC/HSC to use this material, it would probably have to go through sterility/lack of acute toxicity tests (2K).

4. Plan: The L major antigen should be compared to the L tropica antigen made in 1000 doses in preclinical tests (5K extra) and in normal volunteers. Comparison of L major antigen to L tropica antigen therefore costs only 7K extra. This is money well spent to see if there is an alternative to spending 300 K to make 500,000 L tropica doses. However, if the L. tropica antigen is superior, the 300K mentioned above to make 500,000 doses would be money well spent.

The major problem with this Plan is that I doubt that with the several in vivo tests needed (preclinical animal test, human phase I tests at a DoD facility, administration to patients through the Army, Navy, and Air Force), someone somewhere will not require an IND. COL Schuster and I have not yet devised an ironclad means of getting assurances ahead of time that an IND will not be required.

4. Other initiatives:

f2) Survival in blood: The recommendations to freeze blood are the same as the recommendations to freeze Leishmania, such that they will remain viable.

g) Patient diagnosis: It was briefly reported that two new cases (one visceral, one cutaneous) have been diagnosed.

k) Extent of infection in the force: 26 ODS members of Foreign Material Intelligence Branch, now at Aberdeen, were subjected to L major skin test by Dr. Neva. 3 had >5 mm induration; the accepted criteria for Leishmania skin test positivity. 5 others had 3-4 mm induration. [We await data on the extent of induration in US controls that could not have been exposed to Leishmania.] This gives a ~10% or 35% incidence of infection in this small force.

5. Funding:

a) MRDC: Of the \$3400K that arrived from OTSG to MRDC, \$2540K was passed to WRAIR. The assumption is that MRDC needed 860K to pay for the PCR RFP (?550K) and the 154K for the terminated IFA testing at Salk. It is hoped that MRDC will also pay the 77K for Reed's contract to try to devise a specific ELISA antigen. If so, that would leave ~80K at MRDC. Berman will call Hill to discuss.

b) Approved for WRAIR: Of the 2540K that arrived at WRAIR, the accompanying spread sheet [May 92] shows that 1250 is needed for past expenditures made upon the promise of funds.

In addition, 426 is needed for future expenditures approved by MRDC, and 282 is needed for future salary costs approved by MRDC. Future costs represent the total amount needed until Sep 93, which is apparently the last date that ODS funds, obligated in FY 92, can be utilized. The salaries are MIPRed to the AFIP, which has an agreement with the ARP to provide non-personal services assistance. MAJ Horning will call AFIP to see how much of previous MIPR is as yet unspent, and to verify that 12 more months of services can be contracted in Sep 92.

If WRAIR adds a 16% overhead charge to all new WRAIR expenditures (426 + 282), the result is $1250 + 524 + 336 = 2110$. WRAIR received 2540.

It is suggested to Dep Dir/ Dir Resource Management that the 1250 be paid off, that the Future Exp amounts indicated without italics on the spreadsheet (440 = 524 with 16% overhead) be put into the funding accounts of the respective divisions, and that 336 (282 with 16% overhead) be MIPRed to the AFIP. WRAIR would still have ~300 unspent. The unspent amount would be larger if MAJ Horning can recover that percent of the original 250K given to the AFIP that hasn't yet been spent.

c) Requested by WRAIR: Since the grand total of approved expenditures, requested expenditures, and 16% WRAIR overhead equals 3784K, if the requests to fund development of a skin test (452 K) and to further examine Leishmania blood interaction (174 K) are granted, the total MRDC-WRAIR requirements would be ~400K more than the 3400K from OTSG, and ~600K more than the present amount spendable by MRDC/WRAIR.

COL Sadoff will circulate the proposal to develop a skin test, and send the proposal to RAD 1. COL

Berman will do the same for the Leishmania-Blood studies. If RAD1 and MRDC comptroiler approve of these two items, MRDC will have to request ~400K from OTSG.

INITIATIVE	WRAIR		COSTS (\$K)		[May 92]	OTHER NOTES
	PREVIOUS (TOTAL)	FUTURE EXP (TOTAL)	FUT SALAR (TOTAL)	CONTRACT (TOTAL)	CONTRACT NOTES	
1. DIAGNOSTIC TESTS						
a1. IFA slide test		32 (ET)	0	154	Salk	OK: APR 92
a2. IFA-FACS		36 (CDI)	0	0		
b. ELISA		72(CDI)	0	77	Reed	OK: APR 92
c. Western		0	90(1: CDI)	0		OK: APR 92
d. PCR		10 (ET)	24(0.5:ET)	550	FFP	OK: APR 92
e. Skin test-1000 dose		0	0	72	via CDI	requested
e. Skin test-500000		300 (CDI)	0	80	via CDI	requested
2. LEISH-BLOOD						
f1: TROPISM TO BLOOD		36(CDI)	0	120	AFIP	requested
f2: SURVIVAL IN BLOOD		36(ET)/36(CDI)	0	0		OK: APR 92
f3: TRANSFUSE FROM BLOOD		18(ET)	0	0		requested
3. PATIENT DIAGNOSIS						
g: NEW CASES		170 (ET)	168(2.5:ET)	0		OK: APR 92
h: DATA MANAGEMENT		0	0	0		OK: APR 92
m: SAMPLE SHIPPING		24 (ET)	0	0		OK: APR 92
n: CONSULTATION		24 (HQ)	0	0		OK: APR 92
						GRAND
TOTALS (no req)	1250	440	282	781		2753
TOT (+16% WRAIR)	1250	524	336	781		2891
TOTALS (includes requests+16% WR)	1250	945	336	1053		3584

POSITION PAPER

SUBJECT: Rescission of Leishmania Donor Deferral Policy

BACKGROUND:

1. On 12 November 1991, the ASBPO, at ASD(HA)'s request, issued a policy letter requesting deferral of all donors who served in the Persian Gulf until sufficient evidence could be amassed to modify that policy or until a screening test could be developed that would protect the blood supply.
2. Subsequently, the major civilian blood collection agencies also published a similar policy, but indicated that the deferral would be in effect until 1 January 1993. A firm date was assigned by the civilian community to encourage donors to return and to not discontinue donating indefinitely.
3. Both the military and civilian blood collecting communities intended to publish additional information well in advance of the 1 January 1993 date indicating necessary deferral policy changes.
4. A U.S. Navy Surgeon General memorandum, dated 16 April 1992, was sent to the DASD(HA)PA/QA requesting that the leishmania donor deferral policy be rescinded. It cited that the first 22 cases of leishmania had already been identified when the initial deferral policy was published and that there were only three additional cases identified as of 4 March 1992. The infection rate was stated to be only 0.005 percent.

RECOMMENDATION:

Since it has only been two months since the last case of leishmania was diagnosed, recommend that an additional two months of no new cases pass before rescinding the policy. In addition, the Leishmania Working Group should develop guidelines for deferral of those individuals who have served in the Persian Gulf area since completion of Operation DESERT STORM. These guidelines should be coordinated with civilian transfusion-transmitted disease experts to ensure uniformity of policy among all U.S. blood collecting agencies.

CLINICAL COURSE (VM)

MARCH 1991	RETURN FROM ODS
28 AUG 1991	SEROLOGY SCREEN OF UNIT AT FT. BRAGG LEISHMANIA IFA TITER OF 1:32, PATIENT ASYMPTOMATIC
LATE OCTOBER 1991	ONSET OF ILLNESS OVER SEVERAL DAYS MALAISE, FATIGUE, ARTHRALGIAS, MYALGIAS ANOREXIA, NAUSEA, NONSPECIFIC ABDOMINAL PAIN HEADACHES, DIZZY, NONPRODUCTIVE COUGH TENDER RUQ AND LUQ
13-18 NOV 1991	FIRST WRAMC ADMIT
14 NOVEMBER 1991	FIRST BONE MARROW ASPIRATION 3 AMASTIGOTES SEEN ON MONOCLONAL GIEMSA AND CULTURE NEGATIVE PCR OF BLOOD AND MARROW (+) FOR LEISH
6-16 JAN 1992	SECOND WRAMC ADMIT
07 JANUARY 1992	SECOND BONE MARROW ASPIRATION MONOCLONAL/GIEMSA/CULTURE NEGATIVE PCR OF BLOOD (+) FOR LEISH LEISH SKIN TEST (-), T CELL PROLIFERATION (+)
19 FEB TO PRESENT	THIRD WRAMC ADMIT HEPATOMEGALY FIRST NOTED ON PE
25 FEBRUARY 1992	EGD + BX = MILD GASTRITIS WITH ULCER AT GE JUNCTION
27 FEBRUARY 1992	CT OF CHEST NORMAL (? OF PERIHILAR ADENOPATHY ON CXR). OLD GRANULOMATOUS DZ
02 MARCH 1992	CT OF ABDOMEN - ? OF MASS IN TAIL OF PANCREAS, SPLENIC GRANULOMAS. AND HEPATOMEGALY

10 MARCH 1992 LIVER BX = MILD CHRONIC PORTAL TRIADITIS
AFB AND FUNGAL SMEAR/CULTURE NEGATIVE
MONOCLONAL SMEAR POSITIVE
SUSPECT STRUCTURES SEEN ON H&E BUT NOT DX FOR
AMASTIGOTES
CULTURE NEGATIVE FOR LEISHMANIA

01 APRIL 1992 REPEAT CT OF ABDOMEN - UNCHANGED. PROBABLY
NORMAL ANATOMIC VARIANT BUT CANNOT R/O MASS
IN TAIL.

07 APRIL 1992 DEDICATED CT OF PANCREAS WITH REALTIME
CONTRAST ENHANCEMENT SHOWS NORMAL
PANCREAS.

08 APRIL 1992 LEFT AXILLARY LYMPH NODE EXCISIONAL BX
CULTURE POSITIVE FOR PROMASTIGOTES AT 8
DAYS. ISOLATE CHARACTERIZED AS L.TROPICA.

SUMMARY OF DX TEST RESULTS

STOOL O&P AND C&S NEGATIVE FOR ENTERIC PATHOGENS/PARASITES
STRING TEST FOR GIARDIA NEGATIVE
MONOSPOT NEG, VCA-IGM NEG, VCA-IGG=1:640, EA=1:40, EBNA(+)
CMV IGM NEGATIVE, CMV IGG (+)
HTLV-1, HTLV-2 NEGATIVE. HIV ANTIBODY NEGATIVE X 2 (NOV91.MAR92)
NEGATIVE RPR, B. CANIS, B. ABORTUS, TOXO, F. TULAR. SEROLOGY
NORMAL ESR
NORMAL TFT'S AND CORTROSYN STIM TEST (7 TO 34)
AFB/FUNGAL SMEAR AND CULTURE OF LIVER, 2ND BONE MARROW,
LYMPH NODE NEGATIVE, ALL SPUTUM SPECIMENS AFB SMEAR
NEGATIVE BUT 1 OF 3 CULTURE (+) FOR M. GORDONAE.
PPD NEGATIVE WITH NORMAL DTH RESPONSE

LEISH SPECIFIC

T CELL PROLIFERATION FOR LEISH AG (+)
PCR of peripheral blood (+) X 2
LEISH SKIN TEST NEGATIVE X2 (JAN AND MAR 92)

SUMMARY

35 year old airborne trooper with subacute onset of clinical symptoms 7 months after return from ODS. Clinical presentation was a nonspecific systemic illness that evolved into a chronic fatigue syndrome. RUQ tenderness with hepatomegaly, LUQ tenderness but no palpable spleen, and intermittent peripheral adenopathy were seen during the course of illness. No anemia, leucopenia, thrombocytopenia, elevated ESR, or elevated transaminases were ever documented. Modest hypoproteinemia and hypoalbuminemia were seen. Modest lymphopenia and monocytosis were also seen.

The patient had 2 bone marrow aspirations, 1 liver biopsy and a lymph node biopsy before a Dx was unequivocally established. In addition, multiple radiographic studies and blood tests were performed. Patient endured 5 months of illness prior to receiving potentially curative RX.

As of 17 April, patient has had 75 inpatient days at WRAMC. He will require a month of Rx and a month of convalescent leave prior to return to duty if no complications occur. Total loss of time to his unit to date is almost 6 months with a minimum of 2 more months to go.

Alan J. Magill M.D.

UPDATE:

Patient has completed 22 of a planned 30 doses of Pentostam. He has had all the usual side effects of this drug to include drug associated pancreatitis. However, his laboratory abnormalities and abdominal symptoms have improved with continued therapy and we anticipate completing the full course of treatment.

06 May 1992

Alan J. Magill M.D.

WRAMC Leishmania Update for 06May92 OTSG Meeting

1. One new case of viscerotropic leishmaniasis due to L.tropica.

Case totals 10 Viscerotropic
17 Cutaneous
27 total ODS related Leishmaniasis

2. Discussion of lessons learned from latest case

3. Current WRAMC inpatient census

4 patients currently being treated with Penstostam
2 cases of cutaneous - one ODS related and one from
French Guiana.
2 cases of ODS related viscerotropic disease

5 others for Dx evaluation
4 suspect viscerotropic cases
1 suspect cutaneous case

4. Results of APG skin test survey

Alan J. Magill M.D.

AGENDA

Triservice Committee on Surveillance and Control of L.tropica
Among Gulf War Returnees

29 May 1992
Room 535--Skyline 5
Falls Church, Virginia 22041-3258

I. Approval of the Minutes

II. Old Business

Issues

Action

Leishmaniasis Resourcing Update

MAJ McMaughan

Patient Inquiries/Clinical
Status/New Cases Update

MAJ Magill

Status of DOD Blood Donation
Deferral

LTC Ward

Patient Access

LTC Chapman

Review Results of WRAIR Special
Working Group

COL Berman

III. New Business

Open Discussion

Committee Members



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U.S. ARMY HEALTH FACILITY PLANNING AGENCY
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258



SGPS-CP

MEMORANDUM FOR See Distribution

SUBJECT: Minutes of the Triservice Committee on Surveillance and control of L.tropica among Gulf War Returnees

1. The ninth ad hoc committee was held at 1400 on 5 May 1992, in Room 674, Skyline 6. Attendees were:

Name	Organization	Telephone	FAX Extension
COL Berman	WRAIR-MRDC	202-576-3453	x3114
COL Claypool	SGPS-CP-M	703-756-0148	x0163
COL Peterson	OASD (HA)		
COL Shuster			
COL Wright			
CDR Cunnion			
CDR Parsons			
COL Oster			
COL Tomlinson	SGPS-PSP	703-756-0128	x0163
LTC Brown	SGPS-CP		
LTC Gasser	USAF		
MAJ Grogl	WRAMC		
MAJ Magill	WRAMC	202-756-1740	
MAJ Lewis	SGPS-CP	703-756-0160	x0163
MAJ Lipnick	SGPS-PSP	703-756-0123	

2. The minutes of the previous meeting were approved.

3. Old Business:

a. Colonel Oster asked about WRAMC resources. The committee advised him to have the WRAMC Comptroller contact Major McMaughan, DASG-RMZ.

b. A clinical leishmania update was provided and discussed by Major Magill (Encl 1).

c. The challenges of patients suspected of leishmaniasis getting into the established protocols was briefly discussed. Major Marcheski will give an update at the next meeting.

d. A position paper on the donor deferral policy was presented (Encl 2).

SGPS-CP

SUBJECT: Minutes of the Triservice Committee on Surveillance and control of L.tropica among Gulf War Returnees

e. Colonel Berman provided an update on the current status of the L. Tropica Working group (Encl 3).

4. Summary of Actions:

<u>Issues</u>	<u>Action</u>
Leishmaniasis Resourcing Update	MAJ McMaughan
Patient Inquiries/Clinical Status/New Cases Update	MAJ Magill
Patient Access	LTC Chapman
Status of DOD Blood Donation Deferral	LTC Ward
Review Results of WRAIR Special Working Group	COL Berman

5. There being no further business, the meeting was adjourned with the next meeting scheduled for 1400, on 29 May 1992, in Room 535, Skyline 5 (Encl 4). *1000*

4 Encls
as


ROBERT G. CLAYPOOL
COLONEL, MC
Chief, Clinical Policy
Consultants Division

DISTRIBUTION:

COL Bancroft	USAMRDC	LTC Chapman, Jr.	SGPS-PSA
COL Berman	WRAIR-MRDC	LTC Roberts	SGPS-PSP
COL Claypool	SGPS-CP	LTC Ward	ASBPO
COL Hiner	SGPS-CP-P	LTC Wright	USAF/SGPA
COL Oster	WRAMC	MAJ DeFraitcs	WRAIR
CAPT Parsons	AFEB	MAJ Lewis	SGPS-CP
COL Robinson	WRAIR	MAJ Magill	WRAMC
COL Sprague	WRAMC Path	LCDR May	BUMED
COL Wear	AFIP	MAJ McMaughan	DASG-RMZ

MEMORANDUM FROM COL BERMAN

SUBJECT: Minutes of 10th meeting: 28 May 92

1. Chair's report:

Funding status: We are now entering the 3rd phase of the program. The first phase (Nov 91-Feb 92) was initial experiments and understanding the problems. The second phase (Feb 92-June 92) was obtaining authorization/funding for addressing the problems. The present 3rd phase is to actually address the problems.

Funds are authorized as per the appended memorandum for the record of 27 May 92. We have to spend the funds by Sep 92, and then produce data. Monthly progress reports are mandatory.

2. Diagnostic Initiatives: administration [ability to obligate funds] and science [data]

a,k) IFA: Future paired serum studies and extent of infection in force:

Having determined that on the basis of paired sera, a 4-fold rise in titers occurred in 5% of one unit and 0% of another unit, determinations will now be made of the incidence of 4-fold rises in other units. The only appropriate units are ones in which sera was drawn soon after the termination of ODS, so that ELISA titers do not have time to decline. There are 3 such units. The extent of infection in the force, on the basis of 4-fold rise in IFA titers, will then have been determined in 5 military units.

b) ELISA: no new data.

c) Western Blot.

LTC Martin (USAMRU-Kenya) has been growing Leishmania without added protein in the medium. This permits concentration of the parasite proteins that are excreted into the medium without the concentrate being overwhelmed with medium protein. When the medium from a 5-day culture of a USSR L tropica were concentrated by a factor of 10, run on a Western blot, and then reacted with a 1/500 dilution of post-deployment sera from 5 patients (4 confirmed cases and 1 highly suspected case), 2 patients (Ford/Loggins) showed a band at 55 kd. 3 patients (Molina/Boone/Patrick) do not show a band. All pre-deployment sera were negative, at 1/500 dilution. When the sera was used at a dilution of 1/50, the 55 kd band was recognized by sera from 3 other patients (Glass, Molina, Cullen), but pre-deployment sera were not run.

To determine if the excreted factors in 5-day old cultures of promastigotes maintained without protein have a 55 kd band recognized by patients' post-deployment but not pre-deployment sera [sensitivity], and not recognized by normal Americans [specificity]: MAJ Grogl will make available 4 L. tropica parasites representing all the excreted factor serotypes of the ODS patients; LTC Martin will grow the parasites and obtain the excreted factor; MAJ Klotz will run the Western blots against patient pre- and post-sera, against the pre- and post-sera of suspected cases, and on both theoretically non-exposed ODS members and on non-ODS Americans.

d) PCR: The PCR contract responses are still being reviewed by the Committee.

e) Skin test:

LTC Ballou presented a plan to develop an L tropica skin test antigen.

Stage 1: MAJ Grogl and MAJ Magill will decide if WR 1063 or perhaps another strain should be the test organism, on the basis of clinical and lymphocyte transformation data. The several antigens will be tested by Dr. Leiby for potency in the L major infected C57Bl mouse model. The most potent antigen will then be forwarded to LTC Ballou for development. While the decision on an organism is being made, CBL labs in Baltimore, or perhaps Building 508, will receive a contract to grow parasites sufficient for 1000 skin tests, and to perform sterility/pyrogenicity/acute toxicity studies. Simultaneously, LTC Ballou will contact Dr. Brandt (USAMMDA) so that a task order for EER associates to prepare the IND can be awarded. The antigen, made under GMP by CBL or building 508, will be tested for potency under GLP by Dr. Leiby (Dept Cellular Immunology), and then submitted for phase I/II human testing at the WRAIR Clinical Center [contract already awarded]. In phase I/II testing, a range of doses [50 ug downwards] will be tested on both ODS cases and on normal volunteers.

Stage 2: If the 1000 doses made in stage 1 indicate that the material is appropriate in terms of lack of toxicity, sensitivity, and specificity, manufacture of up to 500,000 doses will ensue. On the assumption that stage 1 will proceed satisfactorily, Building 501 will be reconfigured for GMP manufacturing [150K]; media [20K] and vials [40K] will be purchased; culture flasks to prepare 45 liters [45,000 doses if there are 25 ug/10M organisms, 10M organisms per ml, and each skin test requires 25 ug] at a time will be acquired. If a source of 90K is located, fermenting equipment will also be purchased. Fermentation, if successful, will subject cultures to less contamination, and the space and time required for growing the cultures can at least be halved.

f) Leishmania blood studies:

Dr. Leiby continues to develop the IFA-FACS technique to recognize infection of blood monocytes with Leishmania. At present, one infected monocyte can be recognized in the midst of 30,000 uninfected monocytes. Future experiments will determine if blood can be manipulated [via Leukocyte-preparation tubes] to yield a preparation that can be put into the FACS machine, the calculated limit of detection of infected monocytes spiked into blood; and whether patients with visceral leishmaniasis due to L donovani in Kenya, for whom at least 75% have organisms in the blood detectible by standard techniques, have demonstrable organisms in the blood detectible by FACS [positive controls for this technique].

Blood from patients with cutaneous disease and with viscerotropic L tropica disease may also be analyzed to determine if our patients have contamination of the blood with Leishmania. One problem may be that if an ODS patient's blood is positive for Leishmania by FACS, there will be no way to differentiate a false positive from a true positive because there is as yet no other technique as sensitive as FACS with which to compare the FACS data. One solution to this problem of false positivity is to buy (130K) a cell sorter for the FACS: the sorter removes the infected cells from the chamber after the infected cells are counted, permitting the putatively infective cells to be stained for visual identification of Leishmania.

g) New cases : One new case.

MAJ Magill is leaving the clinical service on 1 Jun 92, and there is as yet no designated replacement. For medical-legal reasons, the WRAIR Leishmania Section has a requirement to report to a clinician, and a need for an SOP concerning what paperwork should be filled out, prior to providing more clinical support to the WRAMC patients.

3. New business: Next meeting: Monday 6 Jul 92, 1200 hrs, building 40 [room TBA].

MEMORANDUM FOR THE RECORD

SUBJECT: Funding for ODS Leishmaniasis initiatives *[CORRECTED]*

1. The following are the agreed initiatives, performing divisions, and allotted expenses for the WRAIR ODS leishmaniasis program. These are the only funds which may be spent on this OTSG-funded program under the current guidelines of RAD 1 and the OTSG subcommittee. Modifications to this list must be approved by the undersigned.

2. APPROVED INITIATIVE	PERFORMING DIVISION	\$K FUNDED
Diagnosis		
a) IFA	ET	3.2
	CDI	3.6
b) ELISA	Kenya	6.7
c) Western	CDI	7.2
d) PCR	ET	56.0
e) Skin Test	CDI	45.2 [7.2 not yet funded]
Blood Studies		
f1) Leishmania tropism	AFIP	12.0 [not yet funded]
f2) Leishmania survival	CDI	3.6
	ET	3.6
Patient Diagnosis		
g) New cases	ET	17.0
h) Sample Shipping	ET	2.4
n) Consultation	HQ	2.4
Previous P6 expenditures	HQ	103.7
WRAIR overhead	HQ	29.5

3. The total funding of approved initiatives = \$2769.

The total cost of unfunded approved initiatives = \$192.

Since WRAIR received \$3040, and the sum of the funded and unfunded initiatives = \$2961, the unfunded approved initiatives can and will be funded.

4. Please (non-sequentially) affix signatures below and return to COL Berman for filing

WILLIAM H. BANCROFT
COL MC
Director
Military Disease Hazards Research Program

BRAIN G. SCHUSTER
COL MC
Division of Experimental Therapeutics
WRAIR

AUGUST J. SALVADO
COL MC
Director
WRAIR


JONATHAN D. BERMAN
COL MC
Chair, L tropica working Group
WRAIR

DS2 Health Hazards

- DS2 is a Mixture of Three Compounds.

Health Effect Estimations Are Based on the Known Biological Activity of Each Compound.

- Four General Classes of Health Effects
 - Pulmonary and CNS Effects
 - Burns From Direct DS2 Contact
 - Allergic Manifestations
 - Reproductive Effects



DS2 HEALTH EFFECTS

- Health Hazard Data was Transmitted to DA Safety in February 1991.

DA Safety Issued a Worldwide Safety of Use Message Within a Few Days.

- Propylene Glycol Monomethyl Ether (PGME) has Been Cleared by Toxicologists at the USAEHA as a Substitute in DS2 for Ethylene Glycol Monomethyl Ether (EGME).

EGME is the DS2 Component Compound Linked to Potential Reproductive Toxicity.

DS2 HEALTH EFFECTS

Other Hazardous Components of DS2:

- Sodium Hydroxide
 - Caustic Alkali
 - Burns
 - Blindness
- Diethylenetriamine
 - Alkali Amine
 - Irritant Effects
 - Skin and Pulmonary Sensitization



DS2 HEALTH EFFECTS FUTURE ISSUES

- Continued Hazard Communication
- Toxicity Clearances for Substitute Compounds
- Health Hazard Assessments for Future Decontaminating Systems





OFFICIAL USE ONLY

DEPARTMENT OF THE ARMY
U.S. ARMY CHEMICAL RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
ABERDEEN PROVING GROUND, MARYLAND 21010-5423



SMCCR-HV (40-51)

13 September 1990

MEMORANDUM THRU Commander, U.S. Army Materiel Command, ATTN: AMSG, 5001
Eisenhower Avenue, Alexandria, VA 22333-0001

FOR HQDA (SGPS-PSP), 5111 Leesburg Pike, Falls Church, VA 22041-3258

SUBJECT: Request for Toxicity Clearance for Reformulated Decontaminating
Solution 2 (DS2)

1. Reference memorandum, SMCCR-PPP, 4 Sep 90, subject: Toxicology Assessment for New formulation of Decontaminating Solution, DS2 (enc)
2. The current formulation for DS2 is 28% ethylene glycol monomethyl ether (EGME), 70% diethylene triamine, 2% sodium hydroxide. Efforts are currently underway to replace EGME with a less toxic substance, propylene glycol monomethyl ether (PGME), on a one for one basis.
3. Request a toxicity clearance be conducted to determine the potential toxicological effects of replacing EGME with PGME in DS2. Toxicological information on both compounds is provided at reference 1.
3. If further technical information is required it should be requested from Mr. Richard Forcheimer, SMCCR-PPP, OSN 584-5796.
4. Point of contact for this office is Dr. Wade Kuhlmann, AMCR, OSN 584-2318.

FOR THE COMMANDER:

Enc1

Joseph Karwatka
JOSEPH KARWATKA
MAJ, MS
Chief, Health and Veterinary
Services Office

CF:
Cdr, USAAMCCOM (AMSMC-SG), Rock Island, IL 61299
Cdr, USAEHA (HSHB-MO-T), APG, MD 21010-5423
SMCCR-PPP(Mr. Forcheimer) (w/o enc1)

INQUIRE=DOC26D
ITEM NO=00586372

ENVELOPE

CDSN = LGX638 MCN = 94172/00299 TOR = 941720019
OTTUZYUW RUEKJCS3631 1720007-UUUU--RUEALGX.
ZNR UUUUU

HEADER

O 210007Z JUN 94
FM SECDEF WASHINGTON DC
INFO RUEALGX/SAFE
O 202322Z JUN 94
FM SECDEF WASHINGTON DC//OATSD:PA/DPL//
TO RUENAAA/CHINFO WASHINGTON DC
RUEADWD/DA WASHINGTON DC//SAPA//
RUEAHQA/CSAF WASHINGTON DC//SAF/PA//
RUEACMC/CMC WASHINGTON DC//DIVINFO//
INFO RUEKJCS/SECDEF WASHINGTON DC//OATSD:PA//
BT

CONTROLS

UNCLAS SECTION 01 OF 02

/***** THIS IS A COMBINED MESSAGE *****/

BODY

SUBJ: PERSIAN GULF ILLNESSES COMPREHENSIVE CLINICAL EVALUATIONS
1. ON MAY 12, 1994 THE DEPARTMENT OF DEFENSE LAUNCHED A NEW THREE-
POINT PLAN TO BETTER UNDERSTAND THE MEDICAL NATURE OF THE PERSIAN
GULF SYNDROME. THIS PROGRAM WILL ALLOW THE DEPARTMENT TO BETTER CARE
FOR GULF WAR VETERANS WHO ARE ILL WITH NO CLEARLY DEFINED DIAGNOSES.
THE THREE-POINT PLAN WILL BE CARRIED OUT IN COORDINATION WITH THE
DEPARTMENTS OF VETERANS AFFAIRS AND HEALTH AND HUMAN SERVICES.
2. ASSISTANT SECRETARY OF DEFENSE FOR HEALTH AFFAIRS STEPHEN JOSEPH,
HD, DESIGNED THIS PROGRAM BASED ON THE FINDINGS OF THE NATIONAL
INSTITUTE OF HEALTH'S TECHNOLOGY WORKSHOP. THE WORKSHOP, HELD APRIL
27-29, 1994, FOUND THAT THE PERSIAN GULF SYNDROME IS NOT A SINGLE
LISEASE, BUT RATHER A RANGE OF ILLNESSES WITH OVERLAPPING SYMPTOMS AND
CAUSES.
3. THE FIRST OF THE THREE POINTS IS TO CONDUCT A COORDINATED,
AGGRESSIVE, COMPREHENSIVE DIAGNOSTIC EFFORT TO DETERMINE AS FAR AS
POSSIBLE, THE CAUSES OF THE SYMPTOMS DESCRIBED BY THE NIH WORKSHOP.
ALL THOSE PERSIAN GULF VETERANS WHO ARE IN THE DOD'S PERSIAN GULF
VETERANS HEALTH SURVEILLANCE SYSTEM WILL BE OFFERED AN INTENSIVE
EXAMINATION.
4. TO CONDUCT THE EXAMINATION, A DEFINED, STANDARD PROTOCOL HAS BEEN
DEVELOPED BY CLINICAL EXPERTS OF THE MILITARY SERVICES. SENIOR
MILITARY PHYSICIANS AND ADMINISTRATORS FROM MILITARY MEDICAL
CENTERS CONVENED IN WASHINGTON, DC, ON JUNE 9, 1994, FOR AN
ORIENTATION SESSION ON HOW THE CLINICAL EXAMINATIONS WOULD BE
CONDUCTED AND ON THE DETAILS OF THE STANDARD PROTOCOL.
5. THE MILITARY PHYSICIANS AND ADMINISTRATORS WILL RETURN TO
THEIR MEDICAL CENTERS AND IN TURN INSTRUCT THE MEDICAL AND
ADMINISTRATIVE STAFFS IN HOW TO CONDUCT THE COMPREHENSIVE EXAMS.

THERE ARE CURRENTLY ABOUT 300 INDIVIDUALS ON THE DEFENSE ACTIVE DUTY PERSIAN GULF REGISTRY. THESE INDIVIDUALS WILL BE EXAMINED AND THE RESULTS WILL BE REPORTED TO THE DEPUTY SECRETARY OF DEFENSE BY DR. JOSEPH WITHIN 120 DAYS.

6. DURING THE COURSE OF THESE EXAMS, ANY PATIENTS WISHING TO SPEAK TO MEMBERS OF THE MEDIA MAY DO SO AT THEIR OWN ARRANGING. MILITARY PHYSICIANS AND ADMINISTRATORS MAY ALSO SPEAK WITH MEMBERS OF THE MEDIA, IF THEY WISH TO DO SO. WHILE THE HANDLING OF THE EXAMINATIONS WILL BE OPEN FOR REVIEW, THE CONFIDENTIALITY OF ALL PATIENTS WILL BE STRICTLY OBSERVED.

7. AS ADDITIONAL INFORMATION BECOMES AVAILABLE, THE DEPARTMENT WILL PROVIDE PUBLIC COMMENT AND GUIDANCE TO PUBLIC AFFAIRS STAFFS.

8. RETRANSMIT THIS MESSAGE AS APPROPRIATE TO YOUR SUBORDINATE COMMANDS.

9. THE FOLLOWING QUESTIONS AND ANSWERS ARE PROVIDED:

Q1: HOW DO YOU GET ON THE REGISTRY?

A1: ACTIVE DUTY, RETIREES, READY RESERVISTS, AND FULL-TIME NATIONAL GUARDSMEN WHO ARE PERSIAN GULF WAR VETERANS AND THE FAMILY MEMBERS OF ALL THESE INDIVIDUALS WHO ARE ELIGIBLE BENEFICIARIES OF THE DOD HEALTH CARE SYSTEM NEED TO GO TO THEIR MILITARY TREATMENT FACILITY AND ASK TO BE INCLUDED IN THE COMPREHENSIVE CLINICAL EVALUATION PROGRAM. OTHER PERSIAN GULF WAR VETERANS AND THEIR FAMILY MEMBERS SHOULD CONTACT THEIR CLOSEST DEPARTMENT OF VETERANS AFFAIRS HOSPITAL OR CALL THE FOLLOWING TOLL FREE NUMBER 1-800-796-9699, WHICH WILL BE ACTIVATED ON JUNE 23D AT NOON EDT.

Q2: WHO IS ELIGIBLE TO BE ON THE REGISTRY?

A2: ACTIVE DUTY, RETIREES, READY RESERVISTS, FULL-TIME NATIONAL GUARD, FAMILY MEMBERS WHO ARE ELIGIBLE BENEFICIARIES.

Q3: WHERE DOES ONE GO FOR THE COMPREHENSIVE CLINICAL EVALUATION PROGRAM (CCEP)?

A3: THE FIRST STAGE OF THE CLINICAL EVALUATION IS TO BE SEEN AT THE LOCAL MILITARY TREATMENT FACILITY. IF THE EVALUATION IS INCONCLUSIVE OR IF THE PATIENT IS NOT SATISFIED THAT THE DIAGNOSIS ADEQUATELY EXPLAINS THEIR HEALTH PROBLEM, THE PATIENT WILL BE REFERRED TO ONE OF THE 16 MILITARY REGIONAL MEDICAL CENTERS WHERE ADDITIONAL EVALUATIONS WILL OCCUR. IF A DIAGNOSIS STILL CANNOT BE REACHED, THE RECORDS OF ALL THE EVALUATIONS WILL BE REVIEWED BY A SPECIAL CLINICAL REVIEW COMMITTEE THAT INCLUDES INDIVIDUALS FROM THE INSTITUTE OF MEDICINE OF THE NATIONAL ACADEMY OF SCIENCES IN WASHINGTON, DC.

Q4: WHAT SHOULD ONE EXPECT FROM THE CCEP?

A4: THIS IS A METHODOICAL APPROACH TO PROVIDING MEDICAL CARE TO INDIVIDUALS WHO FEEL THAT THEY HAVE AN ILLNESS AS A RESULT OF SOME ASSOCIATION WITH THE PERSIAN GULF WAR. INDIVIDUALS WHO PARTICIPATE IN THE COMPREHENSIVE CLINICAL EVALUATION PROGRAM CAN EXPECT TO RECEIVE COMPETENT, TIMELY AND PROFESSIONAL MEDICAL CARE.

Q5: HOW LONG WILL THE CCEP PROCESS TAKE? WILL PEOPLE STAY OVERNIGHT?

A5: THE TIME REQUIRED FOR THIS EVALUATION WILL VARY WITH EACH INDIVIDUAL AND THE TYPE OF PROBLEM THEY ARE EXPERIENCING. PATIENTS WILL BE ADMITTED TO THE HOSPITAL AS NECESSARY TO ENSURE THAT THE EVALUATIONS ARE COMPLETED.

Q6: DOES THE INDIVIDUAL'S COMMAND CUT ORDERS FOR TRAVEL/PER DIEM?

A6: ORDERS FOR TRAVEL WILL BE ISSUED BY THE COMMAND OR THE MILITARY TREATMENT FACILITY IN ACCORDANCE WITH CURRENT LAWS AND REGULATIONS.

Q7: TO WHOM WOULD A PERSON REPORT?

A7: INDIVIDUALS WHO ARE BEING REFERRED TO A REGIONAL MEDICAL CENTER FOR FURTHER EVALUATION WILL BE GIVEN SPECIFIC INSTRUCTIONS BY THE MILITARY TREATMENT FACILITY FROM WHICH THEY ARE BEING REFERRED.

Q8: DOES THE HOSPITAL KNOW THE PERSON IS ENROUTE?

A8: YES. THE MILITARY TREATMENT FACILITY THAT REFERS THE PATIENT WILL BE IN CONTACT WITH THE INDIVIDUALS RESPONSIBLE FOR THE COMPREHENSIVE CLINICAL EVALUATION PROGRAM AT THE REGIONAL MEDICAL CENTER TO WHICH THEY ARE REFERRED.

Q9: HOW MANY HOSPITALS? WHERE?

A9: THERE ARE FOURTEEN HOSPITALS IN CONUS AND TWO OCONUS. THESE HOSPITALS INCLUDE THE TWELVE REGIONAL MEDICAL CENTERS PLUS OTHER MAJOR MEDICAL CENTERS IN THOSE REGIONS AND ONE IN EUROPE.

Q10: WHEN WILL THOSE EVALUATED KNOW THE RESULTS?

A10: THE RESULTS OF THE INDIVIDUAL EVALUATIONS WILL BE COMMUNICATED JUST LIKE ANY OTHER VISIT TO THE DOCTOR OR ADMISSION TO THE HOSPITAL. THE PRIMARY GOAL OF THIS PROGRAM IS TO MAKE SURE PEOPLE RECEIVE THE HEALTH CARE THEY NEED.

Q11: WHAT HAPPENS IF TREATMENT IS REQUIRED?

A11: TREATMENT WILL BE ADMINISTERED AS REQUIRED AND AS THE PHYSICIAN FEELS IS NECESSARY.

Q12: WHAT DOES A PERSON STATIONED IN EUROPE OR THE PACIFIC DO?

A12: THEY WOULD GO TO A MEDICAL TREATMENT FACILITY AND FOLLOW THE SAME PROCEDURES AS IN THE CONTINENTAL UNITED STATES. THE DESIGNATED CENTERS ARE LANDSTUHL ARMY REGIONAL MEDICAL CENTER IN GERMANY AND TRIPLER ARMY MEDICAL CENTER FOR THE PACIFIC AREA.

Q13: WILL THE EVALUATIONS BE THE SAME FROM HOSPITAL TO HOSPITAL? IN ALL SERVICES? AS IN THE DVA?

A13: THE MINIMAL EVALUATIONS TO BE CONDUCTED IN EACH PHASE OF THIS CLINICAL PROTOCOL HAVE BEEN STANDARDIZED ACROSS THE DOD HOSPITALS.

/***** BEGINNING OF SECTION 002 *****/

THIS PROTOCOL HAS BEEN DEVELOPED IN CONJUNCTION WITH THE DEPARTMENT OF VETERANS AFFAIRS TO ENSURE CONSISTENCY BETWEEN THE TWO DEPARTMENTS.

Q14: CAN PEOPLE CHOOSE WHERE THEY GO FOR AN EVALUATION--MIL, OR MIL/VA?

A14: INDIVIDUALS SHOULD GO TO THEIR CLOSEST MILITARY TREATMENT FACILITY INITIALLY. IF THEY NEED TO BE REFERRED TO A REGIONAL MEDICAL CENTER, THEY WILL ORDINARILY BE REFERRED TO THE MEDICAL CENTER FOR THEIR REGION.

Q15: HOW DO FAMILY MEMBERS GET EVALUATED?

A15: FAMILY MEMBERS WHO ARE ELIGIBLE BENEFICIARIES GO TO A MEDICAL TREATMENT FACILITY AND FOLLOW THE SAME PROCEDURES AS PREVIOUSLY OUTLINED.

Q16: HOW DO PEOPLE KNOW THEY RECEIVED THE WHOLE EVALUATION?

A16: EACH INDIVIDUAL WHO PARTICIPATES IN THE COMPREHENSIVE CLINICAL EVALUATION PROGRAM WILL BE GIVEN A "PATIENTS BILL OF RIGHTS" THAT DESCRIBES THE ENTIRE PROGRAM. SPECIFIC PROCEDURES WILL BE DISCUSSED

INQUIRE=DOC21D
ITEM NO=00259602

ENVELOPE

CDSN = LGX546 MCN = 93078/09609 TOR = 930780621
RTTUZYUW RUEKJCS1278 0780618-UUUU--RUEALGX.
ZNR UUUUU

HEADER

R 190618Z MAR 93
FM DIA WASHINGTON DC
INFO RUEALGX/SAFE
R 182231Z MAR 93
FM SECDEF WASHINGTON DC//OSD:PA//
TO AIG 8798
AIG 8799

BT

CONTROLS

UNCLAS SECTION 01 OF 04
FOR PUBLIC AFFAIRS OFFICERS

/***** THIS IS A COMBINED MESSAGE *****/

BODY

SUBJ: DOD NEWS BRIEFING

DELIVER DURING NORMAL DUTY HOURS

FOLLOWING IS TRANSCRIPT OF NEWS BRIEFING CONDUCTED BY MR. BOB HALL,
DEPUTY ASSISTANT SECRETARY OF DEFENSE/PUBLIC AFFAIRS, AT THE
PENTAGON, ON THURSDAY, MARCH 16, 1993, AT 1:00 P.M.:

MR. HALL: GOOD AFTERNOON.

GENERAL COLIN L. POWELL, CHAIRMAN OF THE JOINT CHIEFS OF STAFF,
WILL SPEAK AT THE COMSTOCK CLUB IN SACRAMENTO, CALIFORNIA, ON
FRIDAY, MARCH 19TH. THE TOPIC OF HIS SPEECH WILL BE: "FACTS ABOUT
AMERICA'S DEFENSE.": THE NOON EVENT WILL BE HELD AT THE RED LION
BALL ROOM AT THE RED LION HOTEL. MEDIA WHO DESIRE TO COVER THE
EVENT SHOULD CONTACT MS. JOAN ASBOTH IN THE CHAIRMAN'S PUBLIC
AFFAIRS OFFICE AT (703) 697-4272. OR MR. DON JOHNSON, THE EXECU-
TIVE SECRETARY FOR THE COMSTOCK CLUB, AT (916) 442-4608.

SECOND, YOU MAY HAVE NOTICED IN THE RECENT RELEASES THAT WE HAVE
BEEN REFERRING TO THE DEFENSE ADVANCE RESEARCH PROJECT AGENCY,
BETTER KNOWN AS DARPA, AS THE ADVANCED RESEARCH PROJECT AGENCY, OR
ARPA. OBVIOUSLY, WE'RE DROPPING THE D FOR DEFENSE. THIS REFLECTS
THE PRESIDENT'S INITIATIVE THAT HE ANNOUNCED LAST WEEK. WE HAVE
THE OFFICIAL PAPERWORK ON THE CHANGE OF THE TITLE. DEPUTY SECRE,
TARY OF DEFENSE WILLIAM J. PERRY SIGNED THE MEMO DIRECTING THE
CHANGE ON MARCH 15TH FOR THE OFFICIAL RECORD.

THAT'S ALL I HAVE FOR ANNOUNCEMENTS.

Q: THE STATE DEPARTMENT REPORTS THAT THERE WAS AN INCURSION BY
IRANIAN JETS IN THE NORTHERN NO-FLY ZONE OF IRAQ TWO DAYS AGO. CAN
YOU TELL US THE NUMBER OF PLANES INVOLVED, THE TYPE OF PLANES?
DOES THE UNITED STATES AND ITS COALITION ALLIES PLAN TO ENFORCE THE
NO,FLY ZONE BY SHOOTING DOWN, INCLUDING IRANIAN PLANES COMING IN?
AND IS THERE ANY PLANNED RETALIATION BY THE UNITED STATES FOR THE
BOMBING OF THE KURDS?

A: BASICALLY, I'VE GOT NOTHING BEYOND WHAT THE STATE DEPARTMENT SAID ON TUESDAY -- THAT IRANIAN AIRCRAFT ATTACKED IRANIAN KURDISH DISSIDENTS INSIDE THE NO-FLY ZONE NORTH OF THE 36TH PARALLEL IN NORTHERN IRAQ. THAT ATTACK OCCURRED OVER THE WEEKEND. OUR POLICY CONTINUES TO BE TO SUPPORT THE TERRITORIAL INTEGRITY, UNITY, AND SOVEREIGNTY OF IRAQ, AND NO FLIGHTS OF ANY KIND OTHER THAN COALITION AIRCRAFT ARE PERMITTED NORTH OF THE 36TH PARALLEL OR SOUTH OF THE 32ND PARALLEL, AND IRAN IS WELL AWARE OF THE POLICY.

Q: WHY WASN'T ACTION TAKEN AGAINST THE IRANIAN PLANES? CERTAINLY, IF IRAQI PLANES HAD MOVED INTO THAT AREA, THEY WOULD HAVE BEEN BLOWN OUT OF THE SKY.

A: THE ISSUE IS WHETHER WE ARE IN THE AREA AND IN POSITION TO DO SOMETHING ABOUT THE INCURSION. THAT GOES TOWARDS WHOEVER IS MAKING THE INCURSION.

Q: WERE WE AWARE OF IT AT THE TIME IT OCCURRED, OR WAS IT SOME, THING LEARNED AFTER THE FACT?

A: WE WERE NOT AWARE OF IT AT THE TIME IT OCCURRED.

Q: CAN YOU RESTATE THE POLICY, OR GIVE US WHATEVER THE CURRENT PHILOSOPHY IS? IF YOU SAY, AS YOU HAVE IN THE PAST, THAT THE U.S. WILL ENFORCE A NO-FLY ZONE, DOES THIS MEAN THAT IF THERE'S A REPEAT OFFENSE BY ANY AIRCRAFT, INCLUDING IRANIAN, THEY WILL BE SHOT DOWN?

A: I'M NOT GOING TO SPECULATE ABOUT FUTURE ACTION OR RULES OF ENGAGEMENT. I'LL JUST REPEAT, THAT THE NO-FLY ZONE MEANS THAT PLANES SHOULD NOT FLY. I THINK WE TALKED ABOUT THAT, CERTAINLY AT THE TIME THAT WE ANNOUNCED THE SOUTHERN NO-FLY ZONE, AND PROBABLY DURING THE VARIOUS BRIEFINGS ON THE NORTHERN NO-FLY ZONE.

Q: WHAT WAS IRAN TOLD ABOUT THE INCIDENT?

A: I'M SURE THE STATE DEPARTMENT HAS BEEN IN CONTACT THROUGH THE VARIOUS MEANS THAT WE HAVE IN DISCUSSING THINGS WITH IRAN, BUT I'LL LEAVE IT TO THEM.

Q: THE OFFICE OF THE UN HIGH COMMISSIONER FOR REFUGEES HAS ISSUED AN APPEAL FOR EMERGENCY HELP FOR SOME 60,000 INDIVIDUALS THAT ARE TRAPPED AROUND SREBRENICA. THEY'RE SAYING THEY ARE IN DIRE NEED OF FOOD AND BASICALLY OF MEDICAL HELP OR EVEN TRANSIT OUT. THEY'RE ASKING FOR THE AIRDROPS TO BE DONE DURING THE DAY, AND POSSIBLE HELICOPTER AIRLIFTS TO BRING THE WOUNDED OUT. IS THERE A CHANGE IN THE U.S. AIRDROPS THAT'S BEING CONSIDERED TO HELP THESE PEOPLE?

A: I DON'T HAVE ANYTHING TO ANNOUNCE FOR YOU. I'M SURE WE'RE LOOKING AT THE ISSUE OF THE SITUATION IN THE POCKET. BUT I WOULD NOT PROJECT FOR YOU A CHANGE IN OUR METHOD OF OPERATION. AS YOU KNOW, WHEN WE STARTED THESE AIRDROPS, WE TALKED ABOUT THE QUESTION OF BALANCING EFFICIENCY, ACCURACY, WITH THE SAFETY OF OUR CREWS. THE SAFETY OF OUR CREWS CONTINUES TO BE VERY IMPORTANT TO US. SO I THINK THAT WILL BE AMONG THE GOVERNING FACTORS AS WE LOOK AT THE SITUATION.

Q: SO YOU'RE RULING OUT DAYTIME AIRDROPS?

A: I DON'T WANT TO RULE ANYTHING IN OR OUT. BUT I'M JUST NOT PROJECTING ANYTHING FOR YOU. I WANT TO REMIND YOU OF OUR CONCERN ABOUT THE SAFETY OF OUR CREWS. IT WOULD NOT HELP THE SITUATION TO HAVE A U.S. AIRCREW SHOT DOWN.

Q: CAN YOU GIVE US AN UPDATE OF ABOUT HOW MANY DROPS HAVE BEEN

MADE RECENTLY?

A: SURE. LAST NIGHT WAS THE 18TH AIRDROP MISSION TO PROVIDE PROMISE. SINCE WE BEGAN ON MARCH 1ST, WE HAVE DROPPED 544.6 TONS OF FOOD AND 19.3 TONS OF MEDICAL SUPPLIES. IN ADDITION, WE HAVE CONTINUED THE FLIGHTS INTO SARAJEVO. SINCE JULY, THAT HAS TOTALED 861 FLIGHTS WHICH HAVE DELIVERED 10,133 TONS OF RELIEF SUPPLIES AND OTHER CARGO.

LAST NIGHT'S MISSION CONSISTED OF FIVE C-130 CARGO PLANES DROPPING 30.2 TONS OF MATERIAL. THAT INCLUDED 42 BUNDLES OF MILITARY RATIONS WEIGHING 29.1 TONS, AND FIVE BUNDLES OF MEDICAL SUPPLIES WEIGHING 1.1 TON. THE DROPS WERE NEAR SREBRENICA AND GABELA IN EASTERN BOSNIA. THIS IS THE SECOND DROP THERE. WE ALSO DROPPED IN GABELA ON MARCH 16TH.

THE SUPPLIES THAT WE HAVE DROPPED SO FAR HAVE BEEN CONTRIBUTED BY THE UNITED STATES, TURKEY, NORWAY, GREAT BRITAIN, AND THE WORLD HEALTH ORGANIZATION. THEY HAVE CONTRIBUTED OVER 200 POUNDS OF PENICILLIN, WHICH IS AN ITEM OF PARTICULAR NEED. IN THE NEXT COMING DAYS, I WOULD EXPECT TO SEE US ALSO DROPPING SOME UNICEF SUPPLIES AND SOME SUPPLIES THAT ARE BEING PROVIDED BY THE EUROPEAN COMMUNITY.

Q: STAYING WITH EASTERN BOSNIA, AND AS WE TALK ABOUT NO-FLY ZONES, APPARENTLY THERE WAS A VIOLATION OF THIS NO-FLY ZONE OVER THE WEEKEND WHEN SERB PLANES BOMBED MUSLIM VILLAGES IN EASTERN BOSNIA. WHAT'S BEING DONE ABOUT THAT?

A: BASICALLY, WE HAVE THE UNITED NATIONS REPORT. I DON'T HAVE ANYTHING ADDITIONAL TO ADD TO THAT. AS YOU KNOW, WE'VE BEEN DISCUSSING FOR SOME TIME THE QUESTION OF ENFORCEMENT OF THE NO-FLY ZONE, BUT THERE HAS BEEN NO UN RESOLUTION TO PUT THAT INTO EFFECT.

Q: DOES IT CAUSE CONCERN, HOWEVER, WHEN YOU'RE DOING AIRDROPS OVER THE SAME AREA?

A: ONE OF THE REASONS WHY WE WANTED A NO-FLY ZONE, IN ADDITION TO PREVENTING THE USE OF AIRCRAFT TO CONDUCT MILITARY STRIKES ON

~~*****~~ BEGINNING OF SECTION 002 ~~*****~~

INNOCENT PEOPLE, AND TO REDUCE THE LEVEL OF FIGHTING, IS TO AVOID ANY INTERFERENCE WITH THE UN RELIEF FLIGHTS, OR THE UN, SPONSORED RELIEF FLIGHTS INTO SARAJEVO AND ALSO OUR AIRDROP OPERATIONS. THE NO-FLY ZONE ISSUE CAME UP BEFORE WE STARTED DOING THE AIRDROPS, SO IT REALLY HAD TO DO WITH THE TOTAL UN OPERATIONS.

Q: THE BOSNIAN AMBASSADOR SAID THERE WERE SOME VIOLATIONS AGAIN LAST NIGHT. I THINK YOU WERE REFERRING TO THE ONES THAT TOOK PLACE OVER THE WEEKEND. DO YOU HAVE ANYTHING AT ALL ON THE ONE LAST NIGHT?

A: THESE MAY HAVE BEEN. THERE HAVE BEEN A NUMBER OF VIOLATIONS OF THE NO-FLY ZONE.

Q: THIS INVOLVING BOMBING?

A: I JUST DON'T HAVE ANY NEW INFORMATION. AGAIN, THAT WAS A UN REPORT. I'LL SOURCE YOU BACK TO THE UNITED NATIONS FOR THAT. LET ME JUST GO ON TO SAY, IN ANSWER TO SUSANNE'S QUESTION, WE ARE CONCERNED ABOUT THE SITUATION IN SREBRENICA. WE ESTIMATE THAT THERE ARE UPWARDS OF 50,000 REFUGEES WHO HAVE BEEN DRIVEN FROM

THEIR HOMES IN OTHER AREAS WHO HAVE MOVED INTO THIS POCKET. WE KNOW THAT IT'S A VERY DESPERATE SITUATION FOR MANY OF THEM. WE KNOW THAT THE AIRDROPS CANNOT SUPPLY ALL THEIR NEEDS. BUT THAT'S NOT NEW INFORMATION. THAT'S SOMETHING WE'VE ALWAYS KNOWN. BUT IT DOESN'T MAKE IT ANY LESS NECESSARY TO CONTINUE TO DROP THE SUPPLIES. WE KNOW FROM EYE WITNESSES, INCLUDING UNPROFOR OFFICIALS, UNHCR, AND WORLD HEALTH ORGANIZATION PERSONNEL ON THE GROUND, AS WELL AS JOURNALISTS, THAT THE SUPPLIES ARE REACHING PEOPLE THAT NEED THEM. BUT WE ALSO NOTE THAT THE DISTRIBUTION SYSTEM IS NOT ADEQUATE TO MEET THE NEEDS OF ALL THE PEOPLE -- JUST THE SHEER NUMBERS OF REFUGEES AS WELL AS THE CHAOS OF THE SITUATION. IT'S SOMETHING THAT WE'RE WORKING ON ON A VARIETY OF FRONTS INTERNATIONALLY.

Q: HASN'T IT BEEN STATED BEFORE THAT THERE'S NO WAY THE AIRDROPS COULD SUPPLY ALL THE NEEDS, THAT ULTIMATELY YOU'RE TRYING TO GET THE LAND CONVOYS MOVING? WHERE DOES THAT...

A: IN TERMS OF SUPPLYING HUMANITARIAN RELIEF, THAT IS THE RIGHT SOLUTION -- TO GET THE LAND CONVOYS IN. OF COURSE, THE OVERALL SOLUTION IS TO GET A PEACE AGREEMENT.

Q: ARE WE SEEING ANY IMPROVEMENT IN THE MOVEMENT OF LAND CONVOYS?

A: I HAVEN'T DONE A CHECK ON THAT IN THE LAST COUPLE OF DAYS. AS YOU KNOW, I'VE BEEN OUT WITH THE FLU. BUT I'LL CHECK FOR YOU. WE HAVE SOME PRESS REPORTS THAT SAY THAT A NUMBER HAVE GOTTEN THROUGH TO OTHER AREAS, ZEPH AND TUZLA, BUT I JUST DON'T... WE'LL TRY GO GET OUR OWN INFORMATION FOR YOU.

Q: ARE THESE SIGNIFICANT? ARE THEY MAKING A DIFFERENCE?

A: WE'LL TAKE THAT.

Q: KOREA. HAS THE SOUTH KOREAN GOVERNMENT ASKED OUR FORCES TO STAY ON AFTER TEAM SPIRIT? AND WILL THE U.S. FORCES THAT DEPART FROM TEAM SPIRIT BE STAYING ON IN SOUTH KOREA AFTER TODAY?

A: NO, AND NO. NO, OUR FORCES HAVE NOT BEEN ASKED TO STAY ON; AND NO, THEY WILL NOT STAY ON. IN FACT, THE EXERCISE PORTION OF TEAM SPIRIT ENDS TODAY. THERE WILL BE A PRESS CONFERENCE OUT THERE IN KOREA AT THE MINISTRY OF NATIONAL DEFENSE PRESS ROOM IN SEOUL AT 10:00 A.M. TOMORROW, LOCAL TIME, IN KOREA.

THE DEPLOYMENT PHASE OF THE EXERCISE BEGAN IN JANUARY. THE FIELD TRAINING PORTION BEGAN ON MARCH 9TH. AS I SAID, THE FIELD TRAINING PORTION OF THE EXERCISE ENDED TODAY. THE REDEPLOYMENT OF THE AUGMENTING FORCES WILL CONTINUE THROUGH MID-APRIL. BUT ALL OF OUR FORCES THAT WE SENT THESE FOR THE EXERCISE WILL LEAVE.

Q: NORTH KOREA IS ALSO PUTTING PRESSURE ON SOUTH KOREA TO HAVE THEM ASK THAT ALL U.S. FORCES LEAVE THE COUNTRY. WHAT'S THE DEPARTMENT'S POSITION ON THAT?

A: WE HAVE A CLOSE BILATERAL RELATIONSHIP WITH THE REPUBLIC OF KOREA. I SUSPECT THAT IT WILL CONTINUE. OBVIOUSLY, WE'RE THERE AT THEIR INVITATION, IN RESPONSE TO THE SECURITY SITUATION THAT THEY FACE.

Q: A WATCHDOG GROUP IS CLAIMING THAT THE USE OF, I GUESS IT'S THE DEPLETED URANIUM PROJECTILES IN DESERT STORM, IS CAUSING THE MYSTERIOUS ILLNESS OF U.S. FORCES. ANY REACTION?

A: I'M NOT AWARE OF ANY EVIDENCE THAT ILLNESSES HAVE BEEN CAUSED

BY THE USE OF DEPLETED URANIUM. HOWEVER, WE'VE GOT A LOT OF INFORMATION ON THAT BACK IN DDI. COLONEL MEEHAN CAN GO THROUGH ALL THE HISTORY OF THIS WITH YOU, THE VARIOUS STUDIES THAT HAVE BEEN DONE AND ARE BEING DONE TO KEEP AN EYE ON THE SITUATION, TO MAKE SURE THAT WE WON'T HAVE SOME PROBLEM THAT HAS DEVELOPED. I'M NOT AWARE OF ANY PROBLEM.

Q: THE STARS & STRIPES HAS HAD A REPORT THAT MOST WOMEN IN THE MILITARY IN EUROPE CAN'T GET ABORTIONS, DESPITE SECRETARY ASPIN'S DIRECTIVE TO LIFT THE BAN. THEY ALSO CITE THAT IT SEEMS TO BE THE ABILITY OF THE HEALTH CARE PROFESSIONALS INVOLVED TO OPT OUT OF SUCH PROCEDURES. IS THERE ANY EFFORT BEING MADE TO BRING IN PHYSICIANS AND NURSES WHO ARE WILLING TO PROVIDE THOSE PROCEDURES?

A: LET ME WALK THROUGH A LITTLE BIT OF THE HISTORY. IN 1982, CONGRESS PASSED WHAT WAS CALLED THE HYDE AMENDMENT, THAT PROHIBITED THE FUNDING FOR ABORTIONS IN DOD FACILITIES UNLESS THE LIFE OF THE MOTHER WAS IN DANGER. DOD ADHERED TO THE LEGISLATION AND DID NOT USE TAXPAYER FUNDS TO PAY FOR ELECTIVE ABORTIONS. HOWEVER, WE DID ALLOW BENEFICIARIES TO PAY FOR THEIR ABORTIONS IN MILITARY FACILITIES OVERSEAS, WHERE QUALITY CARE WAS NOT LOCALLY AVAILABLE. THAT WAS THE GOVERNING POLICY -- OVERSEAS WHERE QUALITY CARE WAS NOT LOCALLY AVAILABLE. THIS PRACTICE WAS KNOWN AS PREPAID ABORTIONS. IN 1988, WE REVIEWED THE POLICY OF PREPAID ABORTIONS, AND ALTHOUGH NO LEGAL VIOLATIONS WERE FOUND, A DETERMINATION WAS MADE THAT THE PRACTICE SHOWED INSENSITIVITY TO THE SPIRIT OF THE CONGRESSIONALLY ENACTED POLICY OF WITHHOLDING GOVERNMENT INVOLVEMENT IN THE PROVISION OF ABORTIONS.

CONSEQUENTLY, ALL PREPAID ABORTIONS IN MILITARY TREATMENT FACILITIES OVERSEAS WERE STOPPED AS OF OCTOBER 1, 1988. THERE WAS A MEMO THAT DIRECTED THAT.

DURING THAT PERIOD OF '82 TO '88, I CAN GIVE YOU THE FIGURES. THE SERVICES PERFORMED 100 PREPAID ABORTIONS OVERSEAS IN 1983; 37 IN 1984; 12 IN 1985; 17 IN 1986; FIVE IN 1987; AND EIGHT IN 1988. ON JANUARY 22ND OF THIS YEAR, PRESIDENT CLINTON REVERSED THE 1988 BAN ON PREPAID ABORTIONS IN OVERSEAS HOSPITALS. CONSEQUENTLY, SECRETARY ASPIN SENT IMPLEMENTING INSTRUCTIONS TO THE MILITARY SERVICES ON FEBRUARY 4, 1993. IN THAT, HE DIRECTED THEM TO REINSTATE THE ABORTION POLICY PRIOR TO OCTOBER 1, 1988. SO IT WENT BACK TO THE POLICY OF ALLOWING PREPAID ABORTIONS IN U.S. OVERSEAS FACILITIES. THE CHARGES FOR THOSE ABORTIONS WERE PLACED AT THE EXISTING RATE FOR SAME-DAY SURGERY WHICH IN FY93 IS \$477 A DAY.

THE SECRETARY ALSO STATED THAT OTHER RELEVANT DOD POLICIES AND PRACTICES APPLY. IN PARTICULAR, HOST NATION PROHIBITIONS ON SUCH PROCEDURES MUST BE FOLLOWED. AND IT HAS BEEN A PRACTICE OF THE MILITARY SERVICES THAT MEDICAL PERSONNEL WILL NOT BE FORCED TO ACT IN CONFLICT WITH THEIR OWN MORAL, ETHICAL OR RELIGIOUS CONVICTIONS FOR ELECTIVE PROCEDURES. THAT PRACTICE IS CONTINUING.

/***** BEGINNING OF SECTION 003 *****/

THE MILITARY DEPARTMENTS ARE CURRENTLY DEVELOPING THE IMPLEMENTING INSTRUCTIONS AS A RESULT OF THE SECRETARY'S MEMO. IN EUROPE, FOR EXAMPLE, THE ARMY IS SURVEYING MEDICAL PERSONNEL,

TALKING TO THEM ABOUT THOSE WHO HAVE CONFLICTS WITH THE POLICY, IDENTIFYING HOST NATION LAWS TO SEE IF WE HAVE ANY CONFLICTS WITH LAWS OF THE HOST NATIONS, AND DEVELOPING A CONCEPT ON HOW THE COMMAND WILL COMPLY WITH THE PRESIDENT'S ORDER.

ALTHOUGH SOME PHYSICIANS HAVE EXPRESSED UNWILLINGNESS TO PERFORM THE PROCEDURE, THE MILITARY SERVICES WILL IMPLEMENT THE POLICY, AND WITH THE POSSIBILITY THAT GYNECOLOGISTS WILL BE AVAILABLE IN CENTRAL LOCATIONS TO PERFORM ABORTIONS. IN ADDITION, I WOULD NOTE THAT WHILE THESE POLICIES ARE BEING FINALIZED, ABORTION SERVICES ARE LEGALLY AVAILABLE IN MOST EUROPEAN HOST NATION CIVILIAN FACILITIES AT NO GREATER FEE THAN IS BEING CHARGED BY THE MILITARY FACILITIES.

IN SUM, THEY'RE WORKING TO DEVELOP AN EFFECTIVE, QUALITY MEDICAL PRACTICE THAT IMPLEMENTS THE NATIONAL POLICY. DURING THIS TIME, REQUESTS FOR ABORTIONS ARE BEING CONSIDERED. IN FACT, THE ARMY IN EUROPE REPORTS THAT IT HAS RECEIVED ONLY ONE ABORTION REQUEST SINCE THE POLICY WAS ANNOUNCED, AND THAT WOMAN IS BEING ACCOMMODATED.

Q: SINCE THE MORAL BELIEFS OF THESE INDIVIDUALS ARE BEING TAKEN INTO ACCOUNT IN REGARDS TO MEDICAL PROCEDURES, WHAT ABOUT THE MORAL BELIEFS THAT SERVICE PEOPLE HAVE IN REGARD TO HOMOSEXUALITY IN THE SERVICES?

A: ONE IS A QUESTION OF A STANDARD PRACTICE FOR DOCTORS. YOU DON'T ASK THEM TO PERFORM ELECTIVE OPERATIONS WHEN IT CONFLICTS WITH THEIR MORAL BELIEFS. THAT WOULD BE OVERRIDDEN IF THE LIFE OF THE PERSON WAS IN DANGER. I'M NOT SURE I SEE THE CONNECTION TO THE OTHER POLICY QUESTION.

Q: I'M WONDERING, ARE THEY TAKING INTO CONSIDERATION THE FACT THAT PEOPLE DON'T AGREE WITH THE OPEN PRACTICE OF HOMOSEXUALITY, SHOULD THEY THEN BE FORCED TO SERVE WITH --

A: WITHIN THE PURVIEW OF THE REVIEW THAT IS BEING DONE IN THE DEPARTMENT OF DEFENSE ABOUT HOW TO IMPLEMENT THE PRESIDENT'S DECISION, THAT'S CERTAINLY ONE OF THE ISSUES THAT WOULD COME INTO PLAY.

Q: CAN I GO BACK TO IRAN/IRAQ FOR JUST A SECOND? WOULD YOU TAKE THE QUESTION TO FIND OUT, IF POSSIBLE, HOW MANY AIRCRAFT WERE INVOLVED, TYPE OF AIRCRAFT, TYPE OF ORDNANCE DROPPED, DAMAGE, INJURIES, ANYTHING ELSE ABOUT THE RAID 48 HOURS AGO?

A: I DON'T BELIEVE WE HAVE INDEPENDENT INFORMATION. THE REPORTS COME FROM THE IRANIANS THEMSELVES, THE KURDS ON THE SCENE, AND I BELIEVE THE FRENCH.

Q: IS THE PENTAGON FUNCTIONING AS IF LES ASPIN IS STILL IN CHARGE, EVEN THOUGH HE'S WIRED FOR SOUND OVER IN GEORGETOWN?

A: THE SECRETARY IS, OF COURSE, STILL IN CHARGE. HE STILL HAS COMMUNICATIONS. HE'S BEEN MEETING WITH HIS STAFF MEMBERS ON A REGULAR BASIS WHILE HE'S BEEN IN THE HOSPITAL. AND, OF COURSE, WE NOW HAVE A SLIGHTLY DIFFERENT AND BETTER SITUATION, WE DO HAVE THE DEPUTY SECRETARY HERE IN PLACE, CONFIRMED, SWORN IN, ABLE TO ACT IF NECESSARY.

Q: HAS THIS AFFECTED THE BUDGET SCHEDULE, TIME LINES, DOCUMENTS THAT NEED TO GET OVER TO OMB, ET CETERA? HAVE THOSE CHANGED?

A: NOT SO FAR. OBVIOUSLY, THE SECRETARY HAD BEEN PLANNING TO GO TESTIFY ON THE HILL. HE HAD POSTPONED THAT BECAUSE HE BASICALLY SAID THE MATERIALS HE WANTED TO USE WEREN'T READY. BUT THAT WAS GOING TO BE POSTPONED AND BE RESCHEDULED THIS WEEK. THAT HASN'T HAPPENED BECAUSE HE'S IN THE HOSPITAL.

Q: THE NEW BUDGET HAS BEEN SUBMITTED TO OMB. IT JUST HAS NOT COME BUT IN BLESSED FORMULA?

A: YES, THAT'S TRUE. LET ME TAKE THE QUESTION, HAVE WE SENT THE TAPES OVER TO OMB?

Q: AND WHAT DAY WERE THEY SENT?

A: OKAY.

Q: HAS THE SECRETARY SPOKEN WITH GENERAL POWELL OR IS THAT SOMETHING THAT IS BEING PASSED ON TO MR. PERRY?

A: I DON'T KNOW IF HE SPOKE TO HIM TODAY.

Q: I'M MUST WONDERING WHAT TYPE OF WORK THE SECRETARY MIGHT BE CONDUCTING, GIVEN HIS SITUATION, OBVIOUSLY.

A: I, FRANKLY, DON'T KNOW WHAT HE DID TODAY. TODAY HE HAD THE OPERATION. YOU ALL GOT BRIEFED ON THAT OVER AT THE HOSPITAL' BUT I KNOW, SINCE HE'S BEEN IN THE HOSPITAL, HE'S HAD REGULAR MEETINGS WITH PEOPLE' AND GENERAL POWELL, I KNOW, HAS IN THE PAST PARTICIPATED IN THOSE. WHETHER HE DID THIS WEEK OR NOT, I'M NOT SURE.

Q: CAN YOU TAKE THE QUESTION?

A: HAS HE MET WITH GENERAL POWELL THIS WEEK?

Q: WELL, IF HE DID ANY WORK TODAY AT ALL, SIGNED A PAPER OR ANYTHING' I JUST WANT TO GET THAT CLARIFIED. IF NOT, THAT'S FINE, BUT I JUST WANT TO KNOW ONE WAY OR ANOTHER.

Q: DO YOU HAVE WHAT HIS CONDITION IS NOW? IS IT SATISFACTORY?

A: NOTHING NEW SINCE YOU ALL GOT THE PRESS CONFERENCE WITH THE DOCTORS OVER AT...

Q: ...THIS PROCEDURE, I ASSUME?

A: YES, THERE WAS A PRESS CONFERENCE POST,PROCEDURE. YOU ALL HEARD IT. IF NOT, WE'LL GET THE TRANSCRIPT FOR YOU. I HAVEN'T HAD A CHANCE TO HEAR OR READ IT.

Q: WILL WE GET AN UPDATE TOMORROW, SINCE THERE IS NO BRIEFING, ON HIS HEALTH PLAN FOR OVER THE WEEKEND, AND SOME KIND OF PROGNOSIS, WHEN TO EXPECT HIS DEPARTURE FROM THE HOSPITAL?

A: OKAY'

Q: KISMAYO. WHAT'S THE SITUATION? WE HAD REPORTS EARLIER THIS WEEK OF FACTIONAL FIGHTING BETWEEN THE WARLORDS, AND THAT U.S. TROOPS COULD BECOME INVOLVED.

A: IT'S CURRENTLY QUIET IN KISMAYO. NO RECENT INCIDENTS. A REACTION FORCE OF APPROXIMATELY 500 U.S. ARMY TROOPS IS NOW IN PLACE IN KISMAYO. THEY'VE BEEN SENT TO AUGMENT THE BELGIANS WHO ARE IN CHARGE OF THE HUMANITARIAN RELIEF SECTOR. THEY'LL BE DOWN THERE FOR A LIMITED PERIOD OF TIME AND FOR A SPECIFIC MISSION, WHICH REALLY HAS THREE PARTS. ONE, TO STABILIZE THE SITUATION; SECOND, TO PREVENT A REOCURRENCE OF THE PROBLEM THAT WE HAD THE LAST COUPLE OF DAYS; AND THIRD, TO INVESTIGATE THE EVENTS THAT HAPPENED.

Q: THERE'S NO INDICATION IN THAT STATEMENT THAT WE'LL ATTEMPT TO REVERSE THE SITUATION WITH THE OCCUPATION OF PART OF KISMAYO BY

GENERAL MORGAN'S TROOPS.

A: I'M NOT SURE THAT IT'S CORRECT TO SAY THERE WAS AN OCCUPATION OF KISMAYO BY GENERAL MORGAN'S TROOPS. I THINK THAT BADLY MIS STATES THE SITUATION BASED ON THE REPORTING WE'VE SEEN OUT OF MOGADISHU.

Q: CAN YOU CLARIFY THAT FOR US?

A: I THINK FRED PECK TALKED ABOUT WHAT HAPPENED, THIS CONFRONTATION THAT TOOK PLACE. BUT I THINK TO SAY THEY HAVE OCCUPIED KISMAYO IS NOT CORRECT. IN THE FIRST PLACE, YOU'RE TALKING ABOUT

~~*****~~ BEGINNING OF SECTION 004 ~~*****~~
GROUPS OF A COUPLE OF HUNDRED PEOPLE. YOU CAN'T OCCUPY A CITY OF 160,000 WITH A COUPLE OF HUNDRED PEOPLE. IT JUST DOESN'T WORK THAT WAY.

THAT DOESN'T MEAN THERE ISN'T A PROBLEM. THAT DOESN'T MEAN THERE HAVEN'T BEEN POTENTIAL CLASHES AND INCIDENTS WHERE IN THIS CASE, BASICALLY TWO SIDES APPROACHED EACH OTHER WITH THE POSSIBILITY OF AN INCIDENT. I DON'T MEAN TO SAY THAT, BUT TO USE THE PHRASE "OCCUPY THE CITY" IS A GROSS OVERSTATEMENT OF WHAT HAPPENED.

Q: THE IG THE OTHER DAY SAID THAT THE C-17 PROGRAM SHOULD BE HELD UP UNTIL DOD DOES A COMPLETE REVIEW. IS THERE ANY PENTAGON REACTION TO THAT, OR ANY PLANS THAT ARE IN PLACE TO CONDUCT A REVIEW AND WHAT SORT OF REVIEW THAT WOULD BE?

A: ON THE C-17?

Q: YES.

A: THERE IS AN ONGOING PROCESS AS A RESULT OF THE IG REPORT. THE ACTING SECRETARY OF THE AIR FORCE, MICHAEL DONLEY, HAS BEEN DIRECTED TO RESPOND TO THE FINDINGS OF THE IG. AS YOU KNOW, THE IG REPORT, TALKED ABOUT SOME AIR FORCE OFFICIALS ACTING IMPROPERLY WITH HANDLING THE C-17 CONTRACT. IN ADDITION, THE FY93 AUTHORIZATION ACT REQUIRED THE SECRETARY OF DEFENSE, ACTING THROUGH THE UNDER SECRETARY FOR ACQUISITION, ESTABLISH AN INITIATIVE FOR THE C-17 TO MAINTAIN CONTROL OF OUR COSTS, CONTRACTOR PERFORMANCE, AND MANAGEMENT PERFORMANCE. THEY'RE WORKING ON THAT INITIATIVE NOW.

Q: SO IS DOD CONFIDENT THE WINGS CAN MEET THE SPECIFICATIONS?

A: I THINK WE WANT TO MOVE FORWARD ON THE PROGRAM AND TRY TO RESOLVE THE PROBLEMS. THE AIR FORCE BELIEVES THAT THESE ARE SOLVABLE PROBLEMS AND THAT IT WILL BE A SUCCESSFUL AIRPLANE. THE BUDGET TAPES WERE SENT TO OMB ON MARCH 9TH. SECOND, ON THE QUESTION OF THE CONVOYS, OVERLAND CONVOYS BEING ALLOWED TO PROCEED TO VARIOUS PLACES IN EASTERN BOSNIA, THE UN IS THE OFFICIAL SOURCE ON IT. THE UN TELLS US THAT THEY HAVE HAD CONVOYS GOING TO TUZLA AND ZEPA, BUT WE DON'T HAVE ANY RESULTS FROM THE ONE TO SREBRENICA YET. HE ASKED ME TO REFER YOU ALL TO THE UN.

Q: FOR THE RECORD, WHEN SECRETARY CHENEY WAS HERE AS DEFENSE SECRETARY, THERE WAS A THING CALLED PRINCIPLES OF INFORMATION. IT'S BEEN POSTED IN THE BUILDING. IT BEARS HIS SIGNATURE. WHERE DO THESE STAND WITH THE NEW SECRETARY OF DEFENSE?

A: IN WHAT SENSE? ARE WE GOING TO REISSUE THEM OVER HIS SIGNATURE?

Q: ARE THEY GOING TO BE RE-SIGNED, WILL THEY BE CHANGED, WILL THEY

REMAIN IN FORCE?

A:--THEY WILL REMAIN IN FORCE. ALL THESE DIRECTIVES REMAIN IN FORCE UNTIL THEY'RE CHANGED. YOU HAVE TO TAKE AFFIRMATIVE ACTION TO CHANGE DIRECTIVES OR THINGS OF THIS NATURE. I BELIEVE HE'S COMMITTED TO THEM, BUT WHETHER HE'LL REISSUE THEM OVER HIS OWN NAME, I DON'T KNOW. I'LL HAVE TO LOOK INTO THAT.

PRESS: THANK YOU.

ADMIN

BT

#1281

NNNN

INQUIRE=DOC16D
ITEM NO=00201140

ENVELOPE

CDSN = LGX009 MCN = 91317/10944 TOR = 913170807
RTTUZYUW RUEKJCS3402 3170806-UUUU--RUEALGX.
ZNR UUUUU

HEADER

R 130806Z NOV 91
FM JOINT STAFF WASHINGTON DC
INFO RUEALGX/SAFE
R 130727Z NOV 91
FM SECDEF WASHINGTON DC//ASD:PA//
TO AIG 8798
AIG 8799
RXFBI/AFCENT BRUNSSUM NL
ACCT DA-BHCWAA
BT

CONTROLS

UNCLAS , NATO UNCLASSIFIED FOR NATO ADDRESSEES
SECTION 01 OF 07

/***** THIS IS A COMBINED MESSAGE *****/

BODY

SUBJ: DOD NEWS BRIEFING
DELIVER DURING NORMAL DUTY HOURS
FOLLOWING IS TRANSCRIPT OF NEWS BRIEFING CONDUCTED BY MR. BOB HALL,
DASD/PUBLIC AFFAIRS, ON TUES., NOV., 12, 1991 AT AT NOON:
I'D LIKE TO WELCOME FOUR JOURNALISM STUDENTS FROM THE AMERICAN
UNIVERSITY -- FROM OUR REGULAR PROGRAM , - AS WELL AS PROFESSOR
SPEAR WHO IS SPONSORING 28 STUDENTS ATTENDING THE WASHINGTON
SEMESTER PROGRAM. WE ALSO, I UNDERSTAND, HAVE A DOZEN STUDENTS
FROM GEORGE WASHINGTON UNIVERSITY -- ALL HERE TO SEE ONE ELEMENT OF
THE NEWS BUSINESS AND HOW WE DO PUBLIC INFORMATION.
YOU HAVE A BLUE TOP TODAY THAT WILL ANNOUNCE THAT WE'RE ENDING OR
REDUCING OPERATIONS AT 71 ADDITIONAL SITES IN EUROPE BY 1995. THIS
BRINGS THE TOTAL OF U.S. SITES IN EUROPE THAT HAVE ENDED OR REDUCED
OPERATIONS, OR HAVE BEEN PLACED IN STANDBY STATUS, TO A TOTAL OF
381 FACILITIES. THAT'S A MORE THAN 25 PERCENT REDUCTION IN U.S.
INSTALLATIONS THAT ARE BEING USED IN EUROPE. THERE ARE AN ADDI-
TIONAL 24 BASES AT OTHER LOCATIONS OUTSIDE OF EUROPE, MAKING A
GRAND TOTAL OF 405 WHERE WE HAVE REDUCED OR ENDED OPERATIONS.
THAT'S A TOTAL OF 24 PERCENT, FOR THOSE OF YOU THAT ARE INTERESTED
IN STATISTICS.
I SHOULD ALSO NOTE FOR YOU, IN THE BLUE TOP IN THE FOURTH PARA,
GRAPH, THERE ARE 17 SITES CITED THAT WE HAVE NOT MENTIONED BEFORE
BUT WE HAVE, IN FACT, TAKEN SOME ACTION ON. ANY QUESTIONS ON THE
BASES?
I'D LIKE TO ANNOUNCE TODAY THAT WE WILL BE CONDUCTING THIS WEEK, IN
COOPERATION WITH THE DEPARTMENT OF STATE AND THE AGENCY FOR
NATIONAL DEVELOPMENT, THE 100TH AFGHAN RELIEF MISSION TO PAKISTAN.
THIS WILL BE DURING THE WEEK OF NOVEMBER 13TH TO 19TH. THE FLIGHT

WILL DELIVER APPROXIMATELY 20,000 POUNDS OF DOD EXCESS COLD WEATHER GEAR -- CLOTHING, SLEEPING BAGS, AND BLANKETS -- AND WILL EVACUATE 27 WOUNDED AFGHANS AND THEIR ESCORTS TO EUROPE AND THE UNITED STATES FOR ADVANCED MEDICAL TREATMENT. THERE WILL BE AN MFC FOR YOU LATER TODAY.

WE HAVE ANOTHER MFC ON TWO REMAINS THAT HAVE BEEN RECOVERED DURING JOINT EXCAVATION EFFORTS BETWEEN THE U.S. AND THE LAOTIAN GOVERNMENTS. THESE WERE SERVICEMEN WHO WERE LOST IN A FEBRUARY 18, 1971 HELICOPTER CRASH. WE HAVE SPECIALIST 4TH CLASS ROBERT J. ENGEN AND SERGEANT WALTER E. LEWELLEN. THE REMAINS OF THESE AMERICANS WILL DEPART HICKAM AIRFORCE BASE IN HAWAII WITH A FULL MILITARY HONORS CEREMONY AT 8:15 HAWAII TIME, NOVEMBER 13TH. THEY'LL TRAVEL TO TRAVIS AIR FORCE BASE, CALIFORNIA, FOR THE FINAL JOURNEY HOME. SECRETARY OF DEFENSE DICK CHENEY WILL SPEAK TO THE TOWN HALL OF CALIFORNIA AT 9:30 A.M. PACIFIC TIME WEDNESDAY, NOVEMBER 13TH, IN THE CRYSTAL ROOM OF THE BILTMORE HOTEL, 506 SOUTH GRAND AVENUE, LOS ANGELES. THE SPEECH WILL BE FOLLOWED BY QUESTIONS AND ANSWERS AND IT'S OPEN TO THE MEDIA. HE WILL ALSO HAVE A MEDIA AVAILABILITY PRIOR TO THE SPEECH AT 9:10 A.M. IN THE TIFFANY ROOM AT THE BILTMORE HOTEL. THE POINT OF CONTACT IS KAREN BURGESS, THE DIRECTOR OF COMMUNICATIONS FOR TOWN HALL AT (213)628-8141.

THE SAME EVENING SECRETARY CHENEY WILL ACCEPT THE ALBERT SCHWEITZER LEADERSHIP AWARD AND MAKE REMARKS AT THE HUGH O'BRIEN YOUTH FOUNDATION DINNER AT 7:30 P.M. IN THE INTERNATIONAL BALLROOM OF THE BEVERLY HILTON HOTEL, 9876 WILSHIRE BOULEVARD, LOS ANGELES. AGAIN, THE EVENT IS OPEN TO THE MEDIA. IT WILL BE PRECEDED BY A PHOTO OP AT 6:00 P.M. IN THE VERSAILLES ROOM OF THE HOTEL. THE POINT OF CONTACT IS MICKEY CROCKER AT (213)474,4370, EXTENSION 326.

I'D LIKE TO MAKE A FEW COMMENTS ON THE REPORTS ABOUT THE BLOOD DONATIONS. I THINK YOU PROBABLY HAVE THE MFC THAT WE HAVE ON THIS. ON FRIDAY, NOVEMBER 8TH, DR. ENRIQUE MENDEZ, THE ASSISTANT SECRETARY FOR HEALTH AFFAIRS, MADE A DECISION TO RECOMMEND THAT ALL DOD PERSONNEL WHO WERE DEPLOYED TO THE GULF AREA -- INCLUDING THE COUNTRIES OF SAUDI ARABIA, KUWAIT, IRAQ, BAHRAIN, QATAR, THE UNITED ARAB EMIRATES, OMAN, AND YEMEN -- SINCE AUGUST 1, 1990, THAT THEY TEMPORARILY REFRAIN FROM DONATING BLOOD. THIS DECISION IS BASED ON THE DISCOVERY, SINCE THE GULF CONFLICT, OF A LIMITED NUMBER OF CASES OF A DISTINCT MEDICAL SYNDROME INVOLVING AN INFECTION WITH A PARASITE TRANSMITTED BY THE BITE OF SAND FLIES. THAT PARASITE IS KNOWN AS LEISHMANIA.

TO DATE, ONLY 22 CASES HAVE BEEN DISCOVERED AMONG THE MORE THAN HALF MILLION TROOPS WHO DEPLOYED TO THE GULF REGION, AND NONE OF THESE 22 CASES INVOLVE LIFE THREATENING ILLNESSES. THE ORGANISM USUALLY CAUSES AN EASILY TREATED SKIN DISEASE, AND THAT IS THE SITUATION IN 15 OF THE CASES. BUT DOCTORS AT WALTER REED ARMY MEDICAL CENTER AND THE WALTER REED ARMY INSTITUTE OF RESEARCH HAVE IDENTIFIED THE INFECTION VIA BONE MARROW CULTURE IN SEVEN PATIENTS WHO HAVE NO SKIN LESIONS. THESE SEVEN PATIENTS HAVE A MILD ILLNESS INVOLVING FEVER AND DIARRHEA.

MILITARY MEDICAL PERSONNEL ARE NOW TRYING TO DETERMINE HOW PREVALENT THE DISEASE MAY BE AMONG RETURNING SERVICE MEMBERS.

ALTHOUGH THE DOCTORS BELIEVE THE NUMBER OF CASES ARE SMALL, THEY WANT TO ENSURE THAT ALL THE CASES ARE QUICKLY DETECTED AND TREATED. WHILE THAT PROCESS IS UNDERWAY, DR. MENDEZ HAS MADE THE PARALLEL DECISION REGARDING BLOOD DONATIONS. THESE FORMS OF LEISHMANIASIS ARE NOT CONTAGIOUS IN PERSON, TO-PERSON CONTACT.

ALTHOUGH THERE HAVE BEEN NO CASES OF THIS SPECIFIC FORM BEING TRANSMITTED THROUGH BLOOD TRANSMISSIONS, FIVE CASES OF A RELATED SPECIES OF PARASITE HAVE BEEN REPORTED IN MEDICAL LITERATURE AS BEING TRANSMITTED THROUGH TRANSFUSION OF CONTAMINATED BLOOD. THEREFORE, THE DELAY IN MAKING BLOOD DONATIONS WILL ENABLE MEDICAL RESEARCHERS TO DETERMINE THE LEVEL OF ADDITIONAL INFECTIONS IN THE EXPOSED POPULATION, AND WILL ALSO ALLOW THEM TO DEVELOP A SCREENING TEST FOR INFECTION.

AS THE MFC SAYS, DOD OFFICIALS ARE WORKING CLOSELY WITH THE FOOD AND DRUG ADMINISTRATION, THE CENTER FOR DISEASE CONTROL, THE AMERICAN RED CROSS, THE AMERICAN ASSOCIATION OF BLOOD BANKS, THE COUNCIL OF COMMUNITY BLOOD CENTERS, AND OTHER GROUPS INVOLVED IN THE COUNTRY'S BLOOD SUPPLY TO DECIDE HOW BEST TO HANDLE THE SITUATION.

Q: YOU MENTIONED THERE'S A SCREENING TEST BEING DEVELOPED. DOES THAT MEAN THAT PEOPLE WHO HAVE BEEN TO THE PERSIAN GULF AREA AND RETURNED WHO MAY HAVE SOME ANXIETY AS TO WHETHER THEY'RE CARRYING THE ILLNESS HAVE NO PRESENT WAY OF FINDING OUT THROUGH A SIMPLE TEST? OR IS THERE AN EXISTING TEST?

A: AT THIS TIME MY UNDERSTANDING IS WE DO NOT HAVE AN EXISTING TEST. THAT'S WHAT THEY'RE WORKING ON TRYING TO DEVELOP.

Q: WERE THERE ANY CASES THAT WERE MORE SERIOUS THAN THE FIVE WHERE THE PEOPLE EXPERIENCED DIARRHEA AND OTHER DISCOMFORTS?

A: SEVEN CASES. NO. AS I WENT THROUGH THIS WITH THE EXPERTS, THERE ARE SEVERAL CLINICAL FORMS, SEVERAL KINDS OF LEISHMANIASIS. ONE IS AN ULCER OR SKIN LESIONS WHICH ESSENTIALLY CAN BE TREATED VERY EASILY. BUT IF IT WASN'T TREATED, IT WOULD PRESUMABLY HEAL BY ITSELF. THAT'S CAUSED BY LIESMANIA TROPICA, WHICH IS WHAT WE'VE

/***** BEGINNING OF SECTION 002 *****/

IDENTIFIED IN THIS CASE. NORMALLY THAT HAS SKIN ULCERS. HOWEVER, IN THESE SEVEN CASES THEY'VE IDENTIFIED IT IN A DIFFERENT FORM. THERE IS ANOTHER KIND OF CLINICAL FORM, AND THAT IS LIESMANIA DONAVANI WHICH IS NORMALLY WHAT THEY CALL VISCERAL MEANING IN THE BLOOD MARROW OR THE SPLEEN OR OTHER ORGANS. THAT IS POTENTIALLY FATAL, BUT NOT IF IT'S TREATED, AND THERE ARE REGULAR TREATMENTS FOR IT. IN FACT, OUR PEOPLE HAVE DEALT WITH A NUMBER OF CASES OF IT IN THE PAST. BUT AS I SAY, THAT IS NOT THE KIND THEY'RE DEALING WITH NOW. THEY'VE CHEMICALLY ID'D IT AS LIESMANIA TROPICA, WHICH IS NORMALLY FOUND AS A SKIN...

Q: THE SEVEN INDIVIDUALS WHO HAD THE MORE SERIOUS MANIFESTATION OF THE LESS SERIOUS DISEASE...

A: A DIFFERENT MANIFESTATION.

Q: HOW MANY OF THEM ARE CURED? OR DO THEIR SYMPTOMS PERSIST AT THIS TIME?

A: I'LL HAVE TO CHECK AND SEE WHETHER ANYBODY IS CURED FROM THAT

GROUP.

Q: HOW LONG DOES IT TAKE FOR THE DISEASE TO MANIFEST ITSELF?

A: WHAT I MIGHT TRY TO DO, WE'VE GOT A FEW PEOPLE AVAILABLE TO ANSWER YOUR QUESTIONS. IF YOU'D LIKE, I CAN ASK THEM TO COME UP NOW AND MAYBE WE CAN TAKE SOME OF THESE.

Q: DO YOU KNOW WHERE THESE 22 WERE STATIONED, - IN A SPECIFIC COUNTRY, IN A SPECIFIC AREA? WERE THEY STATIONED ALL OVER?

A: I DON'T KNOW. THEY WERE STATIONED IN THE REGION. MAYBE WE COULD ASK THE COLONEL IF HE'D LIKE TO COME ON UP. LET ME TAKE GENERAL QUESTIONS FIRST, AND THEN WE'LL GET INTO SOME SPECIFIC, TECHNICAL QUESTIONS.

Q: WITH SO MANY TROOPS HAVING BEEN PERSIAN GULF VETERANS, HOW MUCH BLOOD IS ON HAND IN RESERVE, AND WHEN WILL WE START TO CUT INTO THAT IN TERMS OF...

A: I'M TOLD THE EFFECT ON THE BLOOD SUPPLY IS MANAGEABLE. OBVIOUSLY, IT'S SOMETHING YOU'D RATHER NOT HAVE TO DO. THE MILITARY COMMUNITY IS ONE OF THE BIGGEST DONORS OF BLOOD. WE'D RATHER NOT CUT 500,000 OF THEM OUT OF THE DONATION PROCESS. BUT IT IS A MANAGEABLE PROBLEM.

Q: I'LL REPEAT THE QUESTION. IT WAS HOW LONG WOULD IT TAKE FOR THE DISEASE TO MANIFEST ITSELF. IN OTHER WORDS, HOW LONG SHOULD PEOPLE WHO WERE IN THE PERSIAN GULF CONTINUE TO WORRY THAT THEY MAY COME DOWN WITH THIS DISEASE?

COL OSTER: I'M COLONEL CHARLES OSTER. I'M THE CHIEF OF INFECTIOUS DISEASE AT THE WALTER REED ARMY MEDICAL CENTER, AND I'M THE CONSULTANT TO THE ARMY SURGEON GENERAL FOR INFECTIOUS DISEASES. THE ANSWER TO THAT QUESTION IS THAT THE USUAL INCUBATION PERIOD FOR LEISHMANIASIS IS IN THE ORDER OF MONTHS, BUT PROLONGED INCUBATION PERIODS OF ONE TO TWO YEARS HAVE BEEN DESCRIBED FOR VISCERAL LEISHMANIASIS. SO I THINK WE WOULD CONTINUE TO HAVE SOME CONCERN FOR THE NEXT TWO YEARS IN OUR RETURNING SOLDIERS.

Q: WOULD A PERSON KNOW THAT HE OR SHE'S BEEN BITTEN BY A SAND FLY AND THEREFORE...

OSTER: SAND FLIES ARE ONLY A COUPLE OF MILLIMETERS LONG. THEY USUALLY BITE AT NIGHT. THEY'RE USUALLY NOT SEEN BY PATIENTS WHO ARE BITTEN.

Q: DO YOU KNOW WHETHER THESE 22 SOLDIERS, WHETHER THEY WERE IN THE SAME AREA, DIFFERENT AREAS OF THE PERSIAN GULF?

OSTER: MANY OF THESE SOLDIERS WERE IN UNITS THAT TRAVELED EXTENSIVELY THROUGHOUT NORTHEAST SAUDI ARABIA, KUWAIT, AND SOUTHERN IRAQ. OTHER UNITS WERE STATIONARY IN NORTHEAST SAUDI ARABIA -- ONE UNIT FROM DHAHRAN AND ONE UNIT FROM RIYADH. SO WE CANNOT, BASED ON OUR EPIDEMIOLOGY ON THESE FEW CASES, WE CANNOT PINPOINT A FULL ACCOUNTING FOR THE INFECTIONS.

Q: WHAT IS THE TREATMENT FOR THIS?

OSTER: THE TREATMENT IS A STANDARD TREATMENT THAT WAS DEVELOPED SOME 50 YEARS AGO WITH WHAT IS CALLED A PENTAVALENT ANTIMONY COMPOUND. THE PRODUCT WE USE IS SODIUM STIBOGUCHNATE. THE TRADE NAME IS PENTOSTAM. IT'S MANUFACTURED BY THE WELCOME TRUST IN THE UK. WE GET OUR DRUG FROM THEM. IT'S A DRUG THAT HAS NOT BEEN LICENSED IN THIS COUNTRY BECAUSE THERE ARE ESSENTIALLY NO CASES OF &VIS,

CERAL) LEISHMANIASIS IN THE UNITED STATES, SO THERE'S BEEN NO DRUG COMPANY WILLING TO PAY THE PRICE TO GET A LICENSE. SO WE HAVE IT ON AN INVESTIGATIONAL NEW DRUG PROTOCOL FROM THE FDA' WE HAVE HAD EXTENSIVE EXPERIENCE TREATING LEISHMANIASIS IN OUR SOLDIERS OVER THE PAST 13 OR 14 YEARS'

Q: CAN YOU DESCRIBE WHETHER YOU TAKE THIS STUFF ORALLY, OR IS IT INTRAVENOUS?

OSTER: THE TREATMENT IS INTRAVENOUS, AND WE RECOMMEND FOR THE CUTANEOUS DISEASE 20 DAYS OF A SINGLE INTRAVENOUS INJECTION; AND FOR THE DISEASE THAT HAS GONE TO THE DEEP ORGANS, SO-CALLED VISCERAL DISEASE -- WE RECOMMEND A 30 DAY COURSE OF TREATMENT.

Q: YOU'RE HOOKED UP TO IT ONCE A DAY FOR 30 DAYS OR...

OSTER: WE CAN JUST PUT A NEEDLE IN THE VEIN, TAKE ABOUT 20 MINUTES TO RUN THE DRUG IN, PULL THE NEEDLE OUT, AND THE PATIENT CAN GO ON HIS WAY.

Q: CAN YOU TELL US A LITTLE BIT MORE ABOUT HOW SERIOUS THIS IS, IF IT IS STABLE, AND WHAT THE TYPE OF DISEASE IS, AND ALSO, BESIDES THE MEDICATION, ANYTHING ELSE THAT...

OSTER I THINK THE REASON WE'VE COME OUT WITH IT AS WE HAVE IS TO PROSCRIBE BLOOD DONATIONS IN THOSE SOLDIERS THAT HAVE BEEN IN THE MIDDLE EAST, BECAUSE THAT IS ONE THING WE WOULD LIKE TO PREVENT IS ANY CHANCE FOR CONTAMINATION OF THE BLOOD SUPPLY.

THE DISEASE THAT WE ARE DESCRIBING IS AN UNUSUAL DISEASE IN THAT IT'S CAUSED BY AN ORGANISM, EL TROPICA, WHICH NORMALLY CAUSES THE CUTANEOUS FORM OF THE DISEASE. HOWEVER, IN SEVEN OF THESE PATIENTS WE'VE GOTTEN IT FROM THE BONE MARROW WHICH IS INDICATIVE OF VISCERAL LEISHMANIASIS. BUT THE CLASSIC VISCERAL LEISHMANIASIS IS CAUSED BY A DIFFERENT ORGANISM CALLED L DONOVANI. NOW L. DONOVANI CAN CAUSE A FATAL ILLNESS IF UNTREATED. IT CAUSES ENLARGED LIVER, ENLARGED SPLEEN, CAUSES DEPRESSION OF THE RED CELL, WHITE CELL, AND PLATELET COUNTS, IT CAUSES IMMUNE SUPPRESSION. THOSE PEOPLE WHO GET ADVANCED FORMS OF THIS DISEASE WASTE AWAY WITH WEIGHT LOSS, LOW GRADE FEVER, AND EVENTUALLY PROBABLY DIE OF ANOTHER CAUSE, USUALLY A SECONDARY INFECTION -- PNEUMONIA, MEASLES, OR OCCASIONALLY THEY'LL DIE OF BLEEDING COMPLICATIONS. BUT IF THE DISEASE IS RECOGNIZED, IT IS VERY TREATABLE. THE MORTALITY RATE CAN GO FROM 90 PERCENT UNTREATED TO ONE OR TWO PERCENT WHEN TREATMENT IS USED.

Q: YOU MENTIONED A TWO YEARS PERIOD OF PRIMARY CONCERN. IS THERE SOME RECURRENCE TO THIS AFTER AWHILE IN SOME CASES?

OSTER: I DON'T KNOW THE ANSWER TO THAT, PRECISELY. WE CAN MAKE AN ANALOGY TO THE VISCERAL LEISHMANIASIS CAUSED BY L. DONOVANI. L. DONOVANI NOW HAS BEEN RECOGNIZED IN EUROPE, IN SOUTHERN EUROPE -- FRANCE, SPAIN, AND ITALY -- AS RELAPSING WHEN PATIENTS DEVELOP AIDS. IT'S ALSO BEEN RECOGNIZED IN PATIENTS WHO HAVE HAD RENAL TRANSPLANTS OR OTHER TRANSPLANTS WHO ARE ON IMMUNOSUPPRESSION.

/***** BEGINNING OF SECTION 003 *****/

IT'S BEEN RECOGNIZED IN PATIENTS WHO ARE GETTING CANCER CHEMOTHERAPY. SO THAT THERE IS A POTENTIAL FOR RELAPSE WHEN A PERSON DEVELOPS AN IMMUNE DEFICIENCY.

HALL: JUST TO CLARIFY AGAIN, L. DONOVANI IS A DIFFERENT...

OSTER: AS I SAID, THIS IS AN ANALOGY TO L. DONOVANI, A DIFFERENT ORGANISM. WE DON'T KNOW HOW EL TROPICA IS GOING TO BEHAVE.

Q: WHAT ARE THE SYMPTOMS, AND HOW DID YOU FIND THE INITIAL CASES?

OSTER: WHEN WE WENT INTO OPERATION DESERT SHIELD IN AUGUST OF 1990, WE SAT DOWN AND REVIEWED EXTENSIVELY THE LITERATURE OF THE ENDEMIC DISEASES IN THAT AREA OF THE WORLD. WE PUBLISHED A HAND BOOK WHICH WAS DISTRIBUTED TO ALL OF OUR SOLDIERS, ALL OF OUR MEDICAL PERSONNEL IN SUPPORT OF DESERT SHIELD. AS A CONSEQUENCE, OUR MEDICAL PEOPLE WERE ALERTED TO DISEASES THAT THEY WOULDN'T OTHERWISE HAVE MUCH KNOWLEDGE OF.

WE ALSO PUBLISHED AN ARTICLE IN THE NEW ENGLAND JOURNAL OF MEDICINE IN MARCH REVIEWING THE SAME SUBJECT. AND NAVY PHYSICIANS PUBLISHED AN ARTICLE IN THE REVIEWS OF INFECTIOUS DISEASES IN JANUARY OF THIS YEAR. SO WE HAD A HEIGHTENED AWARENESS OF PROBLEMS THAT WERE POTENTIAL TO OCCUR IN OUR SOLDIERS IN THE GULF.

BECAUSE OF THIS, A SOLDIER ABOUT A YEAR AGO DEVELOPED A HIGH FEVER WHICH WAS UNEXPLAINED. A VERY ASTUTE PHYSICIAN THOUGHT ABOUT THE POSSIBILITY OF LEISHMANIASIS AND ORDERED AN ANTIBODY TITER WHICH CAME BACK POSITIVE. THEN THAT PHYSICIAN MEDIVAC'D HIS PATIENT BACK TO US AT WALTER REED FOR FURTHER CONFIRMATION OF THE DIAGNOSIS AND TREATMENT. WE DIDN'T SEE ANOTHER CASE UNTIL APRIL OF THIS YEAR, AGAIN, PRESENTED WITH HIGH FEVERS, PRIMARILY, WHICH WAS UNEXPLAINED BY ANY OTHER ILLNESSES. WE DID A BONE MARROW ON HIM AND WERE ABLE TO ESTABLISH A DIAGNOSIS OF LEISHMANIASIS.

THE OTHER CASES, TWO MORE PRESENTED WITH HIGH FEVERS THAT WERE UNEXPLAINED, AND TWO OTHERS PRESENTED WITH CHRONIC ILLNESS, WITH LOW GRADE FEVERS, ABDOMINAL COMPLAINTS, PRIMARILY WATERY DIARRHEA AND ABDOMINAL CRAMPY PAIN WHICH EVOLVED INTO ENLARGEMENT OF THE ORGAN, THE SPLEEN AND THE LIVER, MORE LIKE THE CLASSICAL VISCERAL LEISHMANIASIS.

SO WE HAVE A SPECTRUM OF DISEASE, FROM AN ACUTE TYPE OF ILLNESS TO A MORE CHRONIC DISEASE WITH ABDOMINAL COMPLAINTS. ONE OF OUR PATIENTS WAS, IN FACT, ASYMPTOMATIC. WE IDENTIFIED HIM BY GOING TO THE UNIT OF AN INDEX CASE AND TALKING TO THOSE SOLDIERS AND DOING THE ANTIBODY TESTS FOR THE LEISHMANIA ANTIBODY, AND THEN IN SOME OF THOSE SOLDIERS WHO HAD HIGH ANTIBODY TITERS, WE ASKED THEIR PERMISSION TO DO A BONE MARROW, AND ONE OF THOSE PATIENTS WAS POSITIVE ON BONE MARROW. HE IS ASYMPTOMATIC. HE REMAINS ASYMPTOMATIC. ALL WE'VE ELECTED TO DO WITH HIM IS TO SEE HIM ON A REGULAR BASIS, TO BE SURE THAT HE DOESN'T BECOME ILL. WE HAVE NOT TREATED HIM WITH PENTOSTAM.

Q: REGARDING YOUR CONCERN FOR THE BLOOD SUPPLY, IT'S BEEN SEVERAL MONTHS SINCE THE FIRST TROOPS CAME BACK FROM THE GULF. ISN'T IT POSSIBLE THAT SOME OF THEM HAVE ALREADY DONATED BLOOD? DO YOU HAVE ANY (INFORMATION) ON THAT?

OSTER: SIR, I'M NOT THE RIGHT PERSON TO ANSWER THAT QUESTION. I'M NOT A BLOOD BANKER. GENERAL BLANCK, DO YOU WANT TO TAKE THAT?

Q: OF THE 22 CASES THAT YOU'VE HAD, DO ANY OF THOSE CONTINUE NOW UNDER TREATMENT AT WALTER REED, OR HAVE THEY ALL BEEN SUCCESSFULLY TREATED AND RELEASED? WHAT'S THEIR STATUS?

OSTER: OF THE SEVEN PATIENTS WE'VE IDENTIFIED, FIVE HAVE BEEN

SYMPTOMATIC AND BEEN TREATED, AND ALL HAVE RESPONDED TO THERAPY. ONE IS ASYMPTOMATIC. WE CONTINUE TO FOLLOW HIM. THE SEVENTH PATIENT IS A PATIENT WHO'S STILL AT WALTER REED, WHO HAS ANOTHER MEDICAL PROBLEM THAT'S HAD TO BE TAKEN CARE OF FIRST. SO WE DO PLAN TO TREAT HIM IF HE'S SYMPTOMATIC.

Q: ARE ALL THESE TREATMENTS DONE AT WALTER REED? WHEN YOU HAVE IT, DO YOU MAINTAIN YOUR ORDINARY, DAILY ROUTINE, OR ARE YOU HOSPITALIZED, CAN YOU CONTINUE TO WORK? WHAT HAPPENS?

OSTER: SEVERAL OF OUR PATIENTS HAVE HAD A CHRONIC FATIGUE BASICALLY. THEY HAVEN'T BEEN ABLE TO PERFORM UP TO THEIR NORMAL STANDARDS, SO THAT HAS BEEN A PROBLEM FOR A COUPLE OF OUR PATIENTS. THAT HAS GOTTEN BETTER WITH TREATMENT.

Q: IS EVERYBODY BROUGHT HERE TO WALTER REED, OR IF YOU'RE AT FORT BRAGG DO YOU GET TREATED AT FORT BRAGG?

OSTER: THE ARMY SURGEON GENERAL, BACK IN 1977, MADE A DECISION TO LOCALIZE ALL OF THE TREATMENT AND CARE FOR LEISHMANIASIS AT WALTER REED ARMY MEDICAL CENTER. AT THAT TIME, WE RECOGNIZED THE PROBLEM OF CUTANEOUS LEISHMANIASIS FROM TROOPS WHO WERE STATIONED IN PANAMA, SO WE WERE SEEING ULCERS IN OUR SOLDIERS WHO WERE GOING TO PANAMA. SINCE NOBODY HAD A STRONG CLINICAL EXPERIENCE WITH LEISHMANIASIS IN THIS COUNTRY, IT WAS ELECTED TO BRING IT TO ONE CENTER, SO AT LEAST A FEW DOCTORS COULD LEARN MORE ABOUT THIS DISEASE AND HOW TO TREAT IT AND APPROPRIATE MANAGEMENT. IT WAS BECAUSE OF THAT DECISION 13 YEARS AGO THAT WE WERE IN A POSITION TO SUPPORT ODS IN MAKING A DIAGNOSIS OF LEISHMANIASIS, BECAUSE WE HAD THE DOCTORS THAT KNEW HOW TO RECOGNIZE THE DISEASE AND RIGHT UP FROM THE BACK DOOR OF WALTER REED ARMY MEDICAL CENTER IS WALTER REED ARMY INSTITUTE OF RESEARCH WHERE THEY'RE DOING ALL THE RESEARCH ON LEISHMANIASIS.

Q: BUT IT DOES MEAN YOU HAVE TO COME UP TO WALTER REED FOR 20 OR 30 DAYS?

OSTER: THAT'S CORRECT.

Q: BASED ON WHAT YOU KNOW ABOUT THE INCLINATION OF THE DISEASE, IS THE APPEARANCE SO FAR OF SEVEN CASES OUT OF 500,000, IS THAT AN ALARMING INCIDENCE OF THE DISEASE?

OSTER: IT'S NOT ALARMING, CERTAINLY -- SEVEN OUT OF 500,000 CAN'T BE BLOWN UP INTO TOO BIG OF A PROBLEM. BUT WE DON'T KNOW WHAT THE ACTUAL NUMERATOR IS OF THE PATIENTS WHO HAVE BEEN INFECTED. WHAT WE'VE SEEN ARE PATIENTS WHO HAVE A NON-LIFE THREATENING (FEBRILE) ILLNESS WITH SOME CHRONIC COMPLAINTS THAT HAVE EVENTUALLY GOTTEN TO WALTER REED ARMY MEDICAL CENTER WHERE WE THOUGHT ABOUT LEISHMANIASIS AND WERE ABLE TO DIAGNOSE IT. THERE MAY HAVE BEEN MANY OTHER SOLDIERS WHO HAD A SIMILAR MILD ILLNESS THAT WERE NEVER DIAGNOSED AS HAVING LEISHMANIASIS. BUT I THINK THE IMPORTANT POINT IS THAT THIS SYNDROME APPEARS TO BE SELF LIMITED, EVEN WITHOUT TREATMENT. BY THAT I MEAN THE SOLDIERS THAT WE TREATED WERE ALREADY IMPROVING BEFORE TREATMENT. SO I THINK THERE IS LITTLE CONCERN HERE THAT WE'RE GOING TO HAVE SOLDIERS UNRECOGNIZED WHO WILL GO ON AND DEVELOP A MORE SERIOUS ILLNESS. I THINK WE WILL PROBABLY HEAR ABOUT MORE CASES THAT DID HAVE A FEVER, MAYBE DID HAVE SOME ABDOMINAL COMPLAINTS, MAYBE DID HAVE SOME EASY FATIGUABILITY FOR SOME

PERIOD OF TIME THAT THEN GOT BETTER. WE WILL ONLY DIAGNOSE THOSE PATIENTS IN RETROSPECT.

Q: YOU TALKED ABOUT CASES OF SOLDIERS WHO SERVED IN PANAMA IN THE LATE '70S. GIVEN THE LARGE NUMBER OF U.S. CIVILIAN AND MILITARY PERSONNEL WHO HAVE BEEN IN AND OUT OF THE PERSIAN GULF, INCLUDING DIPLOMATS, FOR MANY MANY YEARS, IS THIS THE FIRST TIME THAT THE

/***** BEGINNING OF SECTION 004 *****/

MILITARY HAD DETECTED LEISHMANIASIS FROM THE AREA?

OSTER: LEISHMANIASIS IS WELL KNOWN TO OCCUR IN THAT AREA OF THE WORLD. CUTANEOUS LEISHMANIASIS IS DESCRIBED IN ALL OF THE AREAS OF THE GULF. EL TROPICA CAUSES A LARGE NUMBER OF THOSE CASES. VISCERAL LEISHMANIASIS, THE CLASSICAL LEISHMANIASIS CAUSED BY EL DANAVANI, WAS ONLY RECOGNIZED IN IRAQ, IRAN, YEMEN, AND IN THE EXTREME SOUTHWEST OF SAUDI ARABIA. SO THAT THE AREA OF OUR OPERATIONS, WE WERE REALLY NOT CONCERNED ABOUT THE POSSIBILITY OF VISCERAL LEISHMANIASIS. SO THIS DID COME AS A SURPRISE TO US.

Q: ARE YOU WORKING WITH SAUDI OR KUWAITI AUTHORITIES (INAUDIBLE)?

OSTER: NO MA'AM. THERE ARE TWO ASPECTS OF THIS. ONE IS TO MAKE A DECISION ABOUT OUR PROBLEM RIGHT NOW AND OUR RETURNING TROOPS. THAT, AGAIN, HAS TWO RAMIFICATIONS. ONE IS THE BLOOD TRANSFUSIONS WHICH WE'VE CURTAILED; THE SECOND IS TO PROVIDE CLINICAL SUPPORT FOR DIAGNOSIS OF PATIENTS WHO MAY HAVE BEEN INFECTED WITH THIS. THE OTHER MAJOR AREA OF INTEREST IS DEFINING THE SYNDROME IN A RESEARCH MODE. PART OF THAT WOULD BE TO GO TO THE ENDEMIC AREA AND TALK TO PHYSICIANS THERE, EXAMINE PATIENTS, DO TESTS ON THEIR PATIENTS. BUT THAT'S AN ENTIRELY DIFFERENT PROJECT. BUT WE'RE VERY INTERESTED IN DEFINING THIS NEW DISEASE, IF YOU WILL, MORE CAREFULLY.

Q: TO CLARIFY, BECAUSE THE ANSWERS DON'T SEEM TO ME TO BE TOTALLY CONSISTENT. A RETURNING SERVICEMAN GETS OFF THE PLANE, SAYS I JUST DON'T KNOW IF I HAVE THIS OR NOT, I WANT TO BE TESTED. DO YOU HAVE A SCREENING PROCEDURE OR TEST THAT HE OR SHE CAN...

OSTER: YES. I'M GLAD YOU BROUGHT THAT UP AGAIN, BECAUSE THERE HAS BEEN TWO ANSWERS TO THAT QUESTION. THE CORRECT ANSWER IS YES. WE HAVE A TEST THAT'S AVAILABLE NOW. WE'VE SET UP A MECHANISM TO HANDLE REQUESTS. FIRST OF ALL, WE'VE SENT OUT A LETTER TO ALL PHYSICIANS IN THE DEFENSE DEPARTMENT. SECONDLY, WE'VE SENT OUT ANOTHER LETTER THROUGH THE FDA TO CIVILIAN PHYSICIANS, DESCRIBING WHAT WE HAVE FOUND AND SUGGESTING IF THEY HAVE A POTENTIAL CASE THEY CAN CONTACT US FOR ADVICE. FURTHERMORE, WE WILL PROVIDE THEM DIAGNOSTIC SUPPORT BY DOING A SERUM ANTIBODY TEST IF THEY WILL SEND US THE SERUM FROM THEIR PATIENT.

FURTHER, WE WOULD PROPOSE THAT IF THAT TEST WERE POSITIVE THAT WE SHOULD EITHER GET THE PATIENT DIRECTLY, OR WE SHOULD GET A SAMPLE OF THE BONE MARROW THAT WE CAN THEN TEST WITH ANOTHER, MORE SPECIFIC TEST, FOR THE PRESENCE OF INFECTION. IF THAT WERE THEN POSITIVE, WE WOULD RECOMMEND TWO COURSES OF ACTION. IF THE PATIENT HAS RECOVERED FROM HIS ILLNESS AND IS CURRENTLY ASYMPTOMATIC, THAT HE OR SHE JUST BE FOLLOWED ON A REGULAR BASIS. THE OTHER COURSE OF ACTION WOULD BE IF THAT PATIENT IS STILL SYMPTOMATIC, THAT WE WOULD

OFFER THEM TREATMENT WITH PENTOSTAM.

Q: WHAT'S IT CALLED?

OSTER: IT'S CALLED PENTOSTAM. THAT'S THE TRADE NAME.

Q: IS IT YOUR RECOMMENDATION THAT EVERYBODY WHO SERVED IN THE PERSIAN GULF BE TESTED FOR THIS WITH THE ANTIBODY TEST?

OSTER: NO SIR, WE CANNOT SUPPDRT THAT WITH CURRENTLY AVAILABLE TESTS. WE ARE WORKING TO DEVELOP TESTS LIKE AN ELIZA WHICH COULD BE DONE ON MANY MORE SAMPLES. OUR CURRENT TECHNOLOGY IS LIMITED TO WHAT'S CALLED AN INDIRECT FLUORESCENT ANTIBODY WHICH HAS TO BE READ MANUALLY WITH A FLUORESCENT MICROSCOPE. SO IT'S VERY HIGHLY LABOR INTENSIVE. BUT IF WE CAN CONVERT TO AN ELIZA FORMAT, THEN WE WOULD HAVE THE POTENTIAL, OBVIOUSLY, FOR SCREENING LARGER NUMBERS OF SOLDIERS.

Q: SO AT THIS POINT YOU WILL TEST PEOPLE WHO HAVE SYMPTOMS?

OSTER: THAT'S CORRECT. OUR CONCERN NOW IS A CLINICAL CONCERN. WE WANT TO BE ABLE TO IDENTIFY AND TREAT THOSE PATIENTS WHO ARE ILL WITH THIS DISEASE.

Q: WHEN YOU SAY IT COULD TAKE UP TO TWO YEARS FOR THE INCUBATION PROCESS TO TAKE HOLD, DOES THAT MEAN THAT OVER THE NEXT TWO YEARS NO ONE WHO'S SERVED IN OPERATION DESERT STORM SHOULD GIVE BLOOD?

OSTER: I DON'T THINK WE HAVE ENOUGH INFORMATION TO ANSWER THAT QUESTION NOW. THIS IS SOMETHING WE'D NEED TO DO RESEARCH ON, TO DEFINE THE NATURAL HISTORY OF THIS DISEASE, TO DEFINE THE MAGNITUDE OF THE PROBLEM -- THAT IS THE NUMBER OF PATIENTS WHO ARE ACTUALLY INFECTED, TO DEVELOP BETTER DIAGNOSTIC TESTS. THEN WE CAN MAKE A DECISION ABOUT HOW LONG TO DEFER FROM BLOOD DONORS. IT'S ENTIRELY CONCEIVABLE THAT WE MAY BE ABLE TO DEVELOP A DIAGNOSTIC TEST, SAY AN ELIZA, WHERE WE COULD SCREEN PATIENTS FOR THIS INFECTION, AND THEN ALLOW THEM TO DONATE IF THEY SCREEN NEGATIVE.

Q: BUT THE IMPLICATIONS OF IT MEANS THAT OVER THE NEXT TWO YEARS, PRESUMABLY, PEOPLE WHO HAVE NO SYMPTOMS RIGHT NOW COULD DEVELOP THOSE SYMPTOMS?

OSTER: AGAIN, I CAN'T ANSWER THAT. THE QUESTION I ANSWERED ABOUT TWO YEARS IS L. DONOVANI, WHICH IS THE CLASSICAL FORM OF VISCERAL LEISHMANIASIS. SO THE NATURAL HISTORY OF EL TROPICA INFECTIONS, WE DON'T KNOW. THE NATURAL HISTORY OF SKIN DISEASE CAUSED BY EL TROPICA USUALLY HEALS UP IN MONTHS -- EVEN WITHOUT TREATMENT. BUT WE DON'T KNOW WHAT WILL HAPPEN TO THIS FORM THAT WE'VE IDENTIFIED WHERE IT INFECTS THE BONE MARROW AND OTHER DEEP ORGANS. SO ALL OF THIS DATA I THINK WILL BE COMING OUT AS WE LEARN MORE ABOUT THIS DISEASE'

Q: (INAUDIBLE) ABOUT BLOOD DONATIONS. THIS EXTENDS TO ANYONE WHO'S BEEN OVER THERE, NOT JUST MILITARY PERSONNEL?

HALL: WHY DON'T WE MOVE ON TO THE QUESTION OF BLOOD SUPPLY.

Q: THE PENTOSTAM IS IMPORTED FROM BRITAIN?

OSTER: YES.

Q: SO I GATHER THEY'VE HAD MORE EXPERIENCE WITH IT. DO THEY HAVE A SCREENING TEST DEVELOPED?

OSTER: FIRST OF ALL, I DOUBT THAT THEY HAVE ANY MORE EXPERIENCE THAN WE DO. ONE OF THE ADVANTAGES OF WORKING IN THE MILITARY IS THAT WE DO HAVE OVERSEAS LABORATORIES WHERE WE ARE ABLE TO INVESTI-

GATE DISEASES SUCH AS LESHMANIASIS. IT WAS MY PERSONAL PRIVILEGE TO HAVE SERVED IN KENYA FOR FOUR YEARS WHERE I STUDIED VISCERAL LESHMANIASIS, AND TOOK CARE OF PATIENTS WITH CLASSICAL LESHMANIASIS DUE TO L. DONOVANI IN KENYA. SO ACTUALLY OUR MILITARY HAS PROBABLY THE MOST EXTENSIVE EXPERIENCE WITH LESHMANIASIS OF ANY GROUP IN THE WORLD.

Q: ARE YOU HANDLING ALL THE CASES, OR ARE THE SEPARATE SERVICES... YOU'RE JUST TALKING ABOUT ARMY PEOPLE NOW?

OSTER: THE CASES WE'VE IDENTIFIED SO FAR HAVE ONLY BEEN IN ARMY PERSONNEL. WE'VE SHARED OUR INFORMATION WITH THE NAVY...

Q: THEY MAY HAVE OTHER CASES -- THE NAVY, THE MARINES CORPS, THE AIR FORCE...

OSTER: I'M NOT AWARE OF ANY. I'VE TALKED WITH THE OTHER SERVICES, AND THEY HAVEN'T IDENTIFIED ANY CASES YET.

Q: ALL 22 ARE IN THE ARMY?

OSTER: YES.

HALL: WHY DON'T WE MOVE ON AND TALK A LITTLE BIT ABOUT THE BLOOD SUPPLY? GENERAL BLANCK?

/***** BEGINNING OF SECTION 005 *****/

BLANCK: (BRIGADIER GENERAL) RONALD BLANCK. I'M THE DIRECTOR FOR PROFESSIONAL SERVICES IN THE OFFICE OF THE ARMY SURGEON GENERAL.

Q: ABOUT THE CONTAMINATION, SOLDIERS WHO HAVE RETURNED FROM SAUDI ARABIA OR ONE OF THOSE COUNTRIES WHO HAVE ALREADY GIVEN BLOOD SINCE THEY GOT HOME, AND BEFORE THIS SUSPENSION (WENT INTO EFFECT). WHAT ARE THE CHANCES THAT THE BLOOD SUPPLY HAS ALREADY BEEN CONTAMINATED WITH THIS PARASITE?

BLANCK: WE THINK IT VERY, VERY LOW. FIRST OF ALL, AS HAS BEEN ALLUDED TO, WE'VE ONLY SEEN SEVEN CASES OF THIS NEW FORM OF WHAT APPEARS TO BE A MILD NON-FATAL ILLNESS OUT OF ALL OF THOSE THAT HAVE BEEN THERE. IT IS THEORETICALLY POSSIBLE, INDEED, THAT THERE ARE OTHER CASES OUT THERE WHO COULD HAVE DONATED BLOOD AND WHO THEREFORE COULD HAVE TRANSMITTED THIS PARASITE, BUT IT'S VERY, VERY SLIGHT. WE THINK WE HAVE, IN GOING AROUND THE SYSTEM, IDENTIFIED ANY OF THE CASES WHO HAVE REMAINED SYMPTOMATIC THAT WOULD HAVE COME TO OUR ATTENTION. THOSE THAT ARE CLEAR, THAT IS WHO ARE NOT SYMPTOMATIC ANY MORE, PRESUMABLY WOULD NOT BE TRANSMITTING THE PARASITE ANY MORE. IT IS RARE.

FINALLY, IN MOST OF OUR CASES, THERE WERE ELEVATIONS OF THE LIVER TESTS, AND THAT'S ONE OF THE SCREENING TESTS FOR BLOOD TRANSFUSION THAT WOULD HAVE PRECLUDED THEM FROM DONATING, SO WE DON'T THINK THAT VERY MANY, IF ANY, HAVE TRANSMITTED THIS ORGANISM IN THE BLOOD SUPPLY, AND WE DON'T THINK IT'S CONTAMINATED.

Q: WHAT ABOUT THE SUPPLY OF BLOOD? IF YOU TAKE 500,000 PLUS PEOPLE BUT OF THE POTENTIAL DONOR POOL, WHAT DO YOU DO TO THE SUPPLY?

BLANCK: THE SUPPLY IS GOING TO BE DECREMENTED BY THE AMOUNT THAT THEY WOULD DONATE. IN OUR SYSTEM, IN DEPARTMENT OF DEFENSE, THESE ARE EXACTLY THE PEOPLE THAT ARE OUR LARGEST POOL OF DONORS, SO WE WILL HAVE TO RELY MUCH MORE ON GETTING THE NON-DESERT STORM SOLDIERS, SAILORS, AIRMEN, AND MARINES, AS WELL AS RELYING ON CIVILIAN

BLOOD SUPPLIES FOR THE FORESEEABLE FUTURE, UNTIL WE DEFINE THIS SYNDROME.

Q: IS THERE A WAY OF QUANTIFYING THE LOSS? I THINK I HEARD YOU SAY SOMETHING LIKE FIVE PERCENT OF ALL MILITARY PEOPLE ARE BLOOD DONORS, IS THAT RIGHT?

BLANCK: IT'S ACTUALLY PROBABLY HIGHER THAN THAT, AND I CAN'T GIVE YOU A GOOD FIGURE. BUT THE ACTIVE DUTY POPULATION IS WHERE WE GET OUR BLOOD, AND THIS IS A LARGE PERCENT OF THAT...

Q: CAN YOU SAY WHAT PERCENTAGE OF THE NATION'S BLOOD SUPPLY COMES FROM THE MILITARY?

BLANCK: I DON'T KNOW, NO.

Q: THIS RECOMMENDATION AGAINST GIVING BLOOD EXTENDS NOT ONLY TO MILITARY BUT TO ANYONE ELSE WHO WAS IN THE GULF DURING THAT AREA?

BLANCK: I THINK THAT'S A FAIR STATEMENT. THE WAY WE'VE CHOSEN TO CONTROL IT IS PRESENTED THIS DATA TO THE OTHER SERVICES. THE THREE SERVICES SITTING TOGETHER WITH DEPARTMENT OF DEFENSE CAME UP WITH A POLICY. THAT POLICY IS THAT DEPARTMENT OF DEFENSE BLOOD DONOR CENTERS WILL NOT ACCEPT BLOOD TRANSFUSIONS OR DONATIONS FROM ANY OF THOSE WHO HAVE SERVED IN THE PERSIAN GULF AREA, THE COUNTRIES MENTIONED, SINCE 1 AUGUST 1990. THIS WOULD INCLUDE ANYONE WHO IS NOT A SERVICE MEMBER, WOULD ALSO BE PRECLUDED FROM DONATING IN THE DOD FACILITIES.

WE HAVE DISCUSSED THIS INFORMATION WITH THE CIVILIAN DONOR CENTERS -- THE RED CROSS AND SO FORTH, AND THEY ARE COMING UP WITH THEIR OWN POLICIES, AND I'M NOT QUITE SURE WHAT THOSE POLICIES WOULD BE, BUT I WOULD IMAGINE THEY WOULD BE VERY SIMILAR TO WHAT I'VE JUST DESCRIBED. BUT THAT'S THEIR DECISION, NOT OURS.

Q: COULD YOU EXPLAIN WHY AUGUST 1, 1990, WAS PICKED AS A CUTOFF DATE?

BLANCK: SIMPLY BECAUSE THAT'S WHEN WE BEGAN SENDING OUR LARGE BODY OF TROOPS THERE. UP UNTIL THEN THERE WERE CERTAINLY PERSONNEL THERE, BUT IT NUMBERED IN THE 100'S, AND WE SAW NO PROBLEMS PRIOR TO THIS. NOW THEY MAY HAVE GONE UNRECOGNIZED, I DON'T KNOW. BUT WE HAD TO CHOOSE SOME DATE AND THAT SEEMED REASONABLE.

Q: WHY WASN'T THE PRECAUTION AGAINST DONATING BLOOD TAKEN EARLIER, EVEN APRIL, AFTER THE SECOND CASE WAS CONFIRMED?

BLANCK: THAT'S A GOOD QUESTION. SIMPLY BECAUSE IT WAS SUCH A RARE INSTANCE, AND WE DID NOT KNOW OR THINK -- DID NOT KNOW IS THE TERM -- AND DID NOT THINK IT REPRESENTED A LARGER PROBLEM THAT WE NOW THINK POTENTIALLY IT MAY, WITH THE SEVEN CASES. SO IT HAD TO DO WITH WHETHER IT'S A SINGLE RARE INSTANCE, OR ONE OR TWO VERSUS THE POTENTIAL OF BEING A LARGER PROBLEM. ONCE YOU HAVE SEVEN CASES, I THINK YOU HAVE TO SAY IT'S POTENTIALLY A LARGER PROBLEM.

Q: IT SOUNDS LIKE THIS WORD GOING OUT TODAY WILL ALARM A LOT OF PEOPLE WHO SERVED IN THE GULF WHOMAY WANT TO BE TESTED JUST AS A PRECAUTION. I UNDERSTAND YOU DON'T HAVE THE BACKUP RIGHT NOW TO DO THAT SORT OF THING, BUT WOULD YOU FORESEE A PRECAUTIONARY TEST THAT VETERANS CAN TAKE DEVELOPING PRETTY QUICKLY?

BLANCK: YES. I SEE A TEST DEVELOPING RELATIVELY RAPIDLY. THAT SHOULD BE POSSIBLE. BUT I HOPE YOU WILL HELP US ON THIS. WE DON'T WANT TO SPREAD PANIC, BECAUSE THIS IS NOT THE KIND OF DISORDER THAT

WOULD WARRANT THAT. ONE, IT'S RARE. TWO, EVERY PIECE OF EVIDENCE WE HAVE SUGGESTS THAT IT IS SELF LIMITED. IT DOES NOT CAUSE LIFE THREATENING OR FATAL DISEASE. IT SHOULD NOT GO ON TO EVEN A CHRONIC DEBILITATING DISEASE, WE DON'T BELIEVE. AND FINALLY, IT'S EASILY TREATABLE. I WOULD ASK THAT AT THIS POINT, THAT INFORMATION BE PROVIDED SO THAT WE DON'T HAVE EVERYBODY WHO SERVED OVER THERE WORRYING ABOUT THIS AND TRYING TO GET THEMSELVES TESTED. I REALLY DON'T THINK THAT'S APPROPRIATE. CERTAINLY, WE WILL DO THE STUDIES AND MAKE THE INFORMATION AVAILABLE IF THAT KIND OF THING COMES ABOUT.

Q: THERE WAS AN EARLIER QUESTION, AND I'D LIKE TO REPEAT IT. YOU HAVE 22 CASES DETECTED OUT OF HALF A MILLION. IS THAT A LOT, IS THAT AVERAGE, IS THAT LITTLE? IS THERE A WAY OF PUTTING THAT INTO.

BLANCK: I THINK THAT'S A SMALL AMOUNT COMPARED TO WHAT YOU MIGHT SEE IN A POPULATION THAT LIVES THERE. THAT HAS TO DO WITH THE OVERALL GOOD HEALTH OF THE SOLDIERS, THE PROTECTIVE MEASURES TAKEN -- USE OF INSECT REPELLANT, THAT SORT OF THING, AND THE FACT THAT THEY WERE THERE FOR A RELATIVELY SHORT TIME COMPARED TO A POPULATION THAT LIVES THERE. HOW WOULD YOU COMPARE THIS WITH TRAVELERS? IT'S DIFFICULT TO COMPARE. TRAVELERS MIGHT ONLY BE THERE DAYS OR WEEKS. SO I WOULD SAY THIS IS A SMALL NUMBER AND SOMETHING THAT WE WOULD EXPECT TO SEE, GIVEN THE PREVALENCE OF THAT DISEASE IN THAT AREA.

Q: IF THE TREATMENT FOR THIS AILMENT IS NOT LICENSED WITHIN THIS COUNTRY, HOW COULD CIVILIANS WHO CONTRACT IT BE TREATED?

BLANCK: THE CENTER FOR DISEASE CONTROL ALSO HAS AN INVESTIGATIONAL NEW DRUG PROTOCOL FOR THE DRUG PENTOSTAM. SO CIVILIANS COULD GET THE TREATMENT THROUGH THE CDC.

Q: ANY NEGATIVE SIDE EFFECTS OF THAT DRUG?

/***** BEGINNING OF SECTION 006 *****/

BLANCK: THERE ARE SOME SIDE EFFECTS THAT PERHAPS COLONEL OSTER COULD SPEAK BETTER TO. ARE THERE ANY OTHER QUESTIONS ON THE BLOOD SUPPLY AT THIS POINT, AND THEN I'LL TURN IT BACK OVER TO CHUCK.

Q: CAN YOU OFFER ANYTHING MORE DEFINITIVE ON HOW LONG IT WILL TAKE TO DEVELOP A SCREENING? ARE WE TALKING WEEKS OR MONTHS? HOW LONG WILL THIS STAY ON DONATIONS HAVE TO GO BACK?

BLANCK: I DON'T KNOW THE ANSWER TO THAT. OBVIOUSLY, A LOT OF THINGS DEPEND ON THE AVAILABILITY OF A RELIABLE, CONSISTENT TEST. WHILE THE TEST IS FAIRLY STRAIGHT FORWARD, THEN YOU HAVE TO TEST THE TEST AND MAKE SURE THAT IT CAN BE APPLIED. SO I DON'T HAVE A GOOD ANSWER, OTHER THAN IT WILL BE LONGER THAN WEEKS, CERTAINLY.

Q: YOU'RE PROBABLY AWARE THAT THIS ANNOUNCEMENT TODAY IS GOING TO GENERATE A LOT OF INTEREST AMONG RETURNING VETERANS FROM THE WAR. ARE YOU GEARING UP FOR SOME MAJOR INFLUX OF PEOPLE SEEKING THESE KINDS OF TESTS?

BLANCK: FOR AN ASYMPTOMATIC INDIVIDUAL, AS I'VE INDICATED, I DON'T THINK THERE'S THE NECESSITY FOR THE TEST. WE HAVE GEARED UP IN THE SENSE OF BEING PREPARED, YOU BET, FOR LOTS OF QUESTIONS AND PHONE CALLS, AND WE REALLY ARE REFERRING PEOPLE TO THEIR LOCAL PHYSICIAN.

PHYSICIANS WILL BE, OR ARE IN THE PROCESS NOW OF BEING NOTIFIED ABOUT THIS. THEY HAVE BEEN GIVEN NAMES AND NUMBERS TO CALL FOR INDIVIDUALS TO ANSWER QUESTIONS, TOO. FOR EXAMPLE, COLONEL OSTER AND OTHERS IN THE NAVY AND AIR FORCE.

OSTER: GENERALLY THE DRUG IS VERY WELL TOLERATED. I THINK THE MOST COMMON SIDE EFFECT THAT WE'VE SEEN IS MUSICAL SKELETAL ACHES AND PAINS IN OUR PATIENTS, STARTING THE SECOND WEEK IN THERAPY. OCCASIONALLY, BECOMING BOTHERSOME ENOUGH TO REQUIRE A NON-STEROIDAL ANTI-INFLAMMATORY AGENT, AND ON VERY RARE OCCASIONS, STOPPING THE PENTOSTAM TREATMENT A LITTLE BIT EARLY BECAUSE OF THESE SYMPTOMS. ASIDE FROM THAT, THERE REALLY ARE NO OTHER CLINICAL PROBLEMS WITH THE DRUG. WE DO, ON LABORATORY TESTS, SEE SOME ELEVATION IN THE LIVER ENZYMES CONSISTENTLY, WHICH GO AWAY IMMEDIATELY AFTER STOPPING THE DRUG. WE VERY RARELY HAVE SEEN SOME CHANGES IN THE BLOOD PLATELETS GOING DOWN. SO WE MONITOR FOR THOSE CHANGES IN THE BLOOD AND ADJUST DOSE IF NECESSARY. BASICALLY, IT'S A WELL TOLERATED DRUG. THE ONLY PROBLEM WITH IT IS THAT WE DO HAVE TO GIVE IT INTRAVENOUSLY.

Q: THERE IS NO ANTIDOTE TO THIS GOING INTO THE THEATER, THAT YOU COULD HAVE GIVEN TROOPS?

OSTER: NO, WE DON'T HAVE A PROPHYLACTIC TREATMENT FOR LEISHMANIASIS. SOLDIERS WERE VERY CAREFULLY INSTRUCTED ON HOW TO AVOID CONTACT WITH INSECTS, AND THEY DID HAVE REPELLANTS AND WERE INSTRUCTED TO USE REPELLANTS AND USE PROMETHRAN IMPREGNATED NETS AND UNIFORMS SO THAT THERE WAS A LOT OF CONCERN ABOUT ARTHROPOD-BORNE DISEASES GOING INTO THE THEATER, AND I THINK BECAUSE OF THAT WE SAW A VERY, VERY LOW INCIDENCE OF THESE DISEASES. FOR EXAMPLE, SAND FLY FEVER IS A PROBLEM, A VIRUS, THAT WE ANTICIPATED SEEING IN SIGNIFICANT NUMBERS OF OUR TROOPS AND ACTUALLY, IN WORLD WAR II IT SEVERELY INCAPACITATED SOME UNITS BECAUSE OF A HIGH ATTACK RATE. WE SAW NO SAND FLY FEVER, AND I THINK IT'S BECAUSE OF THESE PERSONAL PROTECTIVE MEASURES THAT WE SAW SO LITTLE ARTHROPOD-BORNE DISEASES.

Q: ARE THERE ANY OTHER INFECTIOUS DISEASES THAT CROPPED UP IN TROOPS THAT HAVE COME HOME THAT MAYBE HAVEN'T BEEN PUBLICIZED?

OSTER: NO, THERE HAVEN'T BEEN ANY DISEASES THAT HAVE POPPED UP SINCE THEY'VE COME HOME WITH THE EXCEPTION OF THESE SEVEN CASES OF VISCERAL LEISHMANIASIS. ONE OF THOSE PRESENTED IN THEATER, BUT THE OTHERS ALL PRESENTED AFTER THEIR RETURN HOME.

Q: THERE STILL ARE SOME (INAUDIBLE) DOWN IN FLORIDA.

OSTER: SIR, I'M NOT CONVERSANT WITH THAT PROBLEM, BUT I DO KNOW THERE WERE SKIN TEST CONVERSIONS IN SOME SOLDIERS IN THE 24TH, BUT YOU PROBABLY KNOW MORE ABOUT IT THAN I DO. I DON'T HAVE THAT DATA.

Q: IF SOMEONE HAS A SERIOUS DISEASE UNRELATED TO THIS, AND HAS A TRANSFUSION, GETS THIS IN THE SYSTEM, WHAT IMPACT ON THAT PERSON WILL THIS HAVE?

OSTER: AS I SAID EARLIER, OUR BIGGEST CONCERN WOULD BE WITH THOSE PEOPLE WHO ARE IMMUNOSUPPRESSED. AS YOU CAN IMAGINE, THOSE ARE OFTEN PATIENTS WHO ARE GOING TO BE RECEIVING TRANSFUSIONS. A PERSON, FOR EXAMPLE, WITH A BONE MARROW TRANSPLANT. THEY'RE OFTEN TRANSFUSION DEPENDENT FOR SOME TIME, REQUIRING PLATELETS, TRANSFU-

SIONS, SOMETIMES ON A DAILY BASIS. THOSE ARE THE PATIENTS WHO CANNOT RESIST INFECTION. AIDS PATIENTS ARE ANOTHER GROUP OF PATIENTS THAT CANNOT RESIST INFECTION. SO AN ORGANISM LIKE L. TROPICA WHICH YOU AND I WITH NORMAL IMMUNE SYSTEMS WOULD TOLERATE WITH THIS MILD SELF LIMITED ILLNESS THAT WE'VE DESCRIBED, MAY CAUSE WORSE PROBLEMS IN THE IMMUNOSUPPRESSED. THAT'S SHEER SPECULATION BECAUSE WE HAVEN'T SEEN ANY CASE, BUT THAT'S OBVIOUSLY OF CONCERN TO US. I THINK A HEIGHTENED AWARENESS, AGAIN, OF THIS POTENTIAL PROBLEM AMONG PHYSICIANS THAT HAVE BEEN NOTIFIED -- BOTH CIVILIAN AND MILITARY -- MAY HELP US PICK UP ANY CASES SHOULD THEY OCCUR.

Q: HOW DO WE TREAT THE SOLDIERS THAT HAVE ALREADY BEEN DISCHARGED? YOU BRING THEM BACK TO WALTER REED?

OSTER: WHAT WE WOULD RECOMMEND IS THAT THEY EITHER SEE THEIR LOCAL PHYSICIAN OR TO SEEK TREATMENT IN THE NEAREST VA OR ARMY OR NAVY OR AIR FORCE MEDICAL FACILITY. IF WE THEN SUBSTANTIATE THE DIAGNOSIS, YES, WE WILL CONTINUE TO RECOMMEND THAT THEY COME TO WALTER REED BECAUSE, AS I SAID BEFORE, WE HAVE THE ONLY IND FOR TREATMENT. SO ANY IDENTIFIED CASES WE WILL BRING TO WALTER REED.

HALL: THAT WOULD BE A SERVICE,RELATED PROBLEM, RELATED TO THEIR MILITARY SERVICE THERE.

Q: HAVE ANY OF THE 22 KNOWN CASES DONATED BLOOD BEFORE THEY WERE DIAGNOSED?

OSTER: NO SIR.

Q: ARE WE TALKING ABOUT 22 CASES OR SEVEN? TWENTY-TWO OVERALL AND SEVEN WITH THE MORE SERIOUS MANIFESTATIONS?

OSTER: JUST TO CLARIFY THAT. WE HAD 15 CASES OF WHAT WE EXPECTED, THE SKIN LESIONS. THEN WE HAD SEVEN CASES WHERE WE GOT THE ORGAN, ISM FROM THE BONE MARROW IN PATIENTS WHO PRESENTED WITH A SYSTEMIC ILLNESS -- WITH FEVER AND OTHER COMPLAINTS, BUT HAD NO SKIN LESIONS. IT WAS IN THE WORKUP OF THE FEVER THAT WE DISCOVERED THIS INFECTION IN THE BONE MARROW. SO 22 TOTAL CASES OF LEISHMANIASIS; 15 CUTANEOUS, SEVEN VISCERAL.

Q: WHAT ARE THE PRINCIPAL SYMPTOMS THAT COULD GIVE YOU A CLUE THAT AN INFESTATION HAS OCCURRED?

OSTER: THE EXPERIENCE THAT WE'VE HAD WITH THE SIX SYMPTOMATIC PATIENTS, THE THING I WOULD SAY IS PROBABLY THE SINGLE BEST INDICATOR IS AN UNEXPLAINED FEVER IN A SOLDIER RETURNING FROM THE GULF. THE OTHER THINGS ASSOCIATED WITH THAT WERE WATERY DIARRHEA -- AGAIN, WITHOUT ANY EXPLANATION TO ACCOUNT FOR THE DIARRHEA. IN OTHER WORDS, BACTERIAL AND PROTOZOAN PATHOGENS, WERE LOOKED FOR, AND NOTHING WAS FOUND. AND THEN THE ABDOMINAL PAIN, WHICH WAS SOMETIMES VERY NON-DESCRIPT. DIFFUSE, MIGRATORY, CRAMPY ABDOMINAL

/***** BEGINNING OF SECTION 007 *****/

PAIN WHICH IN A FEW PATIENTS LOCALIZED TO THE LEFT UPPER QUADRANT, WHICH WE THINK REPRESENTS AN ENLARGING SPLEEN, AND AN EXPANDING (CAPSULA) HAS NERVE ENDINGS IN IT SO THAT IF YOU GET ACUTE ENLARGEMENT OF THE SPLEEN YOU CAN GET PAIN FROM THAT.

Q: BOB, ARE YOU STILL DOING THE FREEDOM OF INFORMATION ON THE DESERT STORM FILM? ARE YOU IN CHARGE OF THAT?

HALL: AM I IN CHARGE OF IT?

Q: DID YOU PROVIDE THAT FOOTAGE TO 60 MINUTES...

HALL: NO, WE DID NOT.

Q: HOW DID THEY GET THAT? THAT'S DEPARTMENT OF DEFENSE...

HALL: I DON'T KNOW.

Q: THERE'S NOTHING WRONG...

HALL: IT'S MY UNDERSTANDING THEY GOT IT FROM THE WALL STREET JOURNAL, BUT HOW THE WALL STREET JOURNAL GOT IT, I DO NOT KNOW.

Q: CAN WE GET A COPY OF THAT?

HALL: THERE ARE THREE TAPES WE'VE BEEN ASKED FOR, TWO OF WHICH WE HAVE AND WE SHOULD HAVE THIS AFTERNOON. THOSE ARE THE WINGMAN TAPES. THE OTHER TAPE, I UNDERSTAND, IS GOING TO BECOME AVAILABLE TO US FROM, I THINK, THE WALL STREET JOURNAL, AND WE WILL DO THE USUAL PROCESSING ON IT AND RELEASE IT.

Q: ARE THERE ANY MORE THAT YOU'RE GOING TO RELEASE REGARDING APACHE ATTACKS ON THE IRAQIS?

HALL: WE HAVE RELEASED A NUMBER OF TAPES.

Q: ARE THERE ANY MORE THAT YOU'RE GOING TO RELEASE?

HALL: I THINK THE PEOPLE WHO HAVE ASKED FOR TAPES HAVE BEEN ABLE TO GET WHAT THEY WANTED FROM WHAT WE HAVE.

Q: THEY'LL BE RELEASING TWO OF THOSE TAPES THIS AFTERNOON?

HALL: YES. AS SOON AS WE HAVE THE OTHER AVAILABLE, WE WILL RELEASE IT.

PRESS: THANK YOU.

ADMIN

BT

#3408

NNNN

INQUIRE=DOC16D
ITEM NO=00203773

ENVELOPE

CDSN = LGX933 MCN = 91317/25162 TOR = 913171601
OTTUZYUW RUEKJCS3449 3171601-UUUU--RUEALGX.

ZNR UUUUU

HEADER

O 131601Z NOV 91
FM JOINT STAFF WASHINGTON DC
INFO RUEALGX/SAFE
O 131539Z NOV 91
FM SECDEF WASHINGTON DC//OASD(PA):DPL//
TO AIG 8777
AIG 8798
AIG 8799
ACCT DI-XDWD

BT

CONTROLS

UNCLAS

BODY

SUBJ: PUBLIC AFFAIRS GUIDANCE--LEISHMANIASIS

A. SECDEF WASHINGTON DC//ASD:PA// 130727Z NOV 91

1. REF A IS TRANSCRIPT OF DOD PRESS BRIEFING HELD ON 12 NOV 1991 WHICH DEALS WITH LEISHMANIASIS.

2. THIS MESSAGE PROVIDES PUBLIC AFFAIRS GUIDANCE FOR A POTENTIAL HEALTH CONCERN FOR SERVICEMEMBERS WHO SERVED IN SOUTHWEST ASIA DURING DESERT SHIELD/DESERT STORM, AND TO ALERT ALL PAOS TO TAKE SPECIAL NOTE OF TRANSCRIPT OF DOD PRESS BRIEFING, WHICH PROVIDES COMPREHENSIVE QUESTION-AND-ANSWER DISCUSSION OF LEISHMANIASIS.

3. THE FOLLOWING STATEMENT WAS RELEASED IN WASHINGTON DC AT NOON EST, TUESDAY, NOV 12, 1991: QUOTE: MILITARY PHYSICIANS AND RESEARCHERS HAVE DISCOVERED A DISTINCT MEDICAL SYNDROME IN FOLLOWING UP ON SERVICEMEMBERS RETURNING FROM THE PERSIAN GULF. THESE CASES INVOLVE INFECTION WITH A PARASITE TRANSMITTED FROM THE BITES OF SANDFLIES. ONLY 22 SEVICEMEMBERS OUT OF A HALF-MILLION HAVE BEEN FOUND TO HAVE THE PARASITE KNOWN AS LEISHMANIA. WHILE THIS ORGANISM USUALLY CAUSES AN EASILY TREATED SKIN DISEASE, DOCTORS AT WALTER REED ARMY MEDICAL CENTER AND THE WALTER REED ARMY INSTITUTE OF RESEARCH HAVE IDENTIFIED THE INFECTION -- VIA A BONE MARROW CULTURE -- IN SEVEN PATIENTS WHO HAVE NO SKIN LESIONS. THESE PATIENTS HAVE MILD ILLNESS, SOME WITH FEVER AND DIARRHEA. NO CASES INVOLVE LIFE-THREATENING ILLNESS. (PARA) MILITARY MEDICAL PERSONNEL ARE NOW TRYING TO DETERMINE HOW PREVALENT THE DISEASE MAY BE AMONG RETURNING SERVICEMEMBERS. ALTHOUGH DOCTORS BELIEVE THE NUMBER OF CASES IS SMALL, THEY WANT TO ENSURE THAT ALL CASES ARE QUICKLY DETECTED AND TREATED. (PARA) THESE FORMS OF LEISHMANIASIS ARE NOT CONTAGIOUS IN PERSON-TO-PERSON CONTACT ALTHOUGH THERE ARE NO CASES OF THIS SPECIFIC FORM BEING TRANSMITTED THROUGH BLOOD TRANSFUSIONS, FIVE CASES OF A RELATED STRAIN ARE REPORTED IN THE MEDICAL LITERATURE TO HAVE BEEN TRANSMITTED BY TRANSFUSION OF CONTAMINATED BLOOD. ALTHOUGH THE RISK OF CONTAMINATION IS VERY LOW, DOD, IN THE INTEREST OF SAFETY, WILL RECOMMEND THAT ALL

PEOPLE WHO HAVE TRAVELLED TO THE GULF AREA, (INCLUDING SAUDI ARABIA, KUWAIT, IRAQ, BAHRAIN, QATAR, THE UNITED ARAB EMIRATES, OMAN AND YEMEN), SINCE AUG 1, 1990, TEMPORARILY REFRAIN FROM DONATING BLOOD. THIS DELAY WILL ENABLE MEDICAL RESEARCHERS TO DETERMINE THE LEVEL OF ADDITIONAL INFECTIONS AMONG THE EXPOSED POPULATION AND WILL ALSO ALLOW THEM TO DEVELOP A SCREENING TEST FOR INFECTION. (PARA) IN ADDITION, DEPARTMENT OF DEFENSE BLOOD PROGRAM OFFICIALS ARE WORKING CLOSELY WITH THE FOOD AND DRUG ADMINISTRATION, THE CENTERS FOR DISEASE CONTROL, THE AMERICAN RED CROSS, THE AMERICAN ASSOCIATION OF COUNCIL OF COMMUNITY BLOOD CENTERS, AND OTHER GROUPS INVOLVED WITH THE COUNTRY'S SUPPLY OF BLOOD AND BLOOD PRODUCTS, TO DECIDE HOW BEST TO HANDLE THE SITUATION. UNQUOTE

4. THE FOLLOWING QUESTIONS AND ANSWERS ARE PROVIDED:

Q1: WHAT ARE THE SYMPTOMS?

A1: THE ORGANISM USUALLY CAUSES A SKIN LESION, BUT MAY ALSO INCLUDE UNEXPLAINED FEVER, DIARRHEA, AND ABDOMINAL PAIN.

Q2: HOW IS LEISHMANIASIS TREATED?

A2: TREATMENT USUALLY CONSISTS OF ADMINISTERING A DRUG CALLED PEN, TOSTAM FOR 30 DAYS.

Q3: ONCE TREATED, IS THE SICKNESS CURED, OR CAN THE PARASITE RE-EMERGE, AS WITH MALARIA?

A3: IT CAN BE EFFECTIVELY TREATED; WE DO NOT EXPECT SYMPTOMS TO RECUR, BUT THERE IS A POTENTIAL FOR RELAPSE WHEN A PERSON DEVELOPS AN IMMUNE DEFICIENCY (AS IN THE CASE OF A PERSON WHO HAS DEVELOPED AIDS OR HAS HAD AN ORGAN TRANSPLANT AND MUST TAKE AN IMMUNOSUPPRESSION DRUG).

Q4: HAS THERE BEEN ANY CASE OF AN IDENTIFIED INFECTED PERSON DONATING BLOOD?

A4: NO

Q5: HOW MANY SERVICEMEMBERS SERVED IN SOUTHWEST ASIA SINCE AUGUST 1, 1990?

A5: 541,425

Q6: ARE INFECTED SERVICEMEMBERS A RISK TO THOSE WITH WHOM THEY LIVE AND WORK?

A6: PERSON-TO-PERSON TRANSMISSION OF THIS PARASITE HAS NOT BEEN REPORTED.

Q7: WHAT ARE THE MOST SEVERE CONSEQUENCES OF HAVING THIS PARASITE?

A7: THIS ILLNESS IS NOT FATAL, AND IT IS SELF-LIMITING, WHICH MEANS THAT IT WILL NOT PROGRESS TO MORE SERIOUS ILLNESS. SKIN LESIONS, HIGH FEVER, AND DIARRHEA ARE THE ONLY KNOWN DIFFICULTIES.

Q8: WHAT CAN SERVICEMEMBERS DO TO FIND OUT WHETHER THEY HAVE THE PARASITE?

A8: ANYONE WHO EXPERIENCES ANY OF THESE SYMPTOMS SHOULD REPORT TO A MEDICAL CLINIC FOR EVALUATION. THE MEDICAL OFFICER WILL DETERMINE IF SPECIALIZED TREATMENT IS REQUIRED.

Q9: WHERE CAN A VETERAN GO TO GET A BLOOD TEST?

A9: THERE IS NO COMMERCIALY AVAILABLE BLOOD TEST FOR THIS SYNDROME AT THIS TIME. WE HAVE DISTRIBUTED INFORMATION VIA A "DEAR COLLEAGUE" LETTER TO MEDICAL PERSONNEL. WE HAVE ALSO PROVIDED NAMES AND ADDRESSES OF MEDICAL PERSONNEL WHO ARE AVAILABLE FOR CONSULTATION ON THIS MATTER. THIS INFORMATION COMPLEMENTS THE ARTICLES PUBLISHED BY

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PAGE:2815

MILITARY DOCTORS IN THE NEW ENGLAND JOURNAL OF INFECTIOUS DISEASE TO ALERT THE MEDICAL COMMUNITY OF THE POSSIBILITY OF SUCH INFECTIONS.

Q10: WHEN DID YOU FIND OUT ABOUT THE PROBLEM?

A10: THE PROBLEM WAS BROUGHT TO THE ATTENTION OF DOD HEALTH AFFAIRS OFFICIALS LAST WEEK. THEY MADE A DECISION ON FRIDAY, NOV. 8, TO SUSPEND BLOOD DONATIONS FROM ALL PERSONNEL WHO TRAVELLED TO THE GULF AREA.

5. THE OASD(PA) POC FOR PLANS IS MAJ STEVE LITTLE, USMC, AT DSN 223-1075, COMM (703) 693-1075; POC FOR MEDIA QUERIES IS SUSAN HANSEN, AT DSN 223-0192, COMM (703) 695,0192.

ADMIN

BT

#3449

NNNN

UNCLASSIFIED

INQUIRE=DOC13D
ITEM NO=00718981

ENVELOPE

CDSN = LGX120 MCN = 91061/18710 TOR = 910611647
RTTUZYUW RUEKJCS8891 0611645-UUUU--RUEALGX.
ZNR UUUUU

HEADER

R 021645Z MAR 91
FM JOINT STAFF WASHINGTON DC
INFO RUEALGX/SAFE
R 021640Z MAR 91 ZNZ1
FM FM SECDEF WASHINGTON DC//ASD:PA//
TO AIG 8798
AIG 8799
RXFBI/AFCENT BRUNSSUM NL
ACCT DA-BHCWAA

BT

CONTROLS

UNCLAS , NATO UNCLASSIFIED FOR NATO ADDRESSEES
SECTION 01 OF 08
FOR PUBLIC AFFAIRS OFFICERS

/***** THIS IS A COMBINED MESSAGE *****/

BODY

SUBJECT: DOD NEWS BRIEFING

DELIVER DURING NORMAL DUTY HOURS

FOLLOWING IS THE TRANSCRIPT OF A NEWS BRIEFING CONDUCTED BY MR. PETE WILLIAMS, ASD/PUBLIC AFFAIRS; LT GEN THOMAS KELLY, USA; REAR ADMIRAL MIKE MCCONNELL, USN, AT THE PENTAGON, ON FRIDAY, MARCH 1, 1991 AT 3 P.M.:

MR. WILLIAMS: GOOD AFTERNOON. GENERAL TOM KELLY, DIRECTOR OF OPERATIONS FOR THE JOINT STAFF; AND REAR ADMIRAL MIKE MCCONNELL, DIRECTOR OF INTELLIGENCE FOR THE JOINT STAFF, ARE OUR BRIEFERS TODAY. GENERAL KELLY WILL MAKE HIS USUAL OPENING STATEMENT, AND THEN THEY'LL TAKE YOUR QUESTIONS. I DON'T BELIEVE ADMIRAL MCCONNELL HAS ANY PREPARED BUSINESS FOR YOU TODAY.

AT THE CONCLUSION OF THE BRIEFING WE WILL BE DISTRIBUTING THE SECRETARY'S ANNUAL REPORT TO THE PRESIDENT AND CONGRESS, WHICH, AS YOU KNOW, IS REQUIRED BY LAW ONCE A YEAR. THE DEPARTMENT IS REQUIRED TO REPORT TO THE WHITE HOUSE AND THE CONGRESS ON ITS ACTIVITIES OF THE PREVIOUS YEAR AND ITS PLANS FOR THE FORTHCOMING YEAR. THE PUBLICATION IS BEING SENT TO THE PRESIDENT AND THE CONGRESS TODAY, SO THAT WILL BE AVAILABLE DOWN IN OUR DIRECTORATE FOR DEFENSE INFORMATION AT THE END OF THIS BRIEFING.

YOU'VE HEARD THE PRESIDENT SAY THAT THE MEETING TOMORROW BETWEEN THE UNITED STATES AND THE COALITION FORCES, MEETING WITH THE REPRESENTATIVES OF IRAQ , , WHOEVER THEY MAY BE , , WILL TAKE PLACE TOMORROW. WE DON'T HAVE ANY FURTHER INFORMATION ON THAT HERE. WE DON'T HAVE A PRECISE TIME FOR YOU, AND I DON'T BELIEVE THERE WILL BE ANY ANNOUNCEMENT OF THE PRECISE LOCATION BEFORE THE MEETING TAKES PLACE. OBVIOUSLY, THE IRAQIS HAVE TO BE NOTIFIED

OF TH'S, WE UNDERSTAND THAT, AND WE WILL MAKE ARRANGEMENTS, AND IN FACT ARE WORKING ON THOSE ARRANGEMENTS NOW WITH YOUR PARENT NEWS ORGANIZATIONS TO ARRANGE FOR PRESS COVERAGE, INTERNATIONAL PRESS COVERAGE OF THIS EVENT. SO ALL OF THE MAJOR NEWS ORGANIZATIONS WILL BE REPRESENTED ONE WAY OR ANOTHER THERE. WE'RE TRYING TO WORK THAT OUT WITH THE NETWORKS AND THE NEWSPAPERS AND THE WIRES AND THE MAGAZINES AND RADIO NETWORKS AND SO FORTH RIGHT NOW. WE WILL HAVE MORE TO SAY ABOUT THAT TO YOUR ORGANIZATIONS. BUT WE DON'T HAVE ANY FURTHER INFORMATION HERE ON WHEN OR WHERE THAT WILL BE HELD OR THE ARRANGEMENTS FOR IT, BUT WE ARE WORKING ON COVERAGE.

WITH THAT, LET ME INTRODUCE GENERAL KELLY AND ADMIRAL MCCONNELL. GENERAL KELLY: THANKS, PETE.

GOOD AFTERNOON. I'D LIKE TO START TODAY WITH THE OVERALL SITUATION IN THE THEATER. THE ARRANGEMENTS ARE ONGOING TO SET UP THE MEETING BETWEEN IRAQI AND COALITION MILITARY LEADERS. NO FORMAL CEASEFIRE WILL EXIST UNTIL ALL COALITION DEMANDS ARE MET. U.S. FORCES ARE IN DEFENSIVE POSITIONS, READY TO RESUME THE OFFENSIVE IF REQUIRED. SOME MINOR REPOSITIONING OF THOSE FORCES IS TAKING PLACE. KUWAIT INTERNATIONAL AIRPORT IS OPEN FOR C,130'S FLYING IN SUPPLIES.

RECONNAISSANCE INDICATES NUMEROUS CONVOYS, - SOME AS LARGE AS 60 VEHICLES, - HEADED TOWARDS BAGHDAD. THESE ARE REMNANTS OF THE FORCES THAT ESCAPED TO THE BASRA AREA. NO ADDITIONAL FORCES HAVE BEEN SEEN LEAVING THE KUWAITI THEATER OF OPERATIONS.

PERSONNEL REMAINS THE SAME AT ABOUT 539,000. CASUALTIES HAVE GONE UP TEN SINCE YESTERDAY, AND THERE IS NORMALLY A REPORTING LAG FROM THE FIELD ON THINGS LIKE THAT, SO IT'S NOT UNUSUAL. KILLED IN ACTION PRIOR TO THE GROUND WAR, 23; SINCE THE GROUND WAR BEGAN, 38 -, 10 MORE THAN YESTERDAY; IN THE SCUD ATTACK, 28, FOR A TOTAL OF 89 KILLED IN ACTION. WOUNDED PRIOR TO THE GROUND WAR, 34; SINCE THE GROUND WAR, 78; WOUNDED AS A RESULT OF THAT SCUD ATTACK, 212; MISSING IN ACTION, 38; POW'S, NINE. THERE HAVE BEEN NO MORE SCUDS FIRED.

THE ENEMY PRISONER OF WAR NUMBERS ARE DYNAMIC, AND THE BEST WE HAVE YET IS STILL ABOVE 50,000. TURKEY HAS ABOUT 3147.

IRAQI GROUND EQUIPMENT DESTROYED, WE HAVE THE SAME NUMBERS THAT WE HAD YESTERDAY, 3008 TANKS; 1856 ARMORED VEHICLES; 2140 ARTILLERY PIECES. MORE REPORTS ARE COMING IN, BUT THEY NEED TO BE COLLATED. WHEN I SAY COMING IN, I MEAN COMING INTO THEATER HEADQUARTERS THERE. BUT FOR EXAMPLE, THE MARINES REPORTED DESTROYED OR CAPTURED 1060 TANKS; 608 APC'S; 432 ARTILLERY PIECES; FIVE FROGS; AND TWO TELS (TRANSPORTER ERECTOR LAUNCHERS) FOR THE SCUDS.

MEDICAL, 1850 PATIENTS ARE IN U.S. HOSPITALS. MOST ARE SUFFERING FROM ROUTINE ILLNESSES. 170 ARE ENEMY PRISONERS OF WAR, , 80 PERCENT OF THEM ARE COMBAT INJURIES. THE REST ARE SUFFERING FROM MALNUTRITION AND DEHYDRATION.

IN TERMS OF THE GROUND FORCES OPERATIONS, U.S. FORCES ARE STILL CLEARING OBSTACLES AND TAKING CARE OF SMALL POCKETS OF IRAQI RESISTANCE AS THEY ARISE. THERE'S NO CONTINUOUS THING GOING ON

OVER THERE.

THERE'S OBVIOUSLY, STILL NO INFORMATION FROM THE IRAQIS ON THE LOCATIDN OF THE MINES, BECAUSE THEY HAVEN'T MET YET.

AIR OPERATIONS REMAIN DEFENSIVE IN NATURE. DEFENSIVE COUNTER, AIR, RECONNAISSANCE, SCUD PATROL, AND RESUPPLY. SORTIES ARE OVER 110,000.

WE HAD A LEFTOVER QUESTION FROM YESTERDAY, HAVE YOU DISCOVERED THE WRECKAGE OF THE AC-130. THE ANSWER IS NO, WE HAVE SEARCHED FOR IT AND HAVE NOT YET FOUND IT; ERGO, WE HAVE NO INFORMATION ON THE DISPOSITION ON THE GROUND CREW. ONE WOULD HOPE THEY WERE PRISONERS AND NOT LOST.

Q: GENERAL KELLY, HOW IMPORTANT ARE THESE AMERICAN PRISONERS OF WAR TO YOU IN THE TALKS THAT ARE GOING TO HAPPEN TOMORROW? WHAT HAS TO HAPPEN AT THOSE TALKS ABOUT THOSE PEOPLE?

KELLY: I THINK THE LEADERSHIP HAS BEEN VERY CONSISTENT IN WHAT THEY SAID. THE TOP PRIORITY IS TO GET THE PRISONERS BACK -- NOT ONLY OUR PRISONERS OF WAR, BUT THE COALITION PRISONERS OF WAR, CIVILIAN HOSTAGES, THE CBS NEWS CREW. IN MY VIEW, WE'RE DEALING WITH HUMANITY HERE, SO ALL OF THEM WOULD HAVE EQUAL PRIORITY. I THINK IT'S GOING TO BE MADE VERY CLEAR, UNLESS THE IRAQI FORCES ARE WILLING TO DEAL ON THAT ISSUE FIRST, THAT WE'RE NOT GOING TO GET VERY MUCH FURTHER. AS I SAID, WE'RE PREPARED TO RESUME OPERATIONS SHOULD THAT BECOME NECESSARY.

Q: WHAT DOES THAT MEAN, SIR? WHAT DOES PREPARED TO RESUME OPERATIONS MEAN? IF THEY SAY NOTHING ABOUT THE POW'S TOMORROW, YOU'RE GOING TO START ATTACKING AGAIN?

KELLY: NO, IT MEANS IF THEY SAY NOTHING ABOUT THE POW'S TOMORROW THAT THE PRESIDENT WILL BE INFORMED OF THAT, AND HE WILL MAKE A DECISION, AND WE ARE PREPARED TO EXECUTE ANY DECISION THAT HE MAKES.

Q: COULD YOU GIVE US A SENSE OF WHAT ELSE WILL BE DISCUSSED AT THE MEETING TOMORROW?

KELLY: YES, AS A MATTER OF FACT, THE PRESIDENT LAID IT OUT

/***** BEGINNING OF SECTION 002 *****/

PRETTY CLEARLY YESTERDAY. THEY HAVE TO AGREE TO THE UN RESOLU, TIONS. THEY HAVE TO RETURN ALL OF THE PRISONERS THAT THEY HOLD EITHER AS HOSTAGES OR AS PRISONERS OF WAR. AS A MATTER OF FACT, THE FIRST THING, "RELEASE IMMEDIATELY ALL COALITION PRISONERS OF WAR, THIRD COUNTRY NATIONALS, AND THE REMAINS OF ALL WHO HAVE FALLEN. INFORM THE KUWAITI AUTHORITIES OF THE LOCATION AND NATURE OF ALL LAND AND SEA MINES. COMPLY FULLY WITH RELEVANT UN SECURITY COUNCIL RESOLUTIONS INCLUDING A RESCINDING OF IRAQ'S AUGUST DECISION TO ANNEX KUWAIT. AND THE ACCEPTANCE IN PRINCIPLE OF RESPONSIBILITY TO PAY COMPENSATION FOR THE LOSS, DAMAGE, AND INJURY THIS AGGRESSION HAS CAUSED. DESIGNATE MILITARY COMMANDERS TO MEET WITH OURS. A CEASEFIRE IS CONTINGENT UPON IRAQ NOT FIRING UPON ANY COALITION FORCES, AND NOT LAUNCHING ANY SCUD MISSILES AGAINST ANY OTHER COUNTRY. IF IRAQ VIOLATES THESE TERMS, COALITION FORCES WILL BE FREE TO RESUME MILITARY OPERATIONS."

Q: YOU MENTIONED THE MINES. THERE ARE SO MANY MINES OUT IN THE SEA; AND EVEN IF THEY TELL YOU, WHAT KIND OF A JOB IS IT GOING TO TAKE TO CLEAR THOSE MINES, - BOTH LAND AND SEA? DO YOU HAVE ANY SENSE NOW THAT THERE WAS A PATTERN TO THE WAY THE MINES WERE PUT OUT?

KELLY: THE FIRST ANSWER IS, IT'S A VERY BIG JOB. THE SECOND ANSWER IS YES, THEY WERE PUT OUT IN PATTERNS, BUT SOME OF THE MINES BROKE LOOSE. RIGHT NOW, IF THEY DON'T TELL US WHAT THE PATTERN WAS, WE'VE GOT TO WORK THAT OUT FOR OURSELVES, WHICH MAKES THE JOB EXPONENTIALLY MORE DIFFICULT, BUT WE HAVE HAD BIG MINE CLEARING JOBS BEFORE, REMEMBER THE SUEZ CANAL HAD A LOT OF MINES IN IT AND OTHER PLACES. WE'RE PRETTY GOOD AT THAT, BUT IT'S GOING TO TAKE THE COALITION A LONG TIME TO GET ALL THAT CLEARED. THAT'S THE SEA MINES. YOU STILL HAVE A PROBLEM WITH THE LAND MINES, SOME OF WHICH ARE SEEDED, THE ANTI-TANK MINES ARE SEEDED WITH ANTI-PERSONNEL MINES, AND IT'S A TOUGH JOB TO GET THEM OUT.

Q: YOU SAID TODAY THAT YOU DIDN'T HAVE ANY MORE INFORMATION ON THIS AC-130 GUNSHIP WHICH WENT DOWN. THE C-130 PLANE WAS THE LARGEST PLANE IN THIS ENTIRE OPERATION TO GO DOWN, IF I'M NOT CORRECT, IN THE THEATER. WE HAVE SATELLITES, YOU HAVE A LOT OF OPTIONS TO SEE SMALL THINGS, AS SMALL AS A TEMPLE. DO YOU MEAN TO TELL ME THAT YOU HAVE NO INFORMATION TO GIVE US ON WHERE THIS PLANE IS, WE DON'T EVEN KNOW IF IT WENT DOWN IN THE WATER OR THE LAND? CAN'T YOU TELL US SOMETHING, OR YOU WILL NOT TELL US SOMETHING BECAUSE IT WAS A SPECIAL OPERATION AIRPLANE?

KELLY: WE DON'T HAVE THE INFORMATION. IF I WAS WITHHOLDING IT BECAUSE IT WAS A SPECIAL OPS AIRPLANE, I'D TELL YOU. IT WAS A SPECIAL OPS AIRPLANE, BY THE WAY, AS YOU KNOW. THAT'S A BIG AIRPLANE, BUT BIG IS RELATIVE. IRAQ IS 90,000 SQUARE MILES. IT COULD HAVE GONE INTO (AL WADI), IT COULD HAVE GONE INTO WATER. WE'RE LOOKING FOR IT. WE CARE ABOUT THOSE FOLKS, AND WE'RE GOING TO DO EVERYTHING WE CAN TO FIND IT, BUT WE HAVE NOT FOUND IT YET.

MCCONNELL: OUR INTELLIGENCE SYSTEMS ARE INCREDIBLE, THEY'RE WONDERFUL, AND THEY DID A MAGNIFICENT JOB IN THIS EFFORT. BUT WE CAN'T SEE EVERYTHING ALL THE TIME. YOU ASK IF WE CAN SEE A TEMPLE, WHY CAN'T WE FIND SOMETHING AS LARGE AS A LARGE AIRPLANE -, A TEMPLE DOESN'T MOVE. IF YOU'RE LOOKING FOR SOMETHING THAT YOU DON'T KNOW WHERE TO START YOUR SEARCH, IT BECOMES OFTEN A NEEDLE IN A HAYSTACK, AND THE EXAMPLE IS A MOBILE SCUD.

Q: IF A CIVILIAN AIRCRAFT CAN HAVE A BLACK BOX AND CAN BE FOUND IN THE INDIAN OCEAN OR WHATEVER, I'M SURE THE AIR FORCE HAS A HIGHER CAPABILITY TO FIND SOMETHING LIKE THIS. AS A FOLLOWUP TO THAT, ON THE AGENDA FOR TOMORROW, WILL THERE BE DISCUSSIONS OF MIA'S AND THIS AIRPLANE, WHICH IS A MASSIVE THING THAT'S SOME, WHERE IN KUWAIT?

KELLY: HONEST TO GOD, WE'RE TRYING TO FIND THE AIRPLANE. WE'RE USING EVERY SYSTEM WE HAVE TO DO IT. WE HAVE ALREADY SAID THAT THE ISSUE OF PERSONS WHO ARE MISSING IN ACTION WILL BE THE TOP AGENDA ITEM FOR THE MEETING TOMORROW.

Q: DID YOU TAKE ANY MILITARY ACTIONS BEFORE THE WAR ENDED TO SEE

IF YOU COULD PREVENT SADDAM HUSSEIN FROM GETTING OUT OF IRAQ? WHAT ARE YOU DOING NOW THAT THE WAR IS OVER, TO MAKE SURE THAT HE DOES NOT FLEE TO SOME SANCTUARY?

KELLY: BEFORE THE WAR ENDED, WE STRUCK NORMAL TARGETS, AS I THINK WAS ANNOUNCED, SOME OF THEM HAPPENED TO BE CIVILIAN JETS THAT WERE LOCATED AT THE AIRPORT IN BAGHDAD. THAT'S ABOUT THE EXTENT OF ANYTHING THAT COULD BE CONSTRUED AS A PREVENTIVE MEASURE FROM TRYING TO GET HIM OUT OF IRAQ. CAN YOU THINK OF ANYTHING ELSE, MIKE?

MCCONNELL: THERE WAS NO DELIBERATE TARGETING OF THE MAN HIMSELF, AND THERE'S BEEN NO FOLLOWUP SINCE THEN.

Q: WHAT ARE YOU DOING NOW, IF ANYTHING, TO MAKE SURE HE DOESN'T FLEE?

KELLY: WE'RE FLYING DEFENSIVE AIR CAPS. THAT IS NOT SPECIFICALLY TO GET MR. HUSSEIN IF HE'S TRYING TO LEAVE THE COUNTRY. HOWEVER, I'M SURE IF AN AIRPLANE TOOK OFF AND THERE WAS ANY INDICATION THAT HE WAS ON IT, THE MILITARY LEADERSHIP IN THEATER WOULD CALL BACK IMMEDIATELY FOR INSTRUCTIONS AND A DECISION WILL BE MADE. I DON'T KNOW OF A DECISION THAT'S PRE-POSITIONED THAT SAYS STOP SADDAM HUSSEIN FROM LEAVING BAGHDAD.

Q: YOU HAVE THIS COMBAT AIR PATROL OVER ALL OF IRAQ SO THAT IF HE DOES SOMEHOW GET TO A NORTHERN AIRFIELD...

KELLY: WE HAVE IT OVER LARGE PORTIONS OF IRAQ. WE, OBVIOUSLY, HAVE IT OUT IN THE WESTERN SCUD BASKET BECAUSE WE'RE STILL VERY CONCERNED ABOUT THAT, AND WE ARE FLYING COMBAT AIR PATROLS OVER BAGHDAD.

Q: THERE'S A REPORT THAT THE IRAQI COMMANDERS IN KUWAIT CITY FLED BEFORE THEIR TROOPS AND ELUDED THE ALLIES; AND THAT THE COMMANDER OF THE KUWAITI THEATER OF OPERATIONS FLED AS WELL, AND SUPPOSEDLY WAS THE ONE WHO USED THE CHEMICAL WEAPONS ON THE KURDS. I WONDER IF YOU HAVE INFORMATION TO CONFIRM THIS, AND WHAT YOUR JUDGMENT WOULD BE ABOUT THAT, IF IT DID HAPPEN?

KELLY: IF A COMMANDER FLED HIS TROOPS, THAT'S SCURRILOUS. WE'VE SEEN THAT BEFORE. WE SAW IT IN PANAMA, BY THE WAY, WITH SOME OF THE LEADERSHIP DOWN THERE. DECENT LEADERS HANG AROUND WHEN IT GETS TOUGH.

MCCONNELL: I'M AWARE OF THE REPORTS, BUT THERE'S NO WAY WE HAVE CORROBORATING INFORMATION ON ANY OF THAT.

Q: HAVE ANY OF YOUR INTELLIGENCE TEAMS FOUND QUANTITIES OF CHEMICAL MUNITIONS, WHAT TYPES, AND ANY BIOLOGICAL MUNITIONS?

KELLY: WE HAVE FOUND NO CHEMICAL MUNITIONS YET, TO MY KNOWLEDGE. I BELIEVE IT WAS ANNOUNCED IN THEATER TODAY THAT THEY HAD FOUND A CHEMICAL BUNKER AND THEY WERE EXPLOITING IT, DID NOT FURTHER IDENTIFY WHERE THE BUNKER WAS, DID NOT IDENTIFY WHAT WAS IN IT. WE HAD FOUND A BUNKER PREVIOUSLY, AS YOU KNOW, THAT HAD SOME

/***** BEGINNING OF SECTION 003 *****/

CHEMICAL MARKINGS ON IT, BUT THERE WERE NO CHEMICALS IN IT. EPW REPORTS INDICATE THAT THE IRAQI MILITARY FORCES WERE VERY UNCOMFORTABLE WITH THE USE OF CHEMICAL WEAPONS. AS A MATTER OF FACT, MANY OF THEM HAD NO CHEMICAL PROTECTIVE CAPABILITY.

Q: WAS THE BUNKER IN THE KTO OR WAS IT ON THE OTHER SIDE OF THE IRAQ BORDER?

KELLY: THEY DIDN'T SPECIFY WHERE IT WAS, SO I DON'T KNOW. I THINK THEY WERE CAREFUL NOT TO SPECIFY WHERE IT WAS. I FEEL SURE IT WAS IN THE KTO, BECAUSE THAT'S WHERE OUR FORCES ARE, - THEY'RE NOT NORTH OF THERE. BUT I DON'T KNOW IF IT WAS IN IRAQ OR KUWAIT.

Q: WHAT IS OUR VIEW TOWARD THE EQUIPMENT THAT MAY NOT HAVE BEEN HEAVILY DAMAGED, AND CERTAINLY NOT DESTROYED, THAT WAS LEFT BEHIND BY THE FLEEING IRAQIS IN KUWAIT? IN TWO RESPECTS, NUMBER ONE, TO WHOM DOES IT BELONG; AND NUMBER TWO, ARE WE ATTEMPTING TO DESTROY IT EVEN DURING THIS PERIOD OF THE SUSPENSION OF OFFENSIVE OPERATIONS?

KELLY: SOME OF THE STUFF THAT WAS FOUND ON THE BATTLEFIELD WAS BEING DESTROYED, AND YOU SAW TV PICTURES OF THAT, - THERMITE GRENADES IN THE TUBE, THERMITE GRENADES IN THE TURRET. OTHERS WILL PROBABLY NOT BE DESTROYED. IT BELONGS TO US -- IT'S A SPOIL OF WAR, I'M SURE. IT'S NOT GOING TO BE GIVEN BACK, CERTAINLY, TO THE IRAQIS. WHETHER OR NOT WE WOULD DEVELOP PLANS FOR THE FUTURE USE OF THAT EQUIPMENT, - WHEN I SAY WE, I MEAN THE COALITION -- I DON'T KNOW. THAT DECISION HASN'T BEEN MADE YET, TO MY KNOWLEDGE.

Q: DOES THE SEARCH FOR SCUDS, IS THAT LIMITED SOLELY TO AIR RECONNAISSANCE? ARE THERE ANY GRDUND OPERATIONS INVOLVED IN WESTERN IRAQ OR ELSEWHERE LOOKING FOR SCUDS?

KELLY: RIGHT NOW THE ONLY THING WE HAVE LOOKING FOR SCUDS IN WESTERN IRAQ ARE THE AIRPLANES, THAT WE'LL TALK ABOUT.

Q: EXCUSE ME, WHAT WAS THAT LAST?

A: THAT WE'LL TALK ABOUT.

Q: IS IT TRUE THAT PRESIDENT BUSH HAS ORDERED THE JOINT CHIEFS TO DEVELOP AN ESTIMATE OF IRAQI CASUALTIES? AND WHY HAS THE PENTAGON REMAINED SO RELUCTANT, EVEN AFTER THE FIGHTING ENDED, TO DO THAT?

KELLY: TO THE BEST OF MY KNOWLEDGE, THERE HAS BEEN NO DIRECTIVE GIVEN TO THE JOINT CHIEFS OR ANYONE ELSE TO DEVELOP AN ESTIMATE OF IRAQI CASUALTIES. IRAQ SHOULD BE CAPABLE OF DOING THAT, BY THE WAY. IT IS EXTREMELY DIFFICULT FOR US TO DO BECAUSE, AS YOU MAY KNOW, WE'VE HAD EPW REPORTS, AND THEY DID THIS IN THE IRAN/IRAQ WAR, THEIR TENDENCY IS, TO KEEP MORALE UP, TO BURY THE LEAD WHILE IT'S STILL DARK. SO THERE MAY BE HIDDEN MASS GRAVES, OR MASS GRAVES HIDDEN OR NOT, UP THERE THAT WE DON'T EVEN KNOW ABOUT. AS I SAY, WE DON'T HAVE ANY GUIDANCE THAT WE NEED TO COME UP WITH A NUMBER. THE NUMBER THAT I CAN COME UP WITH YOU IS ONE IRAQI ARMY DESTROYED. (LAUGHTER)

Q: CLEARLY, SADDAM HUSSEIN HAS NO INTEREST IN DEVELOPING SUCH A NUMBER, IF IT'S A HUGE NUMBER. AND CERTAINLY, WHILE IT WOULD BE A GRUESOME NUMBER, WE WOULD HAVE SOME INTEREST IN GETTING A NUMBER OUT THERE. GENERAL NEAL SAID THIS MORNING HE THOUGHT WHEN THE IRAQI PEOPLE REALIZED HOW GREAT THE CASUALTIES HAD BEEN, THAT WOULD BE ONE OF THE THINGS THAT WOULD MAKE THEM WANT TO GET RID OF SADDAM HUSSEIN.

KELLY: I'LL STICK WITH THE ANSWER I GAVE YOU. I THINK THAT THE

IRAQI PEOPLE WILL KNOW OF THE MAGNITUDE OF THAT NUMBER A COUPLE OF DIFFERENT WAYS. NUMBER ONE, SOLDIERS NOT COMING HOME; NUMBER TWO, RIGHT NOW WE SEE LARGE NUMBERS OF IRAQI SOLDIERS WHO HAVE BEEN ABLE TO CROSS INTO IRAQ AND ARE HEADING NORTH TOWARDS BAGH, DAD. WHEN THEY GET BACK AND TELL THE STORIES OF WHAT THEY WERE REQUIRED TO FACE AND THE RESULTS OF THE IMPERIAL CAMPAIGN AS PURSUED BY THE LEADERSHIP IN BAGHDAD, I THINK WHAT GENERAL NEAL INDICATED MIGHT BE POSSIBLE IS GOING TO HAPPEN. THAT'S MY OPINION.

Q: IT'S BEEN SAID, ACTUALLY SEVERAL TIMES IN THE PENTAGON, THAT THE UNITED STATES HAS WON THE WAR SEVERAL TIMES, AND THERE'S BEEN AN ABSOLUTE VICTORY, BUT THAT THE PEACE IS DIFFICULT. AS A MILITARY MAN, WHAT DO YOU WANT TO SEE THAT WILL WIN THE PEACE, PARTICULARLY IN THE TALKS TOMORROW, BUT ALSO DOWN THE ROAD?

KELLY: WISE DECISIONS, EFFECTIVE IMPLEMENTATION OF THOSE WISE DECISIONS. (LAUGHTER) IN SOME WAYS YOU CAN SAY THE EASY PART'S OVER. PRESIDENT BUSH ALLUDED TO THAT --, NOT THAT THE EASY PART'S OVER, BUT ALLUDED TO WINNING THE PEACE. MAKING THE PROPER MIX OF DECISIONS, WHICH IS GOING TO BE EXTREMELY DIFFICULT. IT'S A REGION THAT'S BEEN IN TURMOIL FOR MANY, MANY YEARS. THERE ARE A LOT OF CONFLICTING DYNAMICS THAT ARE PULLING AND PUSHING AGAINST THE BODY OF THE ARAB STATES. SO WE'RE GOING TO HAVE TO BE EXTREMELY CAREFUL -- WE, THE UNITED STATES. THIS IS NOT AN OPERATIONS OFFICER'S JOB, I AM VERY HAPPY TO TELL YOU, BUT WE, THE UNITED STATES, ARE GOING TO HAVE TO BE CAREFUL, ALONG WITH THE OTHER MEMBERS OF THE COALITION, THAT WE DO THE BEST WE CAN IN ORDER TO TRY TO PUT SOME PEACE AND STABILITY IN THE AREA. YOU'LL RECALL AFTER WORLD WAR II, WE HAD THE SAME KIND OF DILEMMA. I THINK WE WERE STUNNINGLY SUCCESSFUL, GIVEN THAT THE TWO MAJOR ENEMIES WE HAVE ARE NOW ALLIES. I THINK AMERICANS ALWAYS HAVE A TENDENCY IN VICTORY TO TRY TO WIN OVER THE FORCE THAT'S BEEN DEFEATED. I THINK THAT'S WHAT'S...

Q: SPECIFICALLY IN THE MEETING TOMORROW AND LOOKING DOWN THE ROAD...

KELLY: THAT ONE WE'LL NOT BE ADDRESSING, WHAT YOU'RE TALKING ABOUT. THE MEETING TOMORROW I THINK IS GOING TO BE ADDRESSING SPECIFICALLY WHAT I MENTIONED. AND THE PRESIDENT SAID IN HIS TALK EARLIER TODAY THAT THE SECRETARY OF STATE WAS LEAVING TODAY TO GO AROUND TO VARIOUS CAPITOLS TO BEGIN TO TALK ABOUT THE DIMENSIONS OF THE POLITICAL DILEMMA AND WHAT COULD BE DONE ABOUT THAT.

Q: I'M TRYING TO LOOK SPECIFICALLY AT WHAT YOU'RE LOOKING FOR IN TERMS OF YOU WOULD LIKE THE PRISONERS OF WAR SETTLED, YOU WOULD LIKE THE GOVERNMENT SETTLED, -- WHAT SPECIFICALLY DO YOU THINK AS A MILITARY MAN WOULD KEEP THE PEACE IN THE FUTURE?

KELLY: FOR THE IRAQI MILITARY, AND IT'S A DIFFERENT PART OF THE PROBLEM, TO AGREE WITH WHAT WE'RE TELLING THEM. INCIDENTALLY, THEY'RE NOT IN MUCH OF A POSITION NOT TO AGREE TO THE TERMS THAT WE'VE LAID OUT THAT THEY HAVE TO ABIDE BY. NOW YOU'VE GOT A NUMBER OF COUNTRIES OVER THERE, AT LEAST TWO, THAT HAVE BEEN PRETTY WELL WRECKED. THERE WILL BE SOME POLITICAL DECISIONS

ASSOCIATED WITH THE EVENTUAL REBUILDING OF THOSE COUNTRIES. THE PRESIDENT SAID TODAY THAT IRAQ IS A WEALTHY COUNTRY, AND IT CAN DEVELOP ITS FUTURE WEALTH INTO PAYING REPARATIONS AND REGENERATING ITS COUNTRY. HE ALSO SAID THAT IN SIMPLE HUMANITARIAN TERMS, IF THEY HAD SEVERE NEEDS, WE WOULD PROBABLY HELP THEM. I'M CERTAIN WE WOULD. IN KUWAIT THE SAME THING IS TRUE. BUT WHAT

/***** BEGINNING OF SECTION 004 *****/

THE SPECIFICS ARE REALLY IS IN NATION, BUILDING, IN REBUILDING THOSE NATIONS, IS NOT A MILITARY DECISION, - IT'S A POLITICAL/DIPLOMATIC DECISION.

Q: RETURNING TO THE EARLIER QUESTION ABOUT SADDAM HUSSEIN, ARE YOU CURRENTLY AWARE OF WHERE HE IS THROUGH YOUR INTELLIGENCE, AND ARE YOU WATCHING HIM SO YOU WOULD BE AWARE IF HE WERE TO MOVE?

KELLY: WE DO NOT KNOW WHERE HE IS -, AT LEAST I DO NOT KNOW WHERE HE IS. WE HAVE NEVER TARGETED SADDAM HUSSEIN. THAT'S THE PLAIN, UNVARNISHED TRUTH. IT'S MY OPINION THAT HE WASN'T -, MY OPINION, - THAT HE WASN'T IN ONE OF THOSE BUNKERS, THAT HE WAS IN A CIVILIAN NEIGHBORHOOD, BECAUSE HE KNEW HE WAS SAFE THERE. I'M NOT CERTAIN, THERE MAY HAVE BEEN SOME INDICATIONS THAT HE HAD SOME OF HIS MEETINGS IN CIVILIAN AREAS. WHEN WE FINALLY GET A LOOK INSIDE, AND INCIDENTALLY, YOU'RE GOING TO FIND OUT THAT WE WERE VERY PRECISE IN WHAT WE STRUCK AND WHAT WE DIDN'T STRIKE. BUT I DON'T KNOW WHERE HE IS, AND WE'RE NOT TARGETING HIM.

Q: WHAT ACTION TO TARGET HIM, CAPTURE HIM, OR SIMPLY STOP HIM FROM LEAVING THE COUNTRY ARE YOU PREPARED TO UNDERTAKE?

KELLY: WE HAVE BEEN DIRECTED TO TAKE NO ACTION TO FIND HIM, TO STOP HIM FROM LEAVING THE COUNTRY, OR ANYTHING ELSE. SO WE ARE EXERCISING NORMAL CAUTION. WE GAVE AIRPLANES FLYING OVER BAGHDAD NOT BECAUSE OF SADDAM HUSSEIN, BUT BECAUSE WE WANT TO LET THE PEOPLE THERE KNOW THAT WE HAVE THE CAPABILITY TO REINITIATE COMBAT, SHOULD THAT BECOME NECESSARY. WE ARE NOT ON A HUNT FOR SADDAM HUSSEIN; WE HAVEN'T BEEN DIRECTED TO DO THAT. THE PRESIDENT SAID HE HAS TO FACE INTERNATIONAL JUSTICE AT SOME POINT, BUT HE HAS NOT GIVEN ANY INSTRUCTIONS TO US TO...

Q: YOU WOULD NOT LET HIM LEAVE, WOULD YOU?

KELLY: IF WE FOUND OUT THAT HE WAS LEAVING, AND WE KNEW ABOUT IT, I WOULD TURN IT OVER TO MY BOSS AND SAY WHAT DO YOU WANT ME TO DO. WE ARE CAPABLE OF DOING ANYTHING YOU WANT.

Q: DO YOU HAVE A COUNT YET ON COALITION VEHICLES LOST -, ARMORED OR OTHERWISE? OR U.S.?

KELLY: NOT COMPLETE. AS I SAID YESTERDAY, I KNOW THE MARINES LOST TWO M-60 TANKS; THE ARMY HAD TWO M1-A1 TANKS DAMAGED. I DON'T HAVE THE TOTALS ON THAT YET, MY GUESS IS IT WILL PROBABLY BE SEVERAL DAYS BEFORE THAT CAME IN.

Q: WHAT KIND OF LEVERAGE DO WE REALLY HAVE AS WE GO TO THESE NEGOTIATIONS? WE SAY WE CAN RESUME FIGHTING, BUT WE'VE DESTROYED 42 OF 42 DIVISIONS. WE SAID WE'RE NOT GOING TO STRIKE CIVILIANS. WHAT CAN WE REALLY DO TO IRAQ THAT WE HAVEN'T ALREADY DONE TO THEM?

KELLY: WE CAN GET THE RESIDUAL OF THE DEFEATED FORCES THAT ARE

IN THE KUWAITI THEATER OF OPERATIONS, AND I DON'T WANT TO GO TOO FAR IN THIS FOR OBVIOUS REASONS, BUT THERE ARE STILL MEANS OF PRODUCTION AND DISTRIBUTION THAT EXIST WITHIN THE COUNTRY THAT COULD BE ATTACKED. IT WOULD DEPEND ON WHAT A NATIONAL DECISION WAS. WE'RE OBVIOUSLY IN A POSITION IN THE MILITARY TO DO JUST ABOUT ANYTHING THAT THE PRESIDENT WANTS TO DO. INCIDENTALLY, WE HAVE SOME CONSIDERABLE LEVERAGE IN THAT WE, RIGHT NOW, POSSESS A CONSIDERABLE AMOUNT OF THAT COUNTRY. WE HAVE FORCES IN THE SOUTHERN THIRD OF THE COUNTRY, AND I WOULD ASSUME THAT THE IRAQIS WOULD WANT THAT PART OF THEIR COUNTRY BACK. THEY'RE GOING TO HAVE TO BE FORTHCOMING IN ORDER TO GET IT BACK.

Q: CAN YOU TALK TO US ABOUT THE REPUBLICAN GUARD FOR A MINUTE? YOU SAID OVER THE FOUR DAYS THERE WERE 29 UNITS, AND IT WORKED ITS WAY DOWN TO ONE UNIT LEFT. WERE ALL THESE GUYS KILLED? DO YOU HAVE ANY IDEA WHAT HAPPENED TO THEM? ALSO, WHAT'S THE SENIOR, MOST OFFICIAL YOU'VE CAPTURED?

KELLY: I THINK A BRIGADIER GENERAL WE SAID YESTERDAY, WHO WAS AN ACTING DIVISION COMMANDER OR A DIVISION COMMANDER. AS WAS INDICATED EARLIER, IT'S POSSIBLE THAT SOME OF THE LEADERSHIP LEFT THEIR UNITS IN THE LURCH WHEN THINGS GOT TOUGH. THE REPUBLICAN GUARDS HAD THREE HEAVY DIVISIONS -, THEY HAVE BEEN DESTROYED. THEY ALSO HAD A NUMBER OF OTHER INFANTRY DIVISIONS WHO HAVE BEEN MANGLED. BUT MANY OF THE INDIVIDUALS FROM THOSE DIVISIONS ARE PROBABLY ON THE ROAD WALKING NORTH ALONG WITH A WHOLE LOT OF OTHER IRAQI SOLDIERS. THEY DO NOT HAVE A FORCE IN THE FIELD THAT'S CAPABLE OF ENGAGING IN COMBAT.

Q: WHEN THEY GET BACK TO IRAQ, DO YOU HAVE ANY BALLPARK ON HOW MANY REPUBLICAN GUARD TROOPS ARE LEFT, ARE ALIVE?

MCCONNELL: IT WOULD BE VERY DIFFICULT TO SAY. THREE HEAVY, FOUR INFANTRY, AND ONE SPECIAL FORCES -, EIGHT, THAT'S WHAT THEY STARTED WITH. SOME OF THOSE ARE WALKING NORTH. OVER TIME, WE'LL PROBABLY BE ABLE TO MAKE SOME ASSESSMENT ON WHAT'S LEFT. BUT THE POINT I WOULD HIGHLIGHT FOR YOU -, EVEN IF THEY'RE GOING NORTH AND THEY'RE STILL ALIVE, IT'S NOT AN EFFECTIVE FIGHTING FORCE. IT'S NOT SOMETHING WE HAVE TO CONTEND WITH IN THE NEXT FEW MONTHS, OR SIX MONTHS, OR MORE.

KELLY: OR YEARS.

MCCONNELL: THEY WOULD HAVE TO GET SOMEWHERE, GET ORGANIZED, GET WEAPONS, AND SO ON. IF THEY DO ALL THAT, WE'LL KNOW ABOUT IT.

KELLY: AND THEY'D HAVE TO REARM, THEY'D HAVE TO BECOME A TEAM AGAIN, WHICH THEY'RE NOT RIGHT NOW. AS A MATTER OF FACT, IT'S MY STRONGLY-HELD BELIEF THAT WHEN THIS DEFEATED ARMY GETS BACK TO BAGHDAD, THEY'RE GOING TO BE PRETTY MAD.

Q: THERE WAS SOME DISCUSSION AS THE END NEARED, THAT THE SOVIETS MIGHT HAVE BEEN TRYING TO FRUSTRATE A COMPLETE DEFEAT OF SADDAM HUSSEIN THROUGH DIPLOMATIC INITIATIVES. ON THE OTHER HAND, IT WOULD APPEAR THAT THEY DID NOT GIVE THE IRAQIS WHAT WOULD APPEAR TO BE VERY GOOD SATELLITE COVERAGE OF THE VII CORPS' FLANKING MANEUVER, AND OUR POSITIONS ON THE FIELD. DO YOU ASSUME THAT, IN FACT, IS WHAT DID HAPPEN, THAT THEY DIDN'T TELL THEM?

KELLY: I SIMPLY DON'T KNOW. I DON'T KNOW WHETHER THEY TOLD THEM

QR NOT. IT CERTAINLY APPEARS THAT THEY DIDN'T. AS MIKE POINTED OUT YESTERDAY, EVEN HAD THEY KNOWN, THEIR ABILITY AT THAT POINT TO SHIFT FORCES AND COUNTER IT WAS QUITE LIMITED. BUT THEY DID NOTHING TO SHIFT FORCES. SO IT APPEARS THEY DIDN'T KNOW. IF YOU DERIVE FROM THAT THAT THAT'S BECAUSE THE SOVIETS DIDN'T TELL THEM, SO BE IT. I DON'T KNOW THAT TO BE A FACT.

Q: IS THERE ANY INTELLIGENCE AVAILABLE NOW ABOUT WHY THE IRAQI AIR FORCE MIGRATED TO IRAN? IS THERE ANY SPECIFIC REASON? AND WHAT HAPPENS IF THEY START TO MIGRATE BACK?

KELLY: THE ANSWER TO THE FIRST PART IS, I DON'T KNOW THAT WE KNOW ANYTHING FURTHER THAN WE KNEW BEFORE.

Q: NO CLUE AT ALL AS TO WHY THEY DID THAT?

KELLY: BECAUSE WE DON'T HAVE A PRESENCE IN IRAN, AND WE'RE NOT ABLE TO QUESTION THE PEOPLE. IT'S MY BELIEF THAT SOME OF THEM BUGGED OUT, CLEARLY. IT'S ALSO MY BELIEF NOW THAT IRAQ IS GOING TO HAVE TO NEGOTIATE WITH IRAN TO GET THOSE AIRPLANES BACK. I THINK I ALLUDED TO THAT BEFORE, AND I DON'T KNOW THAT THEY'RE GOING TO BE SUCCESSFUL.

/***** BEGINNING OF SECTION 005 *****/

MR. WILLIAMS: THANK YOU VERY MUCH.

I DON'T KNOW YET WHAT OUR PLAN, BY THE WAY, IS FOR BRIEFINGS NEXT WEEK. WE WILL NOT BRIEF HERE IN THE PENTAGON TOMORROW, AND I DON'T KNOW YET WHETHER THERE WILL BE ANY STATEMENT AFTER THE MEETING IN THE DESERT TOMORROW, - WHETHER GENERAL SCHWARZKOPF OR PRINCE KHALID OR ANY OF THE OTHER COALITION REPRESENTATIVES WILL HAVE ANY KIND OF STATEMENT AFTER THE MEETING.

JUST A COUPLE OF QUICK THINGS HERE. IT'S BEEN AWHILE SINCE WE'VE GOTTEN A REQUEST TO GET THE RESERVIST NUMBERS. THE NUMBER OF GUARD AND RESERVISTS ON ACTIVE DUTY TO DATE -, TOTAL NUMBER IS 225,258. IF YOU GO DOWN BY SERVICE: FOR ARMY, 142,968; FOR NAVY, 18,930; FOR AIR FORCE, 33,566; FOR THE MARINE CORPS, 28,917; AND FOR THE COAST GUARD, 877. THE STATISTIC THAT WE'VE HAD ALL ALONG HERE, THAT ABOUT 15 PERCENT OF THE SERVICE MEMBERS WHO ARE IN DESERT STORM IN THE FIELD OF OPERATIONS ARE MEMBERS OF THE GUARD AND RESERVE. OF COURSE, ALL MEMBERS OF THE GUARD AND RESERVE IN THIS NUMBER HAVE BEEN CALLED TO ACTIVE DUTY TO SUPPORT THIS OPERATION. THEY HAVEN'T ALL NECESSARILY GONE TO THE PERSIAN GULF -, SOME OF THEM ARE BACKFILLS FOR UNITS THAT WENT OVER THERE, BUT THEY'VE ALL BEEN CALLED TO DUTY SPECIFICALLY FOR THAT OPERATION.

Q: YOU SAID IN THE COVERAGE OF THE IRAQI AND ALLIED MEETING TOMORROW IN SOUTHERN IRAQ THAT ALL INTERNATIONAL MEDIA WOULD BE REPRESENTED. ARE YOU REFERRING TO THE FACT THAT THERE WILL BE ONLY POOLS THERE, OR WILL THERE BE UNILATERAL COVERAGE?

A: NO, I DON'T THINK THERE WILL BE MUCH, WELL, IT WILL BE SORT OF A MODIFIED WHITE HOUSE POOL TYPE DEAL. THERE'S CLEARLY NO WAY, THIS MEETING IS HAPPENING AT A SPOT THAT IS, FOR ALL INTENTS AND PURPOSES, A BATTLEFIELD STILL. IT'S HAPPENING SORT OF OUT IN THE MIDDLE OF NOWHERE. THERE ARE STILL ACTIVE MINEFIELDS IN THE AREA. I DON'T KNOW IF THERE ARE ANY AIR BASES NEARBY THAT CAN BE

USED WITH ACTIVE RUNWAYS. SO YOU JUST CAN'T HAVE A COUPLE OF HUNDRED FOLKS THERE, AS YOU'D LIKE TO HAVE. WE'LL TRY TO MAKE ARRANGEMENTS FOR EVERYBODY TO BE REPRESENTED, BUT I DON'T KNOW EXACTLY HOW THAT'S GOING TO WORK.

Q: CAN YOU DESCRIBE GENERALLY A SEQUENCE OF EVENTS OF WHAT IS BEING PLANNED, WHAT WILL HAPPEN AND WHEN, WHAT THE SCENARIO AND THE ENVIRONMENT LOOK LIKE?

A: I CAN'T GIVE YOU MUCH DETAIL. YOU'LL BE ABLE TO SEE, I SUSPECT, SOME KIND OF ARRIVAL. THEY'LL WALK INTO WHEREVER THEY MEET -, WHETHER IT'S A BUILDING OR A TENT OR WHATEVER IT IS. THERE WILL BE A PHOTO OPPORTUNITY WHEN THEY'RE SEATED AT THE TABLE. OBVIOUSLY, THAT WILL BE A SMALL GROUP THAT YOU CAN TAKE INSIDE WHEREVER THEY MEET. THEN THE SMALL PHOTO POOL WILL LEAVE, THEN THE MEETING WILL GO ON, AND AT SOME POINT IT WILL END. I DON'T KNOW IF IT'S GOING TO BE OVER A COUPLE OF DAYS OR WHAT, BUT WHEN IT ENDS THAT DAY, THEN YOU'LL BE ABLE TO SEE THEM LEAVE. AGAIN, I DON'T KNOW WHETHER THERE WILL BE A STATEMENT OR NOT. I CAN'T REALLY GIVE YOU MANY DETAILS, OTHER THAN THAT.

Q: DO YOU KNOW WHO'S GOING TO BE THERE FOR THE ALLIES?

A: THE PRESIDENT SAID IT WILL BE GENERAL SCHWARZKOPF AND PRINCE KHALID, WHO IS THE COMMANDER OF THE SAUDI FORCES. I THINK THE BRITISH SAID THAT GENERAL DELABILLIERE, HOWEVER YOU PRONOUNCE HIS NAME, WILL BE THERE. BEYOND THAT, I'M NOT CERTAIN WHO'S GOING TO BE THERE.

Q: CAN YOU ADDRESS THE NUMBER OF RESERVE GROUPS BEING ACTIVATED? THERE WERE REPORTS THIS MORNING ABOUT A WHOLE LOAD OF RESERVISTS BEING ACTIVATED AT THIS POINT.

A: WE WILL FOLLOW OUR CONTINUING POLICY THAT WE HAVE SINCE THE BEGINNING OF OPERATION DESERT SHIELD, AND SINCE THE FIRST GUARDS, MEN AND RESERVISTS WERE CALLED UP AT THE END OF AUGUST, WHICH IS WE WILL ANNOUNCE ANY CALLUPS AS THEY GO. SO IF WE HAVEN'T ANNOUNCED IT, THEY HAVEN'T BEEN CALLED UP.

Q: ARE YOU EXPECTING MORE...

A: NOT THAT I KNOW OF, BUT THERE COULD BE SOME.

Q: GIVEN OUR SUPERIORITY AND DOMINANCE OF THE AIR, HOW ARE THESE IRAQI REPRESENTATIVES GOING TO GET THERE? WOULD THEY HAVE TO COME BY LAND, OR WILL SOME ARRANGEMENTS BE MADE TO FLY THEM IN?

A: MY GUESS IS IT WOULD BE BY LAND. I'M NOT POSITIVE ABOUT THAT. THAT'S STILL TRYING TO BE WORKED OUT.

Q: CAN YOU FIND OUT THE EXACT NUMBER OF MEDICAL RESERVISTS CALLED UP FOR OPERATION DESERT STORM? SECONDLY, I'M SURE YOU'VE BEEN SEEING ALL THESE REPORTS ABOUT THE DOCTORS, AS FAR AS OPERATION DESERT STORM, MANY SAYING THAT AFTER THE WAR THEY PLAN TO POSSIBLY GET OUT OF THE RESERVES BECAUSE THERE'S NO INCENTIVE BECAUSE THE PAY IS NOT COMPARABLE TO PRIVATE PRACTICE. CAN YOU SEE ANY TYPE OF LEGISLATION OR SOMETHING THAT WILL GIVE A STRONGER MEDICAL ARM TO THE MILITARY IF THIS DOES HAPPEN?

A: NUMBER ONE, NO, I CAN'T GIVE YOU AN EXACT NUMBER OF MEDICAL PERSONNEL. WE COULD TRY TO DO THAT, - IT'S GOING TO TAKE AWHILE. WE DON'T REALLY KEEP TRACK OF THE NUMBER OF RESERVES BY SPECIALIZATION. YOU'VE GOT MEDICAL PERSONNEL, YOU'VE GOT LINGUISTS,

YOU'VE GOT WATER PURIFICATION SPECIALISTS, LOGISTICS -, TRYING TO BREAK ALL THAT OUT WOULD BE A PRETTY MASSIVE UNDERTAKING. I CAN'T GUESS WHAT SORT OF LEGISLATION MIGHT BE INTRODUCED IN THE CONGRESS, EITHER THE HOUSE OR THE SENATE. CLEARLY, THERE WERE RESERVISTS WHO WERE ON RESERVE THAT NEVER THOUGHT THEY'D GET CALLED TO ACTIVE DUTY. LIKE ONE OF YOU SAID EARLIER, IT'S LIKE SOMEBODY JOINING THE POSTAL SERVICE, AND THEN BEING SHOCKED THAT THEY HAVE TO DELIVER SOME MAIL. SO THERE WAS A LITTLE ATTITUDE READJUSTMENT, I KNOW. IT'S GOING TO BE AN IMPORTANT THING. THAT'S CLEARLY GOING TO BE ONE OF THE THINGS WE'LL HAVE TO LOOK AT WHEN THIS IS ALL OVER. IT'S VITAL TO THE FORCE THAT WE HAVE AN ADEQUATE MEDICAL SUPPORT STAFF IN RESERVE. HOW WE DO IT, I'M SURE IS SOMETHING THAT PEOPLE ARE GOING TO BE LOOKING AT. BUT I CAN'T GUESS NOW HOW IT WOULD BE.

Q: DOES THE DEPARTMENT OF DEFENSE NOW CONSIDER THAT THE GULF WAR IS OVER? IF NOT, AT WHAT POINT ARE YOU ABLE TO OFFICIALLY SAY THE WAR HAS ENDED?

A: IT AIN'T OVER 'TIL THE GUY IN THE WHITE HOUSE SINGS, BASICALLY. (LAUGHTER) AND THE OTHER MEMBERS OF THE COALITION. RIGHT NOW WHAT WE HAVE UNDER THE TERMS THAT THE PRESIDENT HAS SPELLED OUT IS A TEMPORARY STOP, OR A SUSPENSION OF OFFENSIVE ACTIVITIES SUBJECT TO THE IRAQIS FIRST OF ALL, AGREEING TO THIS MEETING; AND SECONDLY, AGREEING TO THE TERMS THAT THE PRESIDENT HAS SPELLED OUT. UNTIL THAT HAPPENS, THE ORDERS WE HAVE RIGHT NOW, WHICH WE, IN TURN, HAVE FORWARDED TO THE COMMANDERS IN THE FIELD. SAY THAT RIGHT NOW WE HAVE A SUSPENSION IN OFFENSIVE OPERATIONS. UNTIL THE PRESIDENT OF THE UNITED STATES ORDERS US OTHERWISE, THAT'S THE POSTURE THAT WE'RE IN RIGHT NOW.

Q: DO YOU HAVE ANY MORE DETAILS ON THE TWO DOCTORS WHO DIED AFTER HITTING THE MINEFIELD?

/***** BEGINNING OF SECTION 006 *****/

A: I DON'T. I UNDERSTAND THAT IT HAPPENED, THEY WERE IN A JEEP OR A HUMVEE. THEY HIT A MINE, AND THEN SOMEBODY GOT OUT OF THE JEEP, AND THAT PERSON STEPPED ON A MINE. BUT OTHER THAN THAT, I DON'T KNOW ANY DETAILS BEYOND THAT. I DON'T KNOW WHERE IT WAS OR ANYTHING LIKE THAT.

Q: CAN YOU TAKE THE QUESTION?

A: OBVIOUSLY, WHEN WE GET MORE INFORMATION WE'LL PUT IT OUT.

Q: THE PRESIDENT SAID WE'RE GOING TO MEET TOMORROW AFTERNOON. I ASSUME HE MEANT TOMORROW AFTERNOON SAUDI ARABIAN TIME?

A: I WOULD ASSUME SO. IF HE MEANT TOMORROW AFTERNOON EASTERN TIME, THAT WOULD BE IN THE MIDDLE OF THE NIGHT IN SAUDI ARABIA. SO I ASSUME THAT IT'S TOMORROW AFTERNOON PERSIAN GULF TIME.

Q: YOU DON'T HAVE ANY IDEA OF EARLY AFTERNOON, LATE AFTERNOON?

A: I DON'T.

Q: DO WE KNOW HOW MANY OF THE POW'S OR MIA'S ARE WOMEN?

A: I THINK I KNOW OF ONE WOMAN THAT'S MISSING. THAT WAS THE TWO PERSON CREW THAT WAS DRIVING ALONG THE TAPLINE ROAD IN A VEHICLE, AND THAT WAS THE LAST TIME THEY WERE SEEN. THAT'S A MEMBER OF THE ARMY. BUT I DON'T THINK THERE ARE ANY MORE BEYOND THAT. ARE

ABORTED MILITARY EFFORT AT KHAFJI HAPPENED. THE WHOLE FORCE LEFT TO GO DOWN AND CARRY OUT THE KHAFJI OPERATION, AND THEY DIDN'T ALL SHOW BACK UP AGAIN.

Q: IT WOULD APPEAR THE MILITARY, IF ONLY TO DETERMINE FOR ITS OWN PURPOSES THE EFFECTIVENESS OF SUCH MASSIVE, NON-STOP BOMBING, WOULD WANT SOMETHING, AND ALSO WOULD WANT SOMETHING IN CASE THE OTHER SIDE -, IF SADDAM HUSSEIN SURVIVES ,, GIVES SOME OUTRAGEOUS FIGURE FOR DEAD TO SUIT HIS PURPOSES.

A: IT MAY WELL HAPPEN. I CAN'T CONCEIVE OF A MILITARY OPERATION OF THIS MAGNITUDE IN WHICH WE'D HAVE ANY NUMBER THAT WE WOULD BE CONFIDENT OF WITHIN 48 HOURS OF WHEN HOSTILITIES STOPPED.

Q: CAN YOU PLEASE DESCRIBE WHAT TYPE OF RESIDUAL FORCES THE U.S. WOULD LIKE TO HAVE IN PLACE IN THE REGION, AND WHAT THE FUTURE MAY LOOK LIKE AS FAR AS THE U.S. MILITARY IS CONCERNED?

A: LET'S TALK SHORT TERM AND LONG TERM. SHORT TERM, IN TERMS OF BRINGING THE BOYS HOME -, AND WOMEN, OF COURSE. I'M USING THAT TERM METAPHORICALLY. THERE'S LOTS OF WORK THAT NEEDS TO BE DONE. THERE IS, FIRST OF ALL, THE FACT THAT AS I DISCUSSED WITH KEENAN A MOMENT AGO, ALL WE HAVE IS A SUSPENSION OF HOSTILITIES RIGHT NOW ,, WEE HAVE A SUSPENSION OF OFFENSIVE ACTIVITIES. AT SOME POINT, LET'S ASSUME THEN WE FORMALLY END THE CONFLICT AND THERE IS SOME KIND OF DOCUMENT SIGNED THAT BRINGS IT TO AN END. THEN YOU'VE GOT TO HAVE SOME CLEARING OF THE BATTLEFIELD -, MINES, BOOBY TRAPS, EXPLOSIVES AND SO FORTH, IN ORDER FOR UNITS TO MOVE AROUND SAFELY AND DEPART SAFELY. THE UNITS WILL HAVE TO LEAVE THE BATTLEFIELD IN SOME KIND OF ORDERLY SEQUENCE. IN OTHER WORDS, YOU'VE GOT TO HAVE A COVERING FORCE THAT STAYS IN PLACE TO PROTECT DEPARTING TROOPS ,- THAT'S JUST THE STANDARD WAY OF DOING BUSINESS. YOU HAVE TO HAVE SOME KIND OF ORDERLY FLOW BACK TO THE PORTS -- WHETHER IT BE AN AIR BASE OR A NAVAL PORT. IT JUST TAKES LONGER TO LOAD THAT STUFF UP THAN IT DOES TO UNLOAD IT. IT'S KIND OF LIKE PACKING YOUR CAR. IT TAKES LONGER TO PACK IT THAN IT DOES TO UNPACK IT. YOU'VE GOT TO PREPARE THE EQUIPMENT FOR SHIPMENT. VEHICLES HAVE TO BE WASHED, EVERYTHING HAS TO BE TIED DOWN, ALL THAT STUFF HAS TO BE SECURED. YOU'LL REMEMBER THE EXTENSIVE PREPARATIONS THAT WENT INTO PUTTING THAT STUFF ON THE SHIPS, YOU HAVE TO BALANCE THE LOAD AND HAVE THE HEAVY STUFF IN THE MIDDLE AND ALL THAT KIND OF THING. YOU HAVE TO SHIP THE AMMUNITION BACK, STORE IT, IT HAS TO BE STORED SAFELY TO GO BACK, AND ALL THAT SORT OF STUFF. SO THAT HAS TO ALL TAKE PLACE. THAT'S THE SHORT TERM.

THEN IN TERMS OF THE LONG TERM, AND WHAT KIND OF LONG TERM FORCE

/***** BEGINNING OF SECTION 007 *****/

YOU'RE GOING TO HAVE THERE, LET ME GIVE YOU THE SORT OF GENERAL CONCEPT. NUMBER ONE, YOU'LL PROBABLY HAVE, AS WE'VE SAID BEFORE HERE, A HIGHER THAN NORMAL NAVAL PRESENCE -, AT LEAST HIGHER THAN THERE WAS BEFORE THE CONFLICT, MOST LIKELY. PERHAPS SOME KIND OF AIR PRESENCE THERE; PERHAPS, IN THE SHORT TERM, SOME KIND OF GROUND PRESENCE. IT COULD BE A MULTINATIONAL FORCE TO KEEP THE SECURITY OF KUWAIT UNDER WATCH. BUT BEYOND THAT, THAT'S KIND OF

THE INTERIM. THE LONG TERM, WHICH IS THE ONE YOU ASKED, I THINK THE ANSWER TO THAT WON'T BE KNOWN UNTIL SECRETARY BAKER BEGINS HIS TRIP. HE'S GOING TO START TO TALK ABOUT SOME OF THOSE SUBJECTS WITH THE COUNTRIES IN THE REGION. WHAT SORT OF LONG TERM SECURITY ROLE WILL WE HAVE THERE. THAT'S ONE OF THE THINGS ON HIS AGENDA, AND I DON'T KNOW WHAT THE ANSWER IS TO THAT.

Q: GENERAL KELLY ALLUDED TO THIS. WHAT HAPPENS IF THE MEETING TOMORROW BREAKS OFF, IF THE IRAQIS REFUSE TO NEGOTIATE, THE MEETING BREAKS OFF? ALL OF THOSE FORCES IN THE FIELD THAT HAVE SORT OF BEEN MENTALLY PACKING THEIR BAGS READY TO GO HOME, DOES THAT MEAN THAT IF THAT MEETING BREAKS OFF THEY SHOULD NOT COUNT ON GETTING HOME ANY TIME SOON?

A: THERE'S A LOT OF INTEREST HERE IN GETTING EVERYBODY HOME, BECAUSE FAMILIES MISS THOSE FOLKS, AND WE'RE ALL LOOKING FORWARD TO GETTING THEM HOME, AND WELCOMING THEM HOME. BUT I'D BE SURPRISED IF ALL THE TROOPS OUT THERE ARE EAGER TO LEAVE. I THINK THEY WANT TO MAKE SURE THAT THIS, THEY DON'T WANT TO GET THIS CLOSE AND HAVE SOMETHING HAPPEN, AND HAVE IT ALL UNRAVEL. SO I DON'T THINK THE FORCES ARE URGENTLY LOOKING TO LEAVE UNTIL THEY'RE SURE THAT THE JOB IS DONE.

Q: AGAIN, IF THE MEETING BREAKS OFF AND IT'S NOT ACCORDING TO THE WAY YOU WOULD HOPE IT MIGHT BE, THIS MEANS THAT BASICALLY THEY'RE GOING TO BE OUT THERE UNTIL YOU DO GET A MEETING THAT IS SUCCESSFUL.

A: THAT'S GOING TO BE SOMETHING THAT THE PRESIDENT WILL TELL US. OUR ORDERS COME FROM THE COMMANDER-IN-CHIEF. RIGHT NOW THEY ARE SUSPEND HOSTILITIES, RELOAD, REARM, BE VIGILANT, MAINTAIN THE RECONNAISSANCE, KEEP AN EYE ON THINGS, AND THAT'S THE POSTURE WE'RE IN RIGHT NOW. BUT WHAT HAPPENS IF THINGS GO SOUR THERE, I DON'T KNOW WHAT THE ANSWER IS.

Q: ARE YOU CONCERNED, OR HAS THE SECRETARY EXPRESSED ANY CONCERN OVER THE PAST DAY OR SO THAT THERE MIGHT BE, THAT THE PRESSURE FROM THE PRESS AND MAYBE THE PUBLIC, OR THE PERCEIVED PRESSURE, TO GET THE TROOPS HOME? YOU HEAR IT OVER AND OVER AGAIN, IT MIGHT BE A LITTLE PREMATURE, TO SAY THE LEAST. ARE YOU A LITTLE CONCERNED ABOUT THE MILITARY OPERATION AND, DO YOU THINK WE'RE BEING A LITTLE HEAVY-HANDED, I GUESS IS WHAT I'M ASKING YOU?

A: NO, NOT AT ALL. I THINK IT'S SOMETHING THAT WE ALL UNDERSTAND. PEOPLE HERE IN THE DEFENSE DEPARTMENT HAVE FAMILIES, AND THERE ARE A LOT OF PEOPLE THAT I TALK TO EVERY DAY IN THIS BUILDING WHO HAVE SONS AND DAUGHTERS OVER IN THE PERSIAN GULF WHO UNDERSTAND THIS EVERY BIT AS WELL AS EVERYBODY ELSE. WE THINK IT'S GOOD THAT FOLKS IN THE UNITED STATES ARE SAYING LET'S GET THEM HOME, WE WANT TO WELCOME THEM, THEY'VE DONE WELL, THAT'S A GREAT POSITION FOR US TO BE. BUT PERHAPS BECAUSE OF THE FACT THAT THE GROUND WAR LASTED FOUR DAYS, THERE'S NOW KIND OF INSTANT CAMERA IDEA OF HOW THIS WORKS. IT'S NOT OVER YET. WE HAVE A SUSPENSION OF HOSTILITIES. WE WANT TO MAKE SURE THAT IT ENDS PROPERLY AND THAT THE NECESSARY THINGS ARE DONE TO GET THE TROOPS HOME SAFELY, GET THE EQUIPMENT BACK WHERE IT BELONGS, AND HAVE A READY FORCE WHEN WE GET BACK. THAT'S GOING TO TAKE SOME TIME.

WE KNOW HOW EAGER THE FAMILIES ARE, BUT AS I SAID A MOMENT AGO, IT'S NOT EVEN BEEN 48 HOURS SINCE THE THING WENT INTO A SUSPENSION OF HOSTILITIES, AND NOW WE'RE TALKING ABOUT GETTING THEM ALL HOME. SO IT'S GOING TO TAKE AWHILE, BUT I DON'T THINK ANYBODY HERE FEELS UNDER EXTRAORDINARY PRESSURE TO DO THAT.

Q: CAN YOU ADDRESS THE REPORTS LAST NIGHT THAT CAME OUT... THE PENTAGON OFFICIALLY SAID WE DON'T HAVE A PLAN ON BRINGING HOME TROOPS AND RESERVES, AND WE'RE WORKING ON A PLAN. THERE WERE SPECIFIC UNITS REPORTED IN THE PRESS LAST NIGHT ABOUT WHICH ONES WERE GOING TO BE HOME SOON, THE FASTEST. CAN YOU TALK TO US ABOUT WHAT EXACTLY WE KNOW AT THIS POINT, AND WHAT THAT PLAN IS, AND WHEN IT WILL BE FINALIZED?

A: I'M HAPPY TO EXPLAIN THAT. YOU DON'T HAVE A WASHINGTON POST UNTIL THE PRESSES START TO ROLL. THE STORY ISN'T READY TO GO UNTIL YOUR EDITOR SIGNS OFF ON IT. IT WORKS THE SAME WAY HERE. THE MILITARY DEPARTMENTS COME UP WITH A PLAN, THEY SUBMIT THE PLAN TO THE LEADERSHIP, AND IT DOESN'T GO INTO EFFECT UNTIL THE SENIOR LEADERSHIP OF THE BUILDING, GENERAL POWELL AND SECRETARY CHENEY, APPROVE IT. UNTIL THEY DO, THERE IS NO PLAN. NOW I SUSPECT THAT WHAT'S HAPPENING IS THAT THE FOLKS IN THIS BUILDING WHO KNOW HOW TO REPORT HERE, GO OUT AND TALK TO THE CAPTAINS AND THE LIEUTENANTS AND THE SERGEANTS WHO HAVE TO DRAFT THIS PLAN, AND THEY SAY HEY, WHAT ARE YOU WORKING ON THERE, SERGEANT BILCO? AND HE SHARES WITH THEM HIS IDEAS FOR HOW TO END THE WAR. SOME OF THAT STUFF MAY BE ADOPTED, AND SOME OF IT MAY NOT BE. BUT THERE IS NO PLAN UNTIL SECRETARY CHENEY AND GENERAL POWELL APPROVE IT, AND THEY HAVEN'T DONE SO YET. BUT IT'S OBVIOUS SOMETHING THAT THEY'RE WORKING ON.

Q: GENERAL KELLY TALKED ABOUT THESE CONVOYS HEADED BACK TO BAGHDAD, THE POSSIBLE EFFECTS OF WHAT WILL HAPPEN WHEN THEY GET THERE, WHAT HAPPENED WHEN THEY FACED THE IMPERIAL FORCES. IS THERE ANY PLAN FOR THE UNITED STATES OR THE COALITION TO STEP IN IF THERE'S A VACUUM, AN IMPLOSION OF LEADERSHIP, OR ANY INSTABILITY IN BAGHDAD OF THE IRAQI GOVERNMENT? SOME SORT OF LAW AND ORDER ROLE THE COALITION MIGHT PLAY.

A: NOT THAT I KNOW OF, NO.

Q: SECRETARY CHENEY SAID ABOUT FOUR WEEKS AGO DURING THE BUDGET TALKS THAT THE BATTLESHIPS WILL BE DECOMMISSIONED. IN LIGHT OF THE PERFORMANCE OF THE MISSOURI AND THE WISCONSIN AND THE OTHER SHIPS HAVE DONE, IS THERE ANY RETHINKING ABOUT DECOMMISSIONING THE BATTLESHIPS, IN LIGHT THAT THEY DID SUCH A GOOD JOB IN THE PERSIAN GULF?

A: NO, I DON'T THINK SO. THERE WAS NO DOUBT IN OUR MINDS THAT THE BATTLESHIPS WOULD DO A GOOD JOB. THERE'S NO DOUBT IN OUR MINDS THAT THE CURRENT SIZE OF THE MILITARY FORCE WOULD DO A GOOD JOB. BUT WE HAVE A PROBLEM, AND THAT IS THAT WE HAVE TO CUT THE BUDGET. CONGRESS' BUDGET THAT THEY'RE GIVING FOR DEFENSE IS GOING DOWN OVER THE NEXT SEVERAL YEARS, SO YOU HAVE TO DECIDE, YOU HAVE TO MAKE PRIORITIES. BATTLESHIPS ARE VERY LABOR INTENSIVE. THEY'RE WONDERFUL OLD SHIPS. THEY HAVE BEAUTIFUL, THICK HULLS THAT MAKE THEM EXTREMELY DIFFICULT TO SINK. THEY'VE DONE

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AN EXTRAORDINARILY GOOD JOB , - THE MISSOURI AND WISCONSIN BOTH
THAT ARE ON STATION THERE ARE EXCELLENT SHIPS. BUT WE JUST CAN'T
AFFORD TO KEEP THEM. SO I DOUBT THERE WOULD BE ANY CHANGES.

/***** BEGINNING OF SECTION 008 *****/

Q: WHY NOT SELL THEM? THE KUWAITIS HAVE ALL THIS MONEY...

(LAUGHTER)

A: I DON'T KNOW WHAT WILL HAPPEN TO THEM. I DON'T KNOW HOW WE
UNLOAD A BATTLESHIP. IT'S NOT SOMETHING WE DO VERY OFTEN.

PRESS: THANK YOU.

ADMIN

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TOPICAL BIBLIOGRAPHY OF PUBLISHED WORKS REGARDING THE HEALTH OF VETERANS OF THE PERSIAN GULF WAR

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#567

**Topical Bibliography of Published Works Regarding
the Health of Veterans of the Persian Gulf War**

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Clinical Considerations in Nerve Agent Intoxication¹

Frederick R. Sidell

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¹The views expressed in this chapter are those of the author and should not be construed as the position or policy of the Department of the Army unless so designated by other authorized documents.

I. Summary

The history of nerve agents is reviewed in this chapter and a brief summary of their biological activity is provided (a more complete discussion was in a previous chapter). The signs and symptoms caused by exposure to differing amounts of these agents by vapor or by skin contact with liquid are described. Current therapy is detailed, including the use of pretreatment and an anti-convulsant. Finally, recommendations for patient management, based on the author's experience, are given.

II. Introduction

Nerve agents were developed over five decades ago for military use and continue to be a significant threat on the battlefields of the world, or as terrorist weapons. First developed in secrecy before World War II, these agents are now in the armamentariums of several major world powers and those of several smaller nations. In particular, Iraq had a manufacturing capability and used these agents against Iranian military forces and against Iraqi Kurds, in at least one attack on a civilian population. Nerve agents were felt to be a major threat during the war with Iraq.

Much of the clinical information on these agents is from research in the decades after World War II and from published accounts of accidental exposures. A previous chapter discussed the mechanism of action and basic pharmacology of these agents, and this chapter will address the clinical aspects.

III. History and Military Significance

Nerve agents are the most potent of a group of compounds that cause biological effects by inhibiting the enzyme acetylcholinesterase (AChE). The two largest chemical classes of these compounds are the carbamates and the derivatives of phosphorus acids, or organophosphorus (OP) compounds. Probably the first such substance used was the Calabar bean as an *ordeal poison* by the natives of the Calabar region of western Africa (Koelle, 1975; Davis, 1985). The extract of this, used medicinally (Fraser, 1863), was isolated in 1864 by Jobst and Hesse and called physostigmine and isolated again independently in 1865 by Lee and Levin, who called it eserine (Koelle, 1975). This carbamate is still in medicinal use.

The first OP cholinesterase inhibitor was probably tetraethyl pyrophosphate (TEPP), synthesized by Wurtz and tasted (with no ill effects) by Clermont in 1854 (Holmstedt, 1963). Although there were numerous im-

portant advances in OP chemistry over the following decades, the extreme potency of these compounds apparently was first reported in 1932 by Lange and Krueger (who noted the effects of the vapors on themselves) (Koelle, 1975; Holmstedt, 1963).

In the early 1930s the German firm IG Farbenindustrie developed an interest in this group of compounds as possible pesticides and named Dr. Gerhard Schrader to head the research and development effort. In December 1936 Schrader synthesized tabun, or GA (Harris and Paxman, 1982; Robinson, 1971), and noted in himself the effects of its vapors (miosis). A year or so later, Schrader synthesized sarin, or GB (allegedly named in honor of the people instrumental in its development and production, Schrader, Ambros, Rudrigger, and van der Linde (Harris and Paxman, 1982).

Their extreme toxicity made these compounds ideal for use as warfare agents, and in 1940, a production facility was begun at Dyhernfurth. Tabun was first mass-produced in 1942 (Harris and Paxman, 1982; Robinson, 1971), and sarin was later produced there and possibly at another facility at Falkenhagen (Robinson, 1971).

Although the estimates vary, about 10,000 to 30,000 tons of tabun and smaller quantities of sarin (5–10 tons) were produced and put into munitions by the Germans (Robinson, 1971). Why they were never used remains a matter of conjecture, as the Allies did not know of these agents and had no protection or antidotes for them. It is possible their use could have changed the outcome of that war. Among the suggested reasons are that Hitler had been the victim of a chemical agent (mustard) in World War I and found chemical use distasteful; the senior German officers had been in World War I and also disliked them; and the Germans thought that the Allies had these agents and would retaliate with them. A more realistic reason is that in the latter stages of the war, including at the time of the Allied invasion of Europe, Germany lacked the air superiority needed for large-scale delivery.

In the waning stages of the war, the Russians captured the Dyhernfurth facility and moved it, along with key personnel, to Russia where production of the agents resumed in 1946 (Robinson, 1971; Koelle, 1981). At Raubkammer (a German testing facility), United States and British forces captured munitions containing a liquid unknown to scientists in those countries. Over a single weekend, British scientists, working with miosis from accidental exposure to the vapor, elucidated the pharmacology and toxicity of this material (tabun; GA) and documented the anti-dotal activity of atropine (K. M. Wilson; personal communication, 1970).

Records captured later indicated that the Germans had tested nerve agents on inmates of concentration camps to investigate their effects and toxicity and to test antidotes (Wills and DeArmon, 1954). There were casualties, fatal and nonfatal, at Dyhernfurth, and the medical staff there had also developed antidotes (Harris and Paxman, 1982).

A third agent, soman (GD) was synthesized by Dr. Richard Kuhn in 1944 in Germany (Robinson, 1971). Again this discovery was serendipitous in a search for a better insecticide. In a similar search, VX was first synthesized by a British chemical concern in 1954 (Robinson, 1971).

The United States produced sarin from the early 1950s until the early 1960s (Robinson, 1971) and produced VX from 1961 to 1968 (Robinson, 1971). The inventory today consists of these two agents in 23- to 40-year-old rockets, land mines, projectiles, bombs, and bulk containers (Anonymous, 1988). These are stored at six depots within the United States and one depot and demilitarization facility outside the continental United States (Smith, 1989), where destruction of these weapons has been underway since early 1990.

The exact types and amounts of chemical agents stockpiled by other countries are unknown. Russia is known to have a large stockpile, and possibly these were shared with members of the former Warsaw Pact. France has been reported to have chemical weapons. Many Third World countries undoubtedly possess a smaller stockpile, and Libya (at Rabta) and Iraq (at Samarra) have or had large manufacturing facilities.

IV. Toxicity

The four major nerve agents are tabun (GA), sarin (GB), soman (GD), and VX. Their structures and toxicological data in animals were presented in the previous chapter. Estimates of their toxicity in humans vary from source to source, but in general the LCt_{50} 's are estimated to be $400 \text{ mg}\cdot\text{min}/\text{m}^3$ for tabun, $100 \text{ mg}\cdot\text{min}/\text{m}^3$ for sarin, $50 \text{ mg}\cdot\text{min}/\text{m}^3$ for soman, and $10 \text{ mg}\cdot\text{min}/\text{m}^3$ for VX. [A Ct is the product of the concentration (C) of a vapor or aerosol and the time (t) in which one is exposed to that concentration. Thus, if the concentration is $5 \text{ mg}/\text{m}^3$ and a person (or animal) is in that concentration for 10 min, the person is exposed to a Ct of 5 times 10 or $50 \text{ mg}\cdot\text{min}/\text{m}^3$. This is not an exact measure of dose, as it does not consider minute volume, percentage retention of the compound, and other factors. The L and $_{50}$ have the same meaning as in LD_{50} , that is, a lethal dose for 50% of the population exposed.] For comparison, the LCt_{50} of hydrogen cyanide, regarded as a highly toxic compound, is 2500 to $5000 \text{ mg}\cdot\text{min}/\text{m}^3$.

The percutaneous LD_{50} s have been estimated to be 1000 mg for tabun, 1700 mg for sarin, 100 mg for soman, and 10 mg for VX. The disparities between these and the vapor LCt_{50} s have to do with the physicochemical properties of the compounds. The G compounds are much more volatile than VX (and volatility varies greatly among the three) and tend to evaporate from the skin surface rather than penetrate the skin. If evaporation were prevented by occlusion, the LD_{50} s would be more similar, since all these compounds readily penetrate the skin (and normal clothing).

The so called "nerve gases" are clear liquids under temperate conditions, and the preferred term is *nerve agents*. They are generally odorless, although GA has been reported to have a slight *fruity* odor and GD a slight, nondescript odor. The *G-agents* are volatile under temperate conditions and present a vapor hazard as well as a liquid hazard. Sarin is the most volatile, but is less volatile than water; soman and tabun, in that order, are less volatile. Under temperate conditions (25°C), VX presents a negligible vapor hazard, but its volatility increases as the temperature increases, so at 40 to 45°C, it too would present a vapor hazard.

V. Mechanism of Action

Nerve agents belong to a group of chemicals that exert biological effects by inhibiting the enzyme acetylcholinesterase (AChE). The two major categories of these chemicals are carbamates and OP compounds. Among the former are physostigmine (eserine), neostigmine (used in medicine for several decades), pyridostigmine (used in the therapy of myasthenia gravis, and recently fielded by the military of several countries as a pretreatment or *antidote-enhancing* compound), and dozens of commercially available insecticides (e.g., carbaryl, or Sevin®). The OP compounds include Malathion and dozens of other insecticides. A major difference between the nerve agents and these related compounds is potency. Using human erythrocyte, brain, and muscle ChE, an early *in vitro* study demonstrated that sarin had 10 times more inhibitory activity than TEPP, 30 times more than neostigmine, 100 times more than diisopropyl phosphorofluoridate (DFP; used in pharmacology and formerly used as a therapeutic drug), and 1000 times that of parathion (Grob and Harvey, 1958).

Acetylcholinesterase is a tissue enzyme which catalyzes the hydrolysis of acetylcholine (ACh), the neurotransmitter in the cholinergic portion of the nervous system. It is located at the nicotinic receptor sites (nAChR) and the muscarinic receptor sites (mAChR); these sites are so named because they can be stimulated by nicotine and muscarine respectively. Nicotinic sites include those on skeletal muscle and those at the termination of the preganglionic autonomic fibers. Muscarinic sites include those innervated by postganglionic parasympathetic fibers (which include the glands of the gastrointestinal and respiratory systems), those in the musculature of the gastrointestinal and respiratory systems, and those of the efferent organs of the cranial nerves (e.g., the heart via the vagus nerve).

Acetylcholine, the neurotransmitter, is released by a nerve impulse and diffuses across the synaptic cleft to combine with the receptor site on the postsynaptic membrane to produce a postsynaptic action potential, which initiates activity in the organ innervated. To prevent further postsynaptic action potentials, ACh is rapidly hydrolyzed by AChE, which attaches to the choline

moiety via its anionic site and to the acetyl moiety via its esteratic site. The resulting reaction produces choline, acetic acid, and the regenerated enzyme. If the neurotransmitter could not be destroyed, it would continue to produce postsynaptic action potentials and continuous activity in the organ. Nerve agents and related compounds inhibit the activity of the AChE by attaching to its active sites. Acetylcholine then cannot attach, is not hydrolyzed, and continues to produce action potentials until the mechanism is fatigued. The biological effects of ChE-inhibiting substances are the result of the excess ACh that cannot be hydrolyzed.

Carbamates initially attach to both the esteratic and anionic sites of AChE, but a moiety of the carbamate is immediately split off, leaving the enzyme carbamylated at the esteratic site. Decarbamylation of the enzyme requires minutes to hours (e.g., about an hour for physostigmine, 4–6 hr for pyridostigmine), and during this time, the enzyme is inhibited or inactive. In contrast, most OP compounds combine only at the esteratic site of the enzyme, and the time of dephosphorylation is determined by the structure of the attaching compound. For many OP compounds, cleavage from the enzyme does not occur, and enzymatic activity returns only with the synthesis of new enzyme. This is often referred to as *irreversible* inhibition of the enzyme, and most OP compounds are irreversible inhibitors. In contrast, carbamates are considered to be *reversible* inhibitors, since the enzyme inhibition is soon reversed by decarbamylation.

If one substance, e.g., a carbamate, is attached to the esteratic site, another, e.g., a nerve agent, cannot bind to that same site. The first compound then *protects* the enzyme from the second compound. This is the basis for the use of the carbamate pyridostigmine as a *pretreatment* compound for nerve agent exposure, which is discussed later.

A. Blood Cholinesterases

Other cholinesterases are found in the erythrocyte [erythrocyte, red blood cell (RBC), or *true* ChE] and in the plasma (serum, plasma, pseudo ChE). The latter, also known as butyrylcholinesterase (BChE) because of its very high affinity for butyrylcholine, is also found in tissue where its physiological function is unclear [although it apparently has a role in the canine tracheal smooth muscle (Adler *et al.*, 1990), the canine ventricular conducting system (Kent *et al.*, 1974), and the rat atria (Slavikova *et al.*, 1982)].

The activity of these *blood* ChEs can be determined in clinical laboratories and is used to monitor those who work around ChE inhibitors, e.g., crop dusters and depot workers, to provide a confirmation of intoxication by an inhibitor, and to follow the recovery of such a patient.

Butyrylcholinesterase is synthesized in the liver (and its activity is decreased in diseases of that organ) and has a replacement time of about 50 days. An uncommon familial abnormality in this enzyme renders one very susceptible to the effects of succinylcholine; this condition is best diagnosed by estimating the *dibucaine number* (Kalow and Genest, 1957). Temporal variation in BChE activity is large, with a reported difference of 50% over a year (Sidell and Kaminskis, 1975a). The enzyme activity is lower in women than in men (Sidell and Kaminskis, 1975b; Hayes, 1982), and even lower in women taking oral contraceptives (Sidell and Kaminskis, 1975b; Robertson, 1967; Whittaker *et al.*, 1971).

Erythrocyte ChE is synthesized with the erythrocyte, and after irreversible inhibition, the recovery rate is approximately that of erythrocyte turnover, i.e., about 1% per day. Activity is low in certain diseases of the erythrocyte, e.g., pernicious anemia, and high in reticulocytes (Hayes, 1982). In individuals studied for a year, the activity varied by 11% in men and 16% in women (Sidell and Kaminskis, 1975a).

1. Preferential Inhibition

After a small exposure, inhibitors usually preferentially inhibit one or the other enzyme. In humans DFP inhibited about 90% of the plasma enzyme, but only 20% of the RBC enzyme (Grob *et al.*, 1947; Ketchum *et al.*, 1973). Some pesticides preferentially inhibit the plasma enzyme, e.g., parathion (Rider *et al.*, 1969; Hayes *et al.*, 1964; Edson, 1964), systox (Rider *et al.*, 1969), and malathion (Hayes, 1982), whereas others initially inhibit the RBC enzyme, e.g., dimefox (Edson, 1964), mevinphos (Rider *et al.*, 1975). The nerve agent VX has a much higher affinity for the RBC enzyme in humans, as there was a 70% or greater inhibition in this enzyme, whereas the plasma ChE was inhibited by only 20% (Sidell and Groff, 1974; Sim, 1962). Sarin also preferentially inhibits the cellular enzyme in humans, e.g., 80–100% inhibition of the RBC-ChE with 30 to 50% inhibition of plasma ChE (Grob and Harvey, 1958; Ketchum *et al.*, 1973). This information is useful for occupational monitoring or to confirm a mild or moderate exposure, but after a large exposure, the activity of both blood ChEs is reduced to zero (Sidell, 1974). For monitoring purposes, the ChE to be used must be selected with knowledge of the preferential inhibitory activity of the ChE inhibitor being used.

2. Relation to Clinical Effects

The nerve agents primarily present a hazard by vapor and by liquid (Table I). The former will cause *local* effects in the organs of the unprotected face (eyes, nose) and in the lungs, and systemic effects by inhalation. Liquid will

Table I
Significant Clinical Effects of Nerve Agents in Humans

Eye	Miosis (uni- or bilateral), conjunctival injection; pain in or around eye; complaints of dim vision or blurred vision
Nose	Rhinorrhea
Mouth	Salivation
Pulmonary tract	Bronchoconstriction and secretions, cough; complaints of "tight chest," "shortness of breath;" on exam: wheezing, râles, rhonchi
Gastrointestinal tract	Increase in secretions and motility; nausea, vomiting, diarrhea; complaints of abdominal cramps, pain
Skin and sweat glands	Sweating
Muscular	Fasciculations ("rippling"), local or generalized; twitching of muscle groups, flaccid paralysis; complaints: twitching, weakness
Cardiovascular	Decrease or increase in heart rate; usually increase in blood pressure
Central nervous system	Acute effects of severe exposure Loss of consciousness, convulsions (or seizures after muscular paralysis), depression of respiratory center to produce apnea, coma Acute effects of small exposure or lingering effects (days to weeks) Forgetfulness, irritability, impaired judgment, decreased comprehension, a feeling of "tense-ness" or "uneasiness," depression, insomnia, nightmares, difficulties with expression

produce local effects in the organs under the skin (sweat glands, muscle) and systemic effects through percutaneous absorption. After exposure to a small amount of vapor, there is no good relationship between the severity of local effects and the amount of inhibition of blood ChE activity (Harvey, 1952; Craig and Woodson, 1959). These observations were borne out in a retrospective analysis of the records of 62 people seen at an emergency aid station because of one or more physical signs of nerve-agent exposure. As shown in Table II, the RBC-ChE activity varied greatly despite rather mild effects of the exposure.

In general, systemic effects in humans occur when the RBC-ChE is inhibited by 75 to 80% (to 20 to 25% of normal) (Sim, 1962; Sidell and Groff, 1974). In a study of the percutaneous application of VX, 30 subjects were

Table II
Cholinesterase—Relation to Signs and Symptoms

Effect	N	Range of RBC-ChE activity (% of baseline)
Miosis (bilateral)	22	0-100
Miosis (unilateral)	7	3-100
Miosis and "tight chest"	12	28-100
Miosis and rhinorrhea	9	5-90
Miosis, rhinorrhea, and "tight chest"	9	20-92
Rhinorrhea and "tight chest"	3	89-90

Table III
Cholinesterase Inhibition and Systemic Effects

Minimal RBC-ChE (% of control)	N	Vomited (n)	Vomited (%)
Above 50%	166	1	0.6
40-49%	24	2	8
30-39%	27	9	33
20-29%	42	19	45
Under 20%	24	16	67

asymptomatic with RBC-ChEs as low as 40% of control activity. Nine of 21 whose RBC-ChE activity was 30-39% had signs and symptoms, 10 of 14 with RBC-ChE activity between 20 and 29% had signs and symptoms, and 3 of 5 whose enzyme activity was under 19% had signs and symptoms (Sim, 1962). The data in Table III, a compilation from these and other individuals, suggest that systemic effects occur when the RBC-ChE is inhibited to 20% of normal.

3. Time Course of Inhibition

After vapor exposure, maximal inhibition of ChE activity and biological effects occur within minutes or even seconds. After percutaneous exposure to a large amount of agent (an LD₅₀ or greater), enzyme inhibition and onset of effects occur within 1 to 30 min, with the time inversely related to the amount of agent. After small amounts of agent, factors such as site on the body and environmental temperature are important. After equipotent amounts of VX were placed on the head or neck, effects occurred 5 hr later; the interval was

7 hr when the agent was placed on the extremities, and 10 hr when it was on the torso (Sim, 1962). In another study, effects did not occur until 18 hr after agent contact (Bowers *et al.*, 1964).

Temperature also affects rate of agent penetration through skin. Agent was applied at environmental temperatures ranging from 0° to 124°F. Three hr later the skin was decontaminated and the subjects taken to a recovery area (about 80°F). The RBC-ChE continued to decline, and maximal inhibition occurred at 5.6 hr (initial temperature of 124°F), 8.5 hr (68°F), 10.4 hr (36°F), and 12.2 hr (0°F) after exposure. The rate of RBC-ChE activity inhibition increased after the subjects were taken from the cold. These data also serve as a reminder that agent continues to penetrate through the skin after it has been decontaminated from the surface of the skin (Craig *et al.*, 1977).

VI. Effects on Organ Systems

The following paragraphs review available information on the effects of nerve agents on several organ systems in humans (Table III). This information is from studies done in the immediate post-World War II period, from evaluation of patients accidentally exposed to nerve agents and related pesticides, and from personal experience. Some areas were studied more intensive than others, and for some there are few human data, e.g., the neuromuscular system.

A. Eyes

The effects of nerve agents on the eye include miosis and conjunctival injection, and the patient may complain of pain in or around the eye, dim vision, or blurred vision.

Eye effects most commonly are the result of direct contact of the eye with vapor or aerosol agent. (Exposure to a Ct of 3 mg·min/m³ of GB vapor will produce miosis in most of the population.) After exposure to the agent by other routes, e.g., percutaneous, eye effects may not occur, or may have a very delayed onset, and will not be early evidence of exposure even though more severe effects have occurred. A nerve agent was administered percutaneously, intravenously, or orally to large groups of subjects; many had significant effects (vomiting, sweating, weakness), but none had miosis (Sim and Stubbs, 1960; Sim, 1962; Sidell and Groff, 1974). In 47 patients with parathion poisoning, all 14 severely affected people had miosis, but only 6 of 11 moderately affected and 5 of 22 mild patients had this eye sign (Namba *et al.*, 1971).

After vapor exposure, miosis begins within seconds to minutes, but may not be maximal for an hour or so if the concentration is quite small. The duration of miosis varies, depending on the amount of exposure. The pupils

may appear normal in outdoor or bright indoor light within several days, but their ability to dilate maximally in darkness may not return for 4 to 6 weeks (Rengstorff, 1985; Sidell, 1974).

Vapor or aerosol might cause miosis with no other evidence of exposure. As noted earlier, there is not a good correlation between the presence of miosis and blood ChE activity. However, an early study suggested a relationship between degree of miosis and amount (Ct) of exposure (Johns, 1952).

Unilateral miosis can occur and is usually owing to a leak in the eyepiece of a protective mask, or a volatile agent held close to an eye. The RBC-ChE may or may not be inhibited. The patient may have difficulty with depth perception (the Pulfrich stereo effect, discussed in Hayes, 1982), and the patient should be cautioned about this, e.g., when driving.

Dim vision is usually attributed to the decrease in pupil size. The area of the pupillary aperture correlated with decrease in visual sensitivity in one study (Stewart *et al.*, 1968). However, *dim vision* was demonstrated in the absence of miosis when nerve agent was administered systematically (Rubin and Goldberg, 1958), and dim vision was not present when miosis was produced by topical application of nerve agent to the eye (Rubin *et al.*, 1957). The dim vision could be reversed by the systemic administration of atropine, which enters the central nervous system, but not by atropine methylnitrate, which does not; neither drug altered the pupil size (Rubin and Goldberg, 1958). The authors suggested that neural mechanisms, probably mediated by AChE, in the retina or elsewhere in the central nervous system (CNS), contribute to the dim vision. Further evidence for this is that exposed individuals reported that dim vision regressed before the miosis changed (Craig and Freeman, 1953). Dim vision will remain well past the acute crisis and will cause the patient difficulty in dim light (e.g., he should be warned against trying to drive a car in the evening or at night).

Blurred vision is often a complaint, but in one study, individuals who were exposed to nerve-agent vapor had no change or an improvement in both near and far vision (Moylan-Jones and Thomas, 1973). Two presbyopic workers, accidentally exposed to a nerve-agent vapor, had improved vision until the agent effects decreased (Rengstorff, 1985). These and other authors have attributed the lack of significant change or improvement in acuity to the "pin-hole" effect of the small pupils.

Pain in or around the eye is a common complaint after exposure to nerve-agent vapor. It may be mild or severe, and may be localized to the eyeball or diffuse in the surrounding area or throughout the head. This is generally attributed to ciliary spasm and is markedly worsened by a bright light, e.g., the light from a match when lighting a cigarette. Local instillation of an anticholinergic drug (atropine, homatropine) will bring relief, and severe pain is the only indication for the use of a topical anticholinergic, as these drugs produce blurring of vision (Moylan-Jones and Thomas, 1973).

B. Nose

Rhinorrhea is common after exposure to a nerve-agent vapor and may precede miosis as the first indication of exposure. After exposure to only a small amount of agent, the rhinorrhea might be severe, like a "leaking faucet" or "worse than a cold or hay fever," according to patients.

After a severe exposure by any route, rhinorrhea occurs as part of a generalized increase in secretions, and is less noticeable and of less concern.

C. Lungs

A "tight chest" or "shortness of breath" is a common complaint of those exposed to small amounts of nerve-agent vapor, and as the Ct increases, the patient becomes progressively more severely dyspneic. Exposure to a Ct of 5 mg·min/m³ will cause dyspnea in most people. Bronchoconstriction and secretions from the cells of the bronchi, both with muscarinic receptor sites, contribute to this.

After an exposure to a large amount of vapor, respirations become gasping and irregular within minutes and may cease altogether if the amount of agent is great. Apnea also occurs within minutes of onset of effects from a large percutaneous exposure.

The onset time for respiratory distress is seconds to minutes after exposure to vapor. If the Ct is large, the patient will have observable signs of respiratory difficulty including cyanosis and audible pulmonary changes, and relief is obtained only after therapeutic intervention. On the other hand, after a very small exposure, it is not uncommon for the patient to have mild or moderate respiratory discomfort for 10 to 30 min, and then to have the discomfort dissipate over the following minutes. In this author's experience, people arriving at an aid station 15–20 min from the exposure site often reported "I had a lot of trouble breathing for a while, but I'm back to normal now." After percutaneous exposure, the pulmonary changes may occur within minutes or may be delayed for hours.

In addition to contributing to the dyspnea in a breathing patient, secretions may impede attempts at ventilation in an apneic patient. In several instances, thick mucoid plugs hampered ventilatory efforts until they were removed by suction. Atropine, by drying the thinner secretions, may contribute to the formation of this thick mucus.

Death in nerve-agent poisoning is from respiratory failure, which in animals studies occurred before circulatory failure (Wright, 1954; Rickett *et al.*, 1986). The contributing factors are bronchoconstriction and bronchosecretions that produce obstruction in the airways, weakness followed by a flaccid paralysis of the skeletal muscles (including the muscles of respiration), and failure of the central drive for respiration.

The relative contribution of each of these factors is unclear despite numerous studies over the past five decades. The lack of CNS drive was felt to dominate in most species, but there was variation between species and agents (DeCandole *et al.*, 1953). For example, bronchoconstriction was found to be much more severe in the dog than in the monkey (Johnson *et al.*, 1985), but in the rabbit, bronchoconstriction was a minor factor, and neuromuscular block and lack of CNS drive were the primary causes of respiratory failure (Wright, 1954). In a recent study in cats, loss of central drive was the predominant factor, whereas the contribution of bronchoconstriction was insignificant (Rickett *et al.*, 1986).

D. Skeletal Muscle

Skeletal muscle effects of nerve-agent intoxication include fasciculation, twitches (or jerks), and fatigue and paralysis. Generally, these are seen after an overwhelming exposure or as a local response to agent application on the skin.

Fasciculations are the visible contractions of a small number of fibers innervated by a single motor nerve filament, and look like ripples under the skin. They occur as a localized response to a drop of agent on the skin, and after a severe exposure, involve most skeletal muscle. Generalized fasciculations are a very characteristic sign of severe poisoning by this group of agents, and are seen in the acute phase and early in the recovery stage.

Twitches are severe and sudden unsynchronized contractions of large muscle groups, causing the limbs to flail about or momentarily to become rigid. Instead of twitches, sometimes there is prolonged contraction of muscle groups, particularly those groups near the site of exposure, e.g., an individual was exposed to soman near his mouth and had marked trismus and nuchal rigidity (Sidell, 1974).

After a few minutes of hyperactivity, muscles fatigue and become flaccidly paralyzed. Unless there is intervention, this is a terminal stage.

E. Heart

I. Rate

Although it is usually stated that ChE inhibitors cause bradycardia, this is not always true in human exposures. Bradycardia is to be expected in an isolated preparation in which the vagal nerve is the dominant influence on the heart. However, in severe poisoning there is adrenergic stimulation from the preganglionic cholinergic fibers, and there may be fright, hypoxia, and shock. The heart rate is the result of these competing factors.

In a review of the records of 199 patients seen for mild to moderate nerve-agent exposure (who had at least one definite sign of exposure), 13 had a presenting heart rate under 64 beats per minute (bpm), 13 had presenting heart rates of 65 to 69 bpm, 63 had heart rates of 70 to 80 bpm, 41 had heart rates of 81 to 89 bpm, 38 had heart rates between 90 and 99, and in 31, the heart rate was over 100. As a heart rate of 64 to 80 is considered normal for adults (Bellet, 1963), 13 (6.5%) had bradycardia, and 110 (55%) had high heart rates (69, or 35%, had rates over 90 bpm).

The initial heart rates have varied in reported severe insecticide exposures. In 10 severe patients (9 of whom had severe impairment of sensorium), the presenting heart rate was over 100 bpm in 7, and over 90 bpm in the other 3 (Ganendran, 1974). In another report, the heart rates of 3 unconscious patients were slow (1 had cardiac arrest) (Willems *et al.*, 1971). In a comprehensive review of OP insecticide poisoning, 2 unconscious patients were reported to have had heart rates of 100 and 80 bpm. The authors note that "blood pressure and heart rate are increased in the acute stage (p. 481). That the heart rate is an unreliable diagnostic sign was noted by its omission from a comprehensive list of signs and symptoms (Namba *et al.*, 1971).

A heart rate of 90 bpm or greater is sometimes suggested as an indication that adequate atropine has been administered to one intoxicated by a ChE inhibitor. As will be discussed later, the heart rate is of no value as a guide to therapy unless it is below 60 bpm, which suggests that atropine has been administered in inadequate amounts.

2. Rhythm

Disturbances in cardiac rhythm occur after nerve-agent intoxication, and most of those reported have been bradyarrhythmias because of the predominance of the vagus nerve. Heart block (first, second, and third degree), idioventricular rhythm, and premature ventricular complexes have been reported in animals exposed to nerve agents (Oberst *et al.*, 1956; Robineau and Guittin, 1987) and in humans exposed to OP pesticides (Kiss and Fazekas, 1979). The therapeutic drug atropine (2 mg, intramuscularly) can cause transient atrioventricular dissociation and a few minutes of bradycardia before the characteristic tachycardia.

Once tachycardia occurs, the other arrhythmias usually do not reappear and require no specific therapy. However, there are two causes for concern. *Torsade de pointes*, a rapid, multifocal ventricular arrhythmia, has been reported after nerve-agent poisoning in animals (Robineau and Guittin, 1987) and after OP insecticide intoxication in humans (Ludomirsky *et al.*, 1982). The second is ventricular fibrillation, which occurs in nerve-agent-poisoned hypoxic animals when atropine is administered intravenously (Freeman *et al.*, 1954; Kunkel *et al.*, 1973; Wills *et al.*, 1950).

the psychological changes. The onset of signs and symptoms, physical or psychological, occurred between 3 and 18 hr, and physical signs did not always accompany the psychological changes. Illogical or inappropriate trends in language and thinking and perceptual distortion (delusions, hallucinations) were not noted (Bowers *et al.*, 1964).

An individual severely intoxicated with soman exhibited psychological changes (withdrawal, depression, antisocial thoughts) in the days following the acute episode. In a controlled study, he was given scopolamine hydrobromide (a cholinergic blocking compound, with high CNS effectiveness) or scopolamine methylbromide (which does not enter the CNS). On the days he received the hydrobromide salt, he felt better and performed better on a test of cognitive function. This suggested that the centrally active drug blocked the effects of the remaining excess acetylcholine (Sidell, 1974).

These reported observations correspond to personal experience. Mild psychological disturbances are probably more common than usually recognized. Their incidence is higher after severe exposure, but they occur with some regularity in individuals with few or no physical signs of exposure. They begin hours to a day after exposure and may linger from days to many weeks. These people may appear irritable, they are forgetful ("for the first time in 10 years, I forgot my lunch"), they do not answer questions as quickly and precisely as usual, and they may exhibit impaired judgement, poor comprehension, and decreased ability to communicate. Gross mental aberrations, e.g., hallucinations or disorientation, are not part of the picture. These effects must be evaluated before discharging a patient from medical care.

2. Electroencephalogram

Electroencephalographic (EEG) changes after DEP administration to humans included greater variations in potential, increased frequency with increased beta rhythm, more irregularities in rhythm, and the intermittent appearance of abnormal waves. These changes usually followed the onset of CNS symptoms, could be correlated with depression of RBC-ChE (but not plasma ChE) activity, and were decreased or reversed by atropine (Grob *et al.*, 1947). An EEG of a person severely intoxicated by sarin, taken after the loss of consciousness, showed marked slowing with bursts of high-voltage five-per-second waves. These changes persisted for 6 days despite atropine administration (Grob, 1956).

After smaller amounts of sarin, EEG changes correlated with symptoms. Those individuals with mild symptoms had a slight diminution of voltage, and those with moderate symptoms had irregularities in rhythm, variation in potential, and intermittent bursts of abnormal waves. These changes persisted for 4 to 18 days after disappearance of symptoms and were decreased by atropine (Grob and Harvey, 1958).

3: Seizures and Brain Damage

Reviews (Levin and Rodnitzky, 1976; Karczmar, 1984) and case reports (Sidell, 1974) have described longer lasting psychological disturbances caused by OP insecticides and nerve agents. Generally, these lasted for weeks to months, but may remain for years (Duffy *et al.*, 1979). These may relate to findings in animals.

A series of studies in animals indicates that morphologic changes in the brain may occur after nerve-agent intoxication. In soman-poisoned rats (Lemercier *et al.*, 1983; Petras, 1981; McLeod *et al.*, 1984), monkeys (Wall, 1987; Petras, 1984), and baboons (Anzueto *et al.*, 1986), in sarin-poisoned rats (Singer *et al.*, 1987), and in VX-poisoned rats (McDonough *et al.*, 1987), neuronal degeneration and necrosis were seen on necropsy as long as 45 weeks after exposure. Hypoxia was suggested as the etiological factor, and in rats with bicuculline-maintained convulsions, there is evidence both for (Blennow *et al.*, 1978) and against (Soderfeldt *et al.*, 1983) this hypothesis.

In most instances there was a direct correlation between convulsive activity and brain damage, and between duration and severity of convulsive activity and severity of brain damage (although in several studies the investigators noted the lack of such activity). Brain damage after prolonged convulsive activity has been known since 1880 (Meldrum, 1983) and occurs after convulsions induced by other compounds, e.g., in rats after fluorothyl (Nevander *et al.*, 1985), and in baboons after bicuculline (Meldrum and Brierly, 1973). The mortality in humans with prolonged convulsions (over 30 min) was reported to be 6-30%, but twice that number have irreversible neurological deficits after the convulsive activity (Orlowski *et al.*, 1984).

Animals surviving severe soman intoxication had decrements in performance, as measured on a variety of behavioral tests, which lasted until sacrifice at 4 months (Raffaele *et al.*, 1987; McDonough *et al.*, 1986; Modrow and Jaax, 1987).

Diazepam, an anticonvulsant of the benzodiazepene family, was shown to control soman-induced convulsions in monkeys (Lipp, 1973) and other ChE inhibitor-induced convulsions in the rabbit (Rump *et al.*, 1972, 1973). In soman-poisoned rats, it decreased convulsions and brain damage (although without atropine, it did not decrease mortality) (Martin *et al.*, 1985). When given with 2-PAMCl, with or without atropine, diazepam reduced the severity but not the incidence of brain lesions in soman-poisoned rats (McDonough *et al.*, 1989). In monkeys, pretreated with pyridostigmine and challenged with soman followed by atropine and 2-PAMCl therapy, diazepam decreased the morphologic brain lesions in most areas of the brain, although those in the frontal cortex were increased (Hayward *et al.*, 1988). It has also been useful in ameliorating ChE-inhibiting insecticide-induced convulsions in humans.

At the USAF School of Aerospace Medicine, monkeys were trained to operate the Primate Equilibrium Platform (PEP), an apparatus designed to

gauge complex cerebellar-cortical function and fine motor control. After receiving several lethal doses of soman, the animals were all treated with atropine and 2-PAMCl, and some were given diazepam and some were not. Although the incidence of convulsions in the two groups was similar, those receiving diazepam convulsed for 11 min (mean), whereas the others convulsed for 98 min (mean). Those receiving diazepam performed much better on the PEP over the next 14 days (Blick *et al.*, 1989), and had less brain damage (one of eight survivors of the diazepam group had severe lesions, versus three of four non-diazepam survivors) (Switzer *et al.*, 1990).

Information from the few severe accidental human exposures that have been reported indicates that after a large dose, a person loses consciousness within seconds and has convulsive activity for several minutes, until it is terminated by cessation of breathing and flaccid paralysis. In these cases, medical intervention has prevented death, but it seems likely that had there been no intervention, death would have occurred. In no case was there prolonged convulsive activity, and possibly this would not occur because of the intervention of medical care or death. However, in at least one instance there was a suggestion of prolonged (4–6 weeks) mental impairment despite minimal convulsive activity (Sidell, 1974).

Pyridostigmine pretreatment (described in a later section) permits the survival of animals receiving many times the untreated LD₅₀ of soman. The animals maintain ventilation and continue to have convulsive activity for long periods. Under these circumstances the incidence of brain damage will be high unless the convulsions are stopped or ameliorated, e.g., with diazepam.

VII. Clinical Intoxication

After a large amount of nerve agent by any route of exposure, the clinical effects are precipitate in onset and catastrophic in magnitude. In most instances in which people have been accidentally exposed to these compounds, the exposure has been of less magnitude and the response less severe, and most scenerios of anticipated exposure of groups of people suggest many mildly to moderately exposed individuals for each severe casualty. The initial effects or the presenting signs and symptoms depend on the route and amount of exposure. The two most common routes of exposure are to vapor and to liquid (percutaneous).

A. Vapor Exposure

After exposure of an unprotected person to vapor, local effects are followed by more severe, systemic disturbances (Table IV). The initial effects of a small

Table IV.
Effects of Vapor Exposure to Nerve Agents^a

Exposure to small amount (local effects)

- Miosis
- Rhinorrhea
- Slight bronchoconstriction/secretions (slight dyspnea)

Exposure to moderate amount (local effects)

- Miosis
- Rhinorrhea
- Bronchoconstriction/secretions (moderate to marked dyspnea)

Exposure to large amount

- As above plus:
 - Loss of consciousness
 - Convulsions (seizures)
 - Generalized fasciculations
 - Flaccid paralysis
 - Apnea
 - Involuntary micturition/defecation
-

^a Onset within seconds to several minutes after onset of exposure.

amount of the agent are on the eyes, the nose, and the lungs. Involvement of one or more of these three organs is quite characteristic. Table II indicates the approximate incidence of involvement of these organs, singly or in combination, in an unselected group. These are local effects, or direct effects of the agent on the organ, and do not indicate systemic absorption of the agent (see section on ChE inhibition).

Eye effects are often the first to appear, since the eye is quite sensitive to these agents (the Ct_{50} of sarin to cause miosis is approximately $3 \text{ mg} \cdot \text{min}/\text{m}^3$). Dim vision is commonly the first symptom noted, particularly by those with previous exposure who quickly recognize this. The miosis and possibly conjunctival injection will be recognized by an observer. Rhinorrhea, which commonly accompanies this, may be mild or quite severe ("it was filling my mask"). Discomfort in breathing ("my chest is tight"), without objective signs of pulmonary involvement, may also be noted. However, each of this triad may occur without the others.

Further exposure causes an increase in secretions from the nose and the salivary glands, and an increase in pulmonary manifestations. Respiratory distress, accompanied by physical signs of bronchoconstriction and secretions, will be obvious to the observer. The patient will be gasping, and other objective signs of respiratory impairment (e.g., mild cyanosis) may be present.

Following an overwhelming exposure, the patient may lose consciousness within seconds, and develop convulsive activity within a minute or two. After

several minutes, respiratory arrest and flaccid paralysis intervene, and death will shortly follow without intervention. On examination, the patient will be unconscious or postictal, and will display miosis, copious secretions from the nose and mouth, apnea or labored and gasping irregular respiratory efforts, muscular twitching and generalized muscular fasciculations (a characteristic finding that may continue into the recovery phase), or a flaccid paralysis, and possibly evidence of involuntary defecation or micturition.

In instances of severe vapor exposure, the onset has been precipitate after as little as one breath of the vapor. One individual later recalled he noted an increase in secretions, and another reported feeling "giddy" or "faint" before losing consciousness. Neither had time to react, and both were unconscious within a minute of exposure.

After vapor exposure the biological response begins within seconds, and unless the concentration is quite small, reaches maximal intensity within minutes. After vapor exposure ceases (removal from the area, masking) the response does not significantly increase.

B. Percutaneous Exposure (Liquid)

Percutaneous exposure differs from vapor exposure in several important aspects. The local effects may be insignificant and commonly are not noticed. Even after a lethal amount on the skin, there is usually a delay in onset of response. The onset of effects may be hours after removal of agent from the skin (decontamination), and the response may continue to worsen once begun (Table V).

A small amount of liquid percutaneously causes the local responses of increased sweating and muscular fasciculations around the site. Unless one knows of the exposure, these are usually not noticed. Later, systemic effects may follow and consist of gastrointestinal signs and symptoms (nausea, vomiting, diarrhea) and a feeling of "tiredness" or "weakness," sometimes accompanied by muscular twitching or fasciculations, or by psychological manifestations. The onset of these may be as long as 18 hr after exposure and has also been reported 3 hr after decontamination (see earlier section of time course of ChE inhibition). The response may increase as the agent continues to be absorbed, with moderate to severe respiratory distress and more severe muscular manifestations following.

In several instances of severe exposure, an asymptomatic period of 10 to 30 min preceded a precipitant onset of loss of consciousness, convulsive activity, and cessation of respiration minutes later (e.g., Sidell, 1974). Before

Table V
Effects of Dermal Exposure to Nerve Agents

Minimal exposure
Increased sweating at site of exposure
Muscular fasciculations at site of exposure
Moderate exposure
Increased sweating at site
Muscular fasciculations at site
Nausea, vomiting, and diarrhea
Feeling of generalized weakness
May be precipitant in onset after long (4-18 hr) asymptomatic interval
Severe exposure
Above may be present
Loss of consciousness (may be precipitous in onset after asymptomatic interval)
Convulsions (seizures)
Generalized fasciculations
Flaccid paralysis
Apnea
Involuntary micturition/defecation

apnea and paralysis occur, this is accompanied by miosis, increased secretions, muscular twitching and fasciculations, and possibly involuntary micturition and defecation.

VIII. Medical Management

The principles of care for a nerve agent-intoxicated person are the same as those for any toxic substance exposure, namely terminate the exposure, maintain ventilation and circulation, and administer antidotes.

Often overlooked is the need for the medical care provider to protect himself. If contaminated, he will become an additional casualty. This advice seems obvious, yet as recently as the Iran-Iraq conflict, there were stories that contaminated casualties were sent to Europe for medical care, and the care providers (not wearing protective apparel) who received them suffered effects from agent remaining on the patients or on their clothing.

Protection can be achieved by wearing protective apparel (an appropriate protective mask, heavy rubber gloves, heavy rubber apron, or encapsulation) or by ensuring that the casualty is completely decontaminated.

Whether first to terminate the exposure, establish ventilation, or to administer antidotes will depend on the condition of the patient and facilities

available. Their order in the following does not necessarily suggest the order in which they should be undertaken.

A. Terminating the Exposure

If the hazard is from vapor alone (i.e., no possible contact with liquid agent), termination of the exposure is as simple as removing the patient to a toxic-vapor-free environment. If the agent is in a room or building, removal of the patient from that structure may be all that is necessary. If outside, this requires knowledge of the magnitude of the agent cloud and wind direction, and the distance to clean air might be longer than can be traversed quickly. An alternative is to put a protective mask on the patient, but this could interfere with ventilatory support if this is needed. In the military, the M17A2 mask provides considerable protection if properly fitted and sealed, and in the civilian community, a Self-Contained Breathing Apparatus (SCBA) or another device would be adequate. These may not always be available on the site, and there are difficulties in fitting them to a struggling patient.

Terminating the exposure usually involves removing liquid agent from skin and clothing, or decontamination. Clothing should be removed as early as possible. If the site is well localized, that section should be cut away leaving wide margins, but if the extent of the contamination is unknown, all clothing should be removed and the underlying skin thoroughly decontaminated. Clothing offers negligible protection from nerve agents.

Decontamination may be accomplished by physical removal or by neutralization of the agent. When droplets can be seen, they can be blotted off (care should be used, because scraping or wiping abrade the skin, enhancing agent penetration) followed by flushing with water, or rinsed off with copious amounts of water. The agents can be neutralized with alkaline solutions (soap and water) or chlorine-releasing substances (e.g., household bleach), but these solutions may damage the skin (current policy in the military is to use 0.5% hypochlorite instead of bleach, which is 5%, but in a military setting, a further rinse with water may not be possible). These should be followed with water. Neutralization is not immediate and may take an hour or longer for completion.

Personnel in the military use the M258A1 kit for personal decontamination. This contains sets of two towelettes, one containing a hydroxide and phenol and the other chloramine, a chlorine-releasing compound.

Most civilian emergency medical facilities are not equipped for the entry of contaminated patients. An appropriate facility will have a negative-pressure, filtered-air system to reduce the vapor hazard for the staff and the rest of the building, and a drainage system to contain the contaminated washoff produced during the decontamination procedure. It will also have an adequate

supply of protective clothing for those who perform decontamination of the patient and for the medical care providers who treat the patient before decontamination.

Decontamination is performed to reduce further absorption of the agent as well as its spread to unexposed areas of the casualty, and to prevent spread of the agent to others who handle the patient.

B. Ventilation

Respiratory embarrassment is a feature of all but the mildest exposures to nerve agents. In conscious patients who have received a small to moderate amount of agent, administration of the antidote(s) will usually reverse the bronchoconstriction, reduce the excess secretions, and provide relief within minutes. Ventilatory support is seldom required under these circumstances, although if the patient is known to have cardiac or pulmonary disease or is elderly, supplemental oxygen may be beneficial.

Inadequate ventilatory efforts followed by apnea occur after a large exposure, and the antidotes are seldom totally effective in reversing this. After endotracheal intubation, assisted ventilation (preferably with oxygen) must be started and continued until the patient has adequate spontaneous respiration (which in reported cases has ranged from 0.5 to 3 hr). In the absence of personnel skilled in intubation, ventilation must be undertaken by whatever means are available.

Airway resistance is initially high (50–70 cm H₂O) because of the constriction of the airway musculature and copious secretions, and initial attempts at ventilation may be only partially successful. Atropine will reverse these effects, once adequate amounts are given. However, in at least one case, the administration of atropine seemed to thicken the secretions, and attempts at ventilation were unsuccessful until the mucoid plugs were suctioned from the airways.

In the absence of a ventilator, mouth-to-mouth ventilation might be considered. In a toxic environment (vapor), the rescuer will be at risk, and there is also the risk that the patient has contamination on his face. A smaller risk is the expired air from the patient, as less than 10% of inhaled nerve agent is exhaled, most immediately after exposure.

The Schafer method of assisted ventilation was once used briefly in a severe casualty, but even in an individual with normal airways, it provides less than optimal air exchange.

In the severe patient from nerve-agent intoxication, impairment of respiration or total apnea will occur. Although the antidotes will reverse mild or moderate impairment, they are of little benefit against apnea, and assisted ventilation is required for survival.

C. Atropine

Atropine is the drug of choice for intoxication by a ChE-inhibiting substance. Although a second drug, an oxime, provides synergistic benefit against most of these substances, the use of atropine alone (with ventilation) will support survival in most cases.

Atropine blocks the effects of excess ACh and protects the receptor from further stimulation. Atropine is most effective at muscarinic receptor sites and has minimal effects at nicotinic receptor sites.

The mutual antagonism of a ChE-inhibiting compound and a cholinergic blocking compound was first recognized over a century ago (Argyll-Robertson, 1863). In the past five decades, many cholinergic blocking compounds were studied as antidotes to nerve agents. In general, almost any compound with cholinergic blocking activity has antidotal activity. Those with higher lipoid solubility (better penetration into the CNS) have some benefits, but also have more side effects if administered erroneously or too aggressively to someone with a mild exposure.

In the post-World War II period, atropine was selected because it was effective and because its side effects were tolerable. In the same period, the military selected the dose of 2 mg for an injector for self or buddy use by military personnel. It was recognized that the selection was a compromise between the therapeutically desirable dose and an amount that could be administered (self or buddy) to a nonintoxicated individual safely and without causing damaging performance decrements.

The side effects of 2 mg of atropine in a normal young person (without nerve-agent exposure) are an increase in heart rate (of about 35 bpm, which usually is not noticed by the recipient), drying of secretions (those in the mouth are most noticeable), decrease in sweating, mydriasis, and paralysis of accommodation. Most effects dissipate in 4 to 6 hr, but visual blurring may continue for 24 hr or longer. A potentially serious effect in non-nerve agent-poisoned individuals is inhibition of sweating, which is hazardous if the temperature is elevated, and the individual is performing work. Thirty-five soldiers successfully hiked for 115 min at 3.3 miles per hour in 83°F weather, but on another day at the same temperature, after receiving 2 mg of atropine, more than half did not complete the march because of core temperatures of 103.5°F (Robinson *et al.*, 1953).

When administered intravenously, atropine (2 mg) will produce a maximal effect on the heart rate in about 3 to 5 min. and other effects follow several minutes later. The use of the Atropen[®] injector (the device used by the military; Survival Technology Inc., Bethesda, Maryland) for intramuscular atropine administration enhances the rate of absorption, and maximal tachycardia is seen at 34 min (versus 41 min by conventional administration) (Sidell *et al.*, 1974).

Atropine is effective at those sites with muscarinic receptors. After its use, secretions will dry, constriction of smooth muscle will be reversed, and the clinical signs and symptoms caused by abnormalities at these sites will be reduced. Atropine has negligible effects at sites with nicotinic receptors; skeletal muscle twitching and fasciculations may continue long after the patient is otherwise recovering, and their continued presence is not an indication for further atropine. Similarly, systemic atropine, unless given in large amounts, will not reverse miosis, and this eye sign should not be used as an indication for further atropine administration.

Atropine should be started as soon as possible after onset of agent effects, and the initial dose should be at least 2 mg and as much as 6 mg or more. Intravenous administration should be avoided if the patient is hypoxic (risk of ventricular fibrillation), but after ventilation is undertaken, this is an excellent route. If the patient is hypotensive, atropine administration intratracheally or into an endotracheal airway (if one is in place) should be considered for more rapid absorption by the peribronchial vessels. In a mildly or moderately symptomatic patient, an interval of 5 to 10 min between doses is acceptable, and usually a total of 2 to 4 mg will be adequate. In a severely intoxicated person, more frequent administration is needed initially.

In a handful of cases, the total atropine dose in severe patients was in the range of 5 to 20 mg. In contrast, people with severe OP insecticide poisoning have required 500–1000 mg daily for a week or longer. An intravenous drip of atropine has been used in some cases because of the necessity for frequent repeated atropine administration over a long period in pesticide poisoning (LeBlanc *et al.*, 1986). Pesticides cause continuing episodes of acute cholinergic crisis that may continue for days to weeks, possibly because they are sequestered in depots in the body and/or are metabolized more slowly. In contrast, once the acute crisis is over, which is usually a matter of hours, patients with nerve-agent intoxication continue to recover with minimal recurrent evidence of cholinergic stimulation. These differences must be recognized and understood.

Atropine should be continued until secretions are minimized and until ventilation is adequate. For reasons discussed earlier, the heart rate is not a reliable indication of the adequacy of atropine administration, except that bradycardia suggests additional atropine is indicated. A conscious person will indicate comfort in breathing; in an unconscious person, this can be gauged by ease of ventilating.

In general, it is better to err on the side of giving too much atropine rather than too little. If the diagnosis is in error, an overdose of atropine will cause transient side effects, but too little atropine will allow the unantagonized effects of nerve agent to continue unabated.

D. Pralidoxime

Oximes greatly enhance the therapeutic activity of atropine against poisoning by many ChE inhibitors, but are not effective when administered alone. The oxime in use in the United States is 2-PAMCl (pyridine-2-aldoxime methochloride; pralidoxime chloride; Protopam[®] chloride). Other oximes are preferred by other countries, e.g., P₂S by the United Kingdom.

In the early 1950s, Wilson and associates (Wilson, 1951; Wilson and Ginsburg, 1955) found several types of compounds that would remove the inhibitor from ChE much faster than spontaneous hydrolysis by water. Based on research in both military and civilian laboratories, 2-PAMCl was selected for use.

The pharmacological action of oximes is to remove the OP compound from the inhibited enzyme, but there are limitations to the therapeutic benefit of this. After the OP compound attaches to the enzyme, the inhibitor-enzyme complex may become resistant to cleavage or hydrolysis by certain compounds, a process known as *aging*. The rates of spontaneous hydrolysis and aging depend on the structure of the inhibitor (a more detailed discussion of this process is beyond the scope of this chapter; the interested reader should see, e.g., Koelle, 1975). The clinical importance is that oximes are relatively ineffective after aging occurs.

The VX-inhibited RBC-ChE complex spontaneously reactivates at about 0.5 to 1.0% per hour for the first 48 hr and ages very little during this period (Sim and Stubbs, 1960; Sim, 1962; Sidell and Groff, 1974). Tabun also has a long half-time for aging, about 46 hr (deJong and Waring, 1978). About 5% of a sarin-RBC-ChE complex spontaneously reactivates, and the half-time for aging is about 5 hr (Sidell and Groff, 1974). The soman-enzyme complex does not spontaneously reactivate, and ages in about 2 min (Harris *et al.*, 1978). For this reason, oximes contribute little to the therapy of soman intoxication. Clinically, oximes do not noticeably reverse effects in organs with muscarinic receptors, but do decrease abnormalities in organs with nicotinic receptors (e.g., skeletal muscle).

The recommended dose of 2-PAMCl is 15–25 mg/kg, but the required dose depends on the inhibitor and the interval between poisoning and administration. A concentration of 4 mcg/ml was found to reverse the sarin neuromuscular block in cats (Sundwall, 1961), and a plasma concentration of 6.5 mcg/ml can be achieved by 600 mg given intramuscularly by the ComboPen[®], an autoinjector used by the military (Sidell *et al.*, 1974). The oxime 2-PAMCl, 15–20 mg/kg intravenously, reactivated over 50% of the inhibited RBC-ChE 3 hr after sarin administration (Sidell and Groff, 1974). In animal studies, the protective ratio (PR; the ratio of the LD₅₀ with a specific treatment to the LD₅₀ with another treatment or no treatment) increased from 25 to 90 in sarin-poisoned rabbits when the dose of

intravenous oxime was increased from 5 to 10 mg/kg (O'Leary *et al.*, 1961); it changed from 1.6 to 4.2 when the dose of intramuscular 2-PAMCl was raised from 30 to 120 mg/kg in sarin-poisoned rats (Davies *et al.*, 1958); and it increased from 1.9 to 3.1 after intramuscular 2-PAMCl was increased from 11.2 to 22.5 mg/kg in VX-poisoned rabbits (Sidell *et al.*, 1968). In the first two studies, therapy was administered immediately after agent, and in the third, at the onset of signs. No ventilation was used.

The oxime should be given intravenously and is commercially available in vials containing 1 g cryodesiccated 2-PAMCl for this purpose. Slow administration, over 20 min, will minimize the hypertension that may occur at doses above 15 mg/kg or after rapid administration (Calesnick *et al.*, 1967). Hypertension can be quickly but transiently reversed by phentolamine (5 mg, i.v.) (Fig. 1). Other side effects, which may occur at much lower doses (2.5–10 mg/kg), include dizziness, blurred vision, diplopia, and nausea and vomiting, but these are insignificant in a seriously poisoned person.

A solution for intramuscular use can be made by mixing the contents of a 1-g vial with 3 ml sterile water or saline. This produces a concentration of 300 mg/ml, which is what is in the autoinjector (600 mg/2 ml) for the military. A plasma concentration of 4 mcg/ml occurs at 7 min after autoinjector administration (versus 10 min by conventional administration) and a maximal

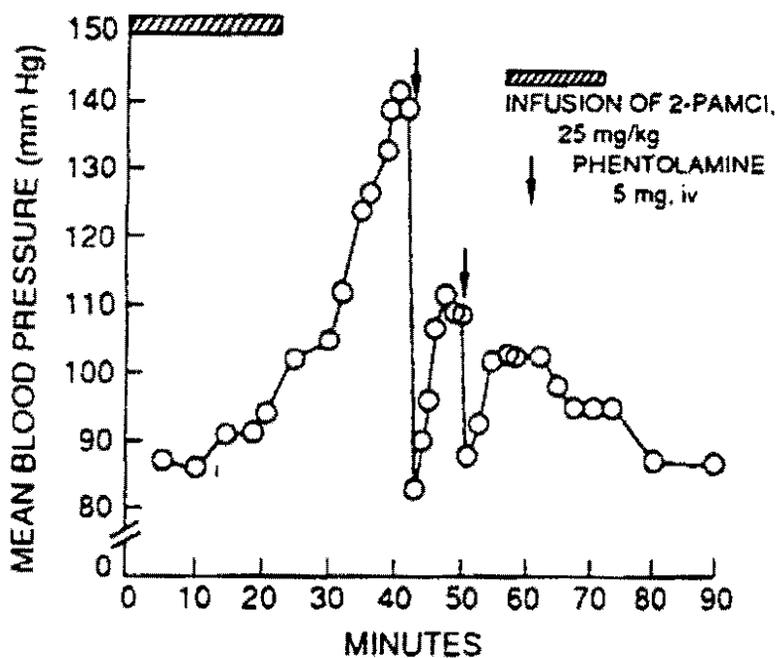


Figure 1 An infusion of 25 mg/kg of 2-PAMCl over 25 min produced marked hypertension, which was rapidly, but transiently reversed by phentolamine, 5 mg. The mean blood pressure is the diastolic plus one third of the difference between the systolic and diastolic.

concentration occurs at 19 (autoinjector) or 22 min (conventional) (Sidell *et al.*, 1974). Doses of 2.5 to 30 mg/kg, i.m., in normal subjects caused no signs or symptoms except pain at the site and mild blood pressure elevation (Sidell and Groff, 1971; Swartz and Sidell, 1974).

The drug is rapidly and rather completely excreted intact in the urine (80–90% within 3 hr) and has a plasma half-life of about an hour (Sidell and Groff, 1971). Its renal clearance is close to that of para-aminohippurate, suggesting tubular secretion (Swartz and Sidell, 1974), and is decreased by heat and/or exercise (Swartz and Sidell, 1973), and by thiamine, which prolongs the half-life and increases the plasma concentration of the oxime (Swartz and Sidell, 1974; Josselson and Sidell, 1977, 1978). Because of its side effects (particularly hypertension) and half-life, repeated administration of 2-PAMCl should be at hourly intervals.

A tablet of 0.5 g 2-PAMCl was commercially available, but the relative slowness of absorption of the drug by this route and the high dose required (5 g, or 10 tablets) limited its use (Sidell *et al.*, 1969).

Although the rapid aging of the soman–ChE complex suggests that 2-PAMCl is of no value in soman poisoning, animal studies suggest it is of some benefit (J. Fleisher, personal communication, 1970; J. von Bredow, personal communication, 1989). It causes a small (5–10%) reactivation of the inhibited blood enzyme (J. von Bredow, personal communication, 1989), and possibly acts as a cholinergic blocking agent at the nicotinic sites (J. Fleisher, personal communication, 1970) or improves circulation by stimulating release of catecholamines (J. von Bredow, personal communication, 1989).

With a few exceptions, oximes are generally not beneficial in carbamate intoxication, and may intensify the effects of the poison with some carbamates, e.g., carbaryl (Sevin[®]). The manufacturer's brochure should be consulted.

E. Specific Problems

1. Seizures

As detailed earlier, severe poisoning from nerve agents and related substances causes seizure activity, and prolonged seizure activity is associated with morphologic brain damage and performance decrements, at least in animals. Because of this, the U. S. military (and the military forces of other countries) has fielded an autoinjector containing diazepam for buddy or medical use.

Diazepam should be administered to a patient with seizure activity, and also should be administered to those in the *pre-convulsive* phase. This may be defined as someone who has moderate or severe signs of poisoning in more than one organ system (e.g., respiratory and gastrointestinal systems). This patient should also receive at least 6 mg atropine as an initial dose (see the

following). The dose of diazepam is 10 mg, i.m., (or a smaller amount, 2–5 mg, i.v.) initially, with additional doses as required.

2. Cardiac Arrhythmias

Usually, undesirable cardiac arrhythmias terminate when the atropine-induced sinus tachycardia begins. The danger of i.v. administration of atropine in a hypoxic patient has been mentioned.

A young patient poisoned with an insecticide had persistent ST wave elevation and T wave flattening on her electrocardiogram (EKG), felt to be owing to persistent tachycardia caused by large amounts of atropine. After her heart was pharmacologically *isolated* with propranolol, a beta-adrenergic blocking drug, her heart slowed to 107 bpm and her EKG normalized despite further large amounts of atropine (Valero and Golan, 1967). This drug might be useful under these circumstances.

3. Eyes

The temptation to treat miotic pupils with i.m. or i.v. atropine, particularly in a patient with no or few other signs of exposure, must be tempered by the knowledge that the amount of atropine needed to reverse this effect will cause undesirable side effects, even in a healthy young person.

Miosis can be reversed by the topical instillation of ophthalmic preparation of atropine, homatropine, or other drugs (Moylan-Jones and Thomas, 1973), but this will produce blurred vision for a day or more. Except in dim light, vision is not noticeably impaired with miosis. The only indication for topical therapy is intractable pain in or around the eye, for which topical therapy will supply relief.

During the therapy of systemic effects, the adequacy of atropine dosage should not be judged by dilatation of miotic pupils. The amount of secretory activity and ease of ventilation are the proper indicators for atropine administration.

F. Pretreatment

A previous chapter presented the data for the advantages of administering a carbamate before exposure to a nerve agent, and an earlier section in this chapter briefly outlined the molecular basis for this. Studies on physostigmine (described in the previous chapter) demonstrated its effectiveness, but this drug has two disadvantages for human use. At the doses required to produce the desired degree of RBC-ChE inhibition, it caused side effects (D'Mello and Sidell, 1991), and the half-time of the drug in humans is rapid (about an hour),

which would necessitate very frequent dosing (*sustained release* oral preparations and other methods of producing a prolonged absorption have proven unsuccessful). Pyridostigmine was developed by the military (in the United States and other nations) for use against the threat of soman exposure. Pre-administration of pyridostigmine to animals challenged with soman and treated with atropine and 2-PAMCl permitted them to survive much larger challenges of soman than they could without the pretreatment (see previous chapter).

Pyridostigmine alone, without atropine and 2-PAMCl therapy after agent challenge, is ineffective; i.e., it does not change the LD₅₀ of the agent. Pyridostigmine given after agent challenge is likewise of no benefit; i.e., it is not an antidote. Pyridostigmine administered before agent challenge does not reduce the effects of the agent. Most important, there is no evidence that pyridostigmine is of any benefit against nerve agents with slower aging times; i.e., when used before sarin or VX challenge, it does not notably change the LD₅₀ compared to that resulting from the use of therapy alone (Koplovitz *et al.*, 1991). It should be used only when the threat is soman.

G. Therapeutic Guidelines

The goals of therapy are to minimize the patient's discomfort and distress, and to stop or reverse the disease process. Discomfort in a conscious patient might be dyspnea, nausea and vomiting, or eye pain. To relieve distress might include terminating convulsive activity and restoring adequate oxygenation. Stopping or reversing the disease process includes correcting these and other abnormalities.

Goals must be realistic. Current drugs will not immediately restore consciousness and spontaneous respiration, nor will they immediately reverse skeletal muscle abnormalities (the twitches and fasciculations may continue long after the patient is conscious, breathing adequately, and otherwise in control of the muscular system). It is futile to give increasing amounts of the antidotes in anticipation of immediate reversal of all functions. Adequacy of ventilation is the most important goal; when this is maintained, normal function in other organs will gradually return.

Analysis of blood for ChE activity is useful for occupational monitoring, but in an exposed patient, one treats the patient, not the ChE activity. If facilities are available, this analysis should be done to document the exposure and to monitor the recovery process (including the effectiveness of the enzyme reactivator). Individuals at risk from occupational exposure to ChE inhibitors (e.g., orchard workers, crop dusters) undergo frequent monitoring and their *normal* or *baseline* value is a matter of record; when they are potentially

exposed, but asymptomatic, their ChE activity might provide evidence of absorption. In an *unbaselined* population, drawing blood for this purpose is of less value because there is a large interindividual range of normal enzyme activity, and it usually takes several days to obtain the results of the analysis.

In the care of any type of chemical agent casualty, the foremost concern of the medical care provider must be to protect oneself (whether by protective apparel or by ensuring that the casualty has been thoroughly decontaminated).

1. Suspected

The management of an asymptomatic person who has been in an area of agent contamination is a matter of judgement. If it is certain that the potential exposure was by vapor alone (the person was some distance from a liquid spill, but possibly was in the vapor cloud), signs and symptoms will appear quickly if the person was in contact with the agent. Because effects from vapor occur within seconds to minutes, if these are not present by the time medical assistance arrives, they most likely will not occur, and the individual needs no further medical attention.

An asymptomatic person who has had liquid agent on his clothing or skin should be decontaminated and observed. Minimal decontamination should include cutting away or removing the clothing in the area of contamination and decontaminating the skin underneath. Stripping the person and thoroughly decontaminating the skin is a more certain means of removing all contamination. Since the onset of effects has been reported as long as 18 hr after exposure, observation should be continued for this period.

2. Mild

A person with miosis (and other eye effects) and/or rhinorrhea will generally not require the antidotes unless the rhinorrhea is severe and distressing or the miosis is causing severe pain. The former requires systemic atropine (2 mg should be adequate); the latter, a topical drug (but see comments, earlier).

When dyspnea is present from vapor only (no possibility of liquid exposure), the initial dose of antidotes should match the severity of the discomfort. If the exposure was small, the dyspnea might be improving or almost resolved 20–30 min after the exposure when medical personnel arrive. Whether to administer the antidote will depend on the patient's discomfort and rate of spontaneous recovery and one's ability to observe the patient for worsening of the effects over the next 10–15 min, although the occurrence of this is very unlikely. Those with mild to moderate dyspnea, which is not resolving, should be given 2–4 mg atropine. An interval of 5 to 10 min should intercede before further drug administration, and usually in a 10-min

interval, there will be improvement (sooner if the initial atropine is given i.v.). A patient with severe dyspnea and distress should be treated with 4 to 6 mg atropine initially. Atropine is very effective in reversing bronchoconstriction and secretions, and if there are no more serious consequences of the vapor exposure, this amount will be adequate. In the military, injectors containing the oxime 2-PAMCl are packaged with the atropine injectors, and instructions are to administer one with each of the first three atropine injectors. Where these are not available, 2-PAMCl (1 g) should be given very slowly intravenously to an individual with definite signs of exposure to the agent.

If the patient is seen within 5 min of vapor exposure (self or buddy aid), therapy should be more aggressive, and 2 mg atropine should be administered for any signs of agent effects, 4 mg if any dyspnea is present, and 6 mg for moderate to severe dyspnea. Although effects from agent vapor exposure occur quickly, they may increase in severity beyond the first few minutes, and the added therapy is in anticipation of this progression.

In contrast to events in a vapor-exposed patient, the progression is more difficult to predict in one exposed to liquid. Signs and symptoms might begin as long as 18 hr after contact with agent, and even 3 hr after decontamination of the skin. For these reasons, the observation of sweating or muscular fasciculations at the known site of agent contact usually portends more severe consequences.

The amount of initial therapy after contact to liquid is also guided in part by the interval between exposure and onset of effects. Gastrointestinal symptoms beginning 6 hr after exposure (and initial decontamination) can be reversed by 2 mg atropine, or at most by an additional 2 mg if the initial dose does not cause marked relief. If these symptoms begin earlier, i.e., an hour or so after exposure, 4 mg should be given initially. Again, 2-PAMCl should be administered.

3. Moderate

A patient with moderate involvement of several organ systems, i.e., respiratory distress, gastrointestinal symptoms and signs, and/or muscular twitching, should always be given 6 mg atropine initially (with 2-PAMCl), whatever the route of exposure or time of onset. Diazepam should also be administered even in the absence of seizure activity. If contact was to vapor only, this should be adequate therapy, although rarely additional atropine might be required. If exposure was to liquid, drug administration should be more aggressive, and additional atropine should be given if there is no definite improvement within 5 to 10 min. Again, the guidelines for adequate atropine administration are drying secretions (which will be copious in all but the mildest exposures) and adequacy of ventilation. Recovery is almost certain when there is no seizure activity, respiration does not stop, and consciousness is not lost.

of a serious regression is negligible (in contrast to poisoning by an insecticide, in which serious cholinergic crises occur repeatedly for days to weeks).

I. Return to Duty

Return to work or to duty depends on the requirements of the job, the necessity for return, and visual abilities and mental status. If the job does not require strenuous physical exertion, fine visual discrimination, or critical mental judgements, the patient might return within a week or two. These factors must be evaluated before sending the patient back. In particular, a careful mental status examination must be performed to detect subtle decrements if the job requires an intact cognitive capability and rapid decision making. An air traffic controller might not return for several months because of slow or poor judgment and difficulty in visualizing and following lights on a screen.

After repeated mild exposures, workers in a laboratory/depot area stopped seeking medical assistance after they developed miosis and rhinorrhea. They preferred to continue working rather than undergo the administrative processes, and they continued to function satisfactorily, although their jobs did not require decision making and fine visual abilities. Soldiers with miosis, rhinorrhea, and mild dyspnea performed satisfactorily (although suboptimally) in a field exercise during the day, but did not do well at night.

A necessity for an individual to return to the job sooner than medically desirable is usually not present in the civilian world. However, in a battle zone a medical unit under attack might require the return to duty of any casualty who can walk and use a weapon. After several days of recovery, most nerve agent casualties, even those who had sustained severe exposures, could perform, although their performance might be less than optimal.

IX. Conclusion

Nerve agents are extremely toxic chemicals capable of causing death within minutes of exposure. Therapy can prevent lethality, but such assistance must be early and intense. Because of pretreatment, self-help, and buddy help, most battlefield casualties will survive.

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SUMMARY

Problem.

Recently, Persian Gulf War veteran research has been a major focus of federal and public attention. Due to the increasing interest and the need to continue to compile relevant references for the Gulf War investigators, we felt it was necessary to maintain a master bibliography for Persian Gulf War epidemiological research.

Objective.

The primary objective was to compile a master bibliography of the Persian Gulf War and related topics of research for federal investigators.

Approach.

This document was framed around a bibliography of the Persian Gulf War and associated topics, prepared by Jacqueline Van de Kamp, M.L.S., Specialized Information Services, National Library of Medicine, and John H. Ferguson, M.D., Office of Medical Applications of Research, National Institutes of Health. Their task was undertaken largely in preparation for the NIH Assessment Workshop on "The Persian Gulf Experience and Health," held in Bethesda, MD, April 27-29, 1994. Containing 594 citations, their bibliography became part of the National Library of Medicine's Current Bibliographies in Medicine (94-3).

We downloaded the Van de Kamp-Ferguson bibliography from the NIH's World Wide Webb site, and added to their work, revising the reference categories to reflect the changing trends in Persian Gulf research. While continuing to monitor for new references, we reviewed select references from the Van de Kamp-Ferguson bibliography, and additional references supplied by our colleagues. These manuscripts and their bibliographies led us to additional pertinent references, which we continue to add.

Results: We currently have 1,779 references, and we plan to continue expanding it, as more literature regarding the Persian Gulf War is published.

Conclusions. In addition to publication as a Navy Technical Document, copies of this work may be obtained from the Defense Technical Information Center's Gulflink on the World Wide Web: <http://www.dtic.dla.mil/gulflink>. We will continue to update this bibliography on the Gulflink.

We appreciate suggestions for further additions, corrections, or improvements to this bibliography.

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Chemical Warfare

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DEPARTMENT OF DEFENSE REPORT



COMPREHENSIVE CLINICAL
EVALUATION PROGRAM
(CCEP)

FOR GULF WAR VETERANS

Report on 10,020 Participants

AUGUST 1995

#567

ABSTRACT

In response to veterans' concerns about potential health effects resulting from service during Operations Desert Storm/Shield, the Department of Defense (DoD) initiated the Comprehensive Clinical Evaluation Program (CCEP). To date, the CCEP has provided in-depth medical examinations to approximately 13,000 service and family members entitled to DoD health care. This descriptive case series report summarizes the diagnostic results of 10,020 participants who have finished their medical evaluations. Designed as a clinical rather than a research program, the results of the CCEP provide insight into the nature of symptoms and diagnoses in this self-selected group of individuals. In general, the demographic characteristics of CCEP participants represent a cross-section of Persian Gulf War veterans as a group. CCEP participants self-report a range of wartime occupational and environmental exposures. Symptoms and diagnoses seen in CCEP participants resemble those seen in the general population and in patients seeking primary care. Psychological, musculoskeletal, and nonspecific conditions represent the major categories of primary diagnoses, and may occur more frequently in the CCEP than in other primary care settings. Research studies with comparison groups of non-deployed Persian Gulf-era veterans will clarify whether or not these conditions may be more common among Persian Gulf War veterans. Severe disability measured in terms of lost work days does not appear to be a major characteristic of the clinical profile of CCEP participants. However, participants experiencing disabling symptoms may benefit from programs which have been established at DoD Specialized Care Centers that focus on rehabilitation, restoration of function and promotion of general well being. Finally, based on the CCEP experience to date, there exists no clinical evidence for a new syndrome or unique illness among Persian Gulf veterans. The results of the CCEP are consistent with conclusions of a National Institutes of Health Technology Assessment Workshop that "no single disease or syndrome is apparent, but rather multiple illnesses with overlapping symptoms and causes." DoD will arrange for independent researchers to have access to the CCEP data in the future.

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EXECUTIVE SUMMARY

COMPREHENSIVE CLINICAL EVALUATION PROGRAM FOR GULF WAR VETERANS: REPORT ON 10,020 PARTICIPANTS

Approximately 697,000 U.S. service members deployed to the Persian Gulf in 1990/1991 for Operations Desert Shield/Desert Storm (ODS/S). The vast majority of troops returned from this large deployment healthy and remain fit for duty today. In response to Gulf War veterans' concerns about the potential health effects of service in ODS/S and to further investigate the nature of their illnesses, the Departments of Defense (DoD) and Veterans Affairs (DVA) developed similar, comprehensive clinical evaluation programs. The DoD's Comprehensive Clinical Evaluation Program (CCEP) provides an in-depth medical evaluation for DoD beneficiaries who are experiencing illnesses which may be related to their service in the Persian Gulf. Currently, the program has enrolled nearly 23,000 participants. Approximately 17,000 of these participants have requested an examination, of which over 13,000 have finished the evaluation process, and the records of 10,020 have been verified and entered into the CCEP database.

This descriptive case series report summarizes the diagnostic results of over 10,000 systematic clinical evaluations completed through the CCEP. The CCEP was designed primarily as a clinical rather than research program. Self-selection of patients, recall bias, inability to validate self-reported exposures and lack of a control group limit the relevance of CCEP findings to other Persian Gulf veterans. However, the large size of the CCEP cohort and the thoroughness of the CCEP examinations provide considerable clinical insight towards understanding the nature of these veterans' illnesses and health concerns. Ongoing and planned DoD/VA/HHS sponsored epidemiologic studies involving control/comparison populations will characterize further the health consequences of the Persian Gulf War. Based on the evaluation of 10,020 participants, our findings include:

- To date, the CCEP has identified no clinical evidence for a new or unique illness or syndrome among Persian Gulf veterans. The results of the CCEP are consistent with the conclusion of a National Institutes of Health Technology Assessment Workshop that "no single disease or syndrome is apparent, but rather multiple illnesses with overlapping symptoms and causes."
- Symptoms reported by CCEP participants are similar to those seen in patients seeking primary care-based on studies of outpatient practice and of the general U.S. population. CCEP patients demonstrate a broad cross-section of diagnoses which would be expected in this large population.

- Generalized symptoms such as fatigue, joint pain, headache, and sleep disturbances are very common among CCEP participants. Published studies of patients with these types of generalized symptoms have shown that 20-75% of them lack a clear-cut or discrete physical explanation or “cause” after a thorough medical evaluation. Similarly, it is likely that some CCEP participants may also lack a discrete physical explanation for their generalized symptoms.
- The distribution of International Classification of Diseases-9th Revision, Clinical Modification (ICD-9-CM) diagnostic categories seen in CCEP participants resembles that seen in the general population and in patients seeking primary care. “Psychological,” “Signs, Symptoms, Ill-Defined Conditions,” and “Musculoskeletal & Connective Tissue” represent the major ICD-9-CM categories of primary diagnoses.
- Severe disability, measured in terms of reported lost work days, is not a major characteristic of CCEP participants. Most CCEP participants (81%) had not missed work because of illness or injury during the 90 days prior to their initial evaluation. Seven percent of CCEP participants self-reported missing more than one week of work due to illness.
- Comparisons of CCEP participants to patients in outpatient medical settings are limited because of differences in patient populations. However, preliminary conclusions are as follows:
 - * The most common psychological conditions found in CCEP participants are: tension headache; nonspecific, mild or stress-related anxiety and/or depression; posttraumatic stress disorder (PTSD). The prevalence of psychological diagnoses among CCEP participants may be higher than that observed in other patients seen in general medical practice.
 - * CCEP diagnoses include a group of well-defined conditions not classified elsewhere in the ICD-9-CM coding system (e.g. sleep apneas), generalized symptoms, abnormal laboratory tests, and nonspecific physical findings. These diagnoses which are categorized as “Signs, Symptoms and Ill-Defined Conditions” according to the ICD-9-CM coding system may be more common in the CCEP compared to patients seen in general medical practice.
 - * Musculoskeletal and connective tissue diseases (joint pain, osteoarthritis, backache) are common diagnoses seen in CCEP participants. These conditions appear to occur more frequently in the CCEP population compared to patients seen in general medical practice.
- DoD will continue to provide comprehensive quality health care to eligible Persian Gulf veterans, and will maintain an ongoing search for unique symptom/illness patterns. The Department is committed to a continuing exchange of relevant information with other government agencies and Gulf War veterans to further understand this public health issue.

INTRODUCTION

Approximately 697,000 U.S. service members deployed to the Persian Gulf in 1990/1991 for Operations Desert Shield/Desert Storm (ODS/S). Medical readiness planning and preventive medicine measures taken by the DoD contributed to U.S. military forces experiencing the lowest disease non-battle injury (DNBI) rate of any major conflict. The vast majority of soldiers, sailors, airmen, and marines returned from this large deployment healthy and remain fit for duty today. Since ODS/S, veterans seeking medical care have had a wide range of conditions that would be expected in such a large adult population. Some service members have had persistent symptoms which they believe are related to their experience in the Persian Gulf War. In response to Gulf War veterans' concerns about their health following ODS/S, the Departments of Defense (DoD) and Veterans Affairs (VA) developed similar comprehensive clinical evaluation programs. To date, the DoD has enrolled approximately 23,000 participants eligible for DoD health care in the Comprehensive Clinical Evaluation Program (CCEP).

In December, 1994, the DoD issued its preliminary status report on the first 1,000 patients to complete the CCEP. Since that report, the Department has continued an aggressive outreach effort to provide evaluation and care to veterans who are experiencing symptoms or illnesses which they feel may be related to their service in the Persian Gulf. The DoD provided an update on March 10, 1995, regarding the results of 2,076 medical evaluations accomplished through the CCEP. This report summarizes program activities through May 31, 1995, and includes the clinical findings from 10,020 patients who have completed their CCEP evaluations.

Potential Health Risks Associated With Persian Gulf Deployment

In order to better understand the potential causes of illnesses and most effective treatments for Gulf War veterans, a thorough review of the potential health risks associated with service in the Persian Gulf is necessary. These risks include: physical and psychological stress, possible reactions to prophylactic drugs and vaccines, infectious diseases, and potential exposures to environmental hazards.¹

Physical and psychological stressors were major characteristics of the Persian Gulf. The effect of both acute and chronic stress is a major etiologic consideration when evaluating Persian Gulf veterans. U.S. troops entered a bleak, physically demanding, desert environment, where they were crowded into warehouses, storage buildings, and tents with little personal privacy and few amenities. No one knew that coalition forces eventually would win a quick war with relatively few battle casualties. Consequently, most troops did not fight a "four day war" but spent months isolated in the desert, under constant stress, concerned about their survival and their family's well-being at home, and uncertain about when they would return home.² Since the end of the war, readjustment disorders and posttraumatic stress disorder (PTSD) have been frequently reported among Persian Gulf veterans.^{3,4,5}

Although exposure to chemical warfare (CW) and biological warfare (BW) agents has been hypothesized as a possible cause of ill health among the returning veterans, both a DoD Defense Science Board Task Force and the Institute of Medicine have concluded that there is no persuasive evidence that Iraq used CW/BW weapons or that there was exposure of U.S. troops.^{6,7}

To provide protection against the lethal effects of CW nerve agents, troops were issued twenty-one 30 mg tablets of pyridostigmine bromide.⁸ Pyridostigmine bromide has been

suggested as a cause of chronic illness in Gulf veterans. However, this Food and Drug Administration (FDA)-approved drug has been used since the 1950s in anesthesia and as a treatment for myasthenia gravis with no known long-term health effects. In addition, studies of this drug in low doses have not revealed any serious lasting side-effects.^{9,10,11} Nonetheless, studies to evaluate the potential health effects of pyridostigmine, both alone and in combination with other agents, are ongoing.

Vaccines which protect against anthrax and botulism also have been mentioned as possible causes of ill health. Anthrax vaccine is a FDA licensed product. Although botulinum toxoid is not available as a licensed product, FDA approved its use by DoD as an Investigational New Drug after review of available safety information. Anthrax vaccine and botulinum toxoid have been given to military and civilian personnel worldwide for several decades without any long-term adverse effects.^{7,12,13} Approximately 150,000 service members received anthrax vaccinations, while botulinum toxoid was administered to about 8,000 troops.

The surveillance and impact of infectious diseases during the Persian Gulf War have been summarized recently.¹⁴ The major reported causes of acute morbidity were generally mild cases of acute diarrhea and upper respiratory disease. There was a decided absence of expected arboviral infections, particularly sandfly fever. Infectious diseases were not a major cause of lost manpower during ODS/S.

Since the Gulf War, thirty-one cases of leishmaniasis have been diagnosed among U.S. troops consisting of nineteen cases of cutaneous and twelve cases of viscerotropic leishmaniasis.¹ The nineteen cases of cutaneous leishmaniasis exhibited characteristic skin lesions. All but one of

the individuals with documented viscerotropic leishmaniasis have had characteristic, objective signs of disease, including fever, swollen lymph glands, and enlarged liver or spleen.¹⁵

Some Desert Storm troops may have been exposed to several potentially harmful environmental hazards, most notably smoke from 605 burning oil wells. The U.S. Army conducted an extensive health risk assessment (HRA) of smoke exposure which included methodology developed by the Environmental Protection Agency. The HRA determined long-term health risks to be minimal in part because of the nearly complete combustion of most chemical substances and the lofting of the smoke above ground level.^{16,17}

Other potential environmental hazards that some service members may have been exposed to include: depleted uranium munitions, microwaves, chemical-agent-resistant-coating (CARC) paint vapors, various petroleum products, pesticides, and airborne allergens and irritants.¹⁸ None of these exposures has been identified as a major cause of illness among Persian Gulf veterans, either because exposures involved small numbers of troops or because the agents are not known to cause the chronic symptoms reported by returning veterans.^{6,7,14,16}

The Comprehensive Clinical Evaluation Program Process

Because of concern for the medical problems of Persian Gulf veterans and to better understand the nature of the diverse symptoms being reported, DoD established the CCEP on June 7, 1994. The CCEP provides a systematic, in-depth, medical evaluation for all military health care beneficiaries who are experiencing illnesses which they believe may be related to Persian Gulf deployment. Spouses and children of Gulf War veterans may participate in the CCEP if they are eligible for DoD health care.

Participants enroll in the program either by contacting their local military medical treatment facility or by calling a toll free number (1-800-796-9699) which provides information to individuals requesting medical evaluations. Every military medical treatment facility (MTF) has a designated CCEP physician coordinator who is a board-certified family practitioner or internal medicine specialist.

Developed by a multidisciplinary team of DoD and VA medical specialists, the CCEP provides a two-phase, comprehensive medical evaluation. Phase I is conducted at the local MTF and consists of a history and medical examination comparable in scope and thoroughness to an evaluation conducted for an in-patient hospital admission. The medical review includes questions about family history, health, occupation, unique exposures in the Gulf War, and a structured review of symptoms. Health care providers specifically inquire about the symptoms and exposures listed on the "CCEP Provider-Administered Patient Questionnaire." The medical examination focuses on patients' symptoms and health concerns, and includes standard laboratory tests (complete blood count, urinalysis, serum chemistries) and other tests as clinically indicated. Individuals who require additional evaluation after completing the MTF-level, Phase I evaluation and appropriate consultations may be referred to one of fifteen Regional Medical Centers (RMCs) for Phase II evaluations. Phase II evaluations consist of symptom-specific examinations, additional laboratory tests, and specialty consultations according to the prescribed protocol.

The DoD has established a Specialized Care Center (SCC) at Walter Reed Army Medical Center (Eastern Region), and has planned a second center for Wilford Hall Medical Center (Western Region) to provide additional evaluation, care and rehabilitation for CCEP

participants who are suffering from chronic, debilitating symptoms. An intensive 3 week evaluation and care program designed to restore participants to a maximum state of health and fitness is provided by the SCCs. A multidisciplinary team of physicians from various specialties, behavioral health psychologists, nurses, and physical and occupational therapists comprise the staff of the SCCs. The treatment program is modeled after multidisciplinary pain centers, which have proven effective in treating patients with chronic, debilitating syndromes.

Institute of Medicine

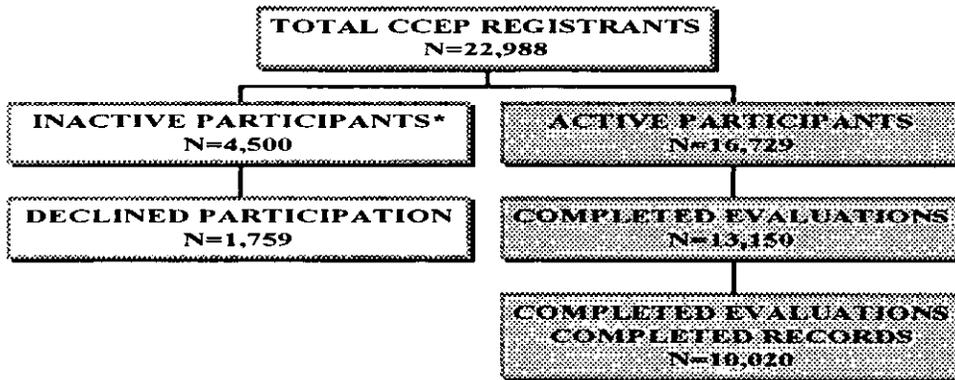
The DoD requested the Institute of Medicine (IOM) to serve as a consultant to review the CCEP. The IOM formed a panel of experts in epidemiology, occupational medicine, internal medicine, infectious diseases, psychiatry/psychology, community mental health, allergy/immunology, and other disciplines. The panel has met with the CCEP military physicians and other DoD representatives on two occasions to review both program process and results to date. The IOM initial report of December 1994 stated that the CCEP represented a thorough and systematic approach to the diagnosis of a wide spectrum of illnesses. The IOM recommended that a greater proportion of the CCEP evaluations be accomplished in Phase I to expedite the diagnostic process and facilitate continuity of care at the local level. A second IOM report is projected for the summer of 1995.

RESULTS

Program Status

Of the 16,729 participants who requested medical examinations through the CCEP, 10,020 records have been entered into the CCEP computerized database (Figure 1). MTFs send reports of finished medical evaluations to a central program management office where administrative staff and medical coders review records for completeness and accuracy of diagnostic coding before entering the data into a computerized database. Eighty-three percent (83%) of CCEP evaluations were completed at Phase I and seventeen percent (17%) at Phase II.

Figure 1. Disposition of CCEP Participants as of May 31, 1995



* Inactive Participants include those participants who wish to defer their medical evaluation until a later time.

Demographics

The demographic characteristics of 10,020 CCEP participants who have completed their evaluations are compared with the characteristics of all Gulf War veterans in Table 1.

Statistically significant differences ($p < 0.05$) are noted for each of the demographic categories with the exception of Hispanic ethnicity, rank, and Air Force affiliation. Additionally, CCEP participants are two years older on average than all Persian Gulf War veterans.

Table 1. Demographic Variables of CCEP Participants and Persian Gulf War Participants

Characteristics	CCEP Participants N=9,798 ¹	Total PGW Participants N=697,000
Gender(%)		
Male	88	93
Female	12	7
Race(%)		
White	60	70
Black	30	23
Hispanic	6	5
Other	4	2
Rank(%)		
Enlisted	89	89
Officer	10	10
Other/No Data	1	1
Branch(%)		
Air Force	12	12
Army	78	50
Marine	4	15
Navy	5	23
Other/No Data	1	
Status(%)		
Active	82	83
Reserve/Guard	8	17
Other/No Data	10	
Age (Yrs)	34 ²	32 ³

¹Includes only service members.

²The average age of the CCEP participants is as of June 1995.

³ The average age of the PGW participants is as of June 1995.

Unit of Assignment

The approximately 700,000 personnel who deployed to the Persian Gulf War were assigned to military units designated by 13,448 different unit identification codes (UICs). The number of deployed personnel assigned to a single UIC varied from one person to several thousand (e.g., an aircraft carrier crew). Additionally, the Air Force used a limited number of large “administrative” UICs (for one example, one UIC had 20,978 personnel assigned). Some deployed personnel were subsequently assigned to multiple UICs throughout the theater.

Of the 10,020 CCEP participants with completed evaluations, 7,610 (76%) had UIC information available. These CCEP participants are representative of 2,725 different UICs, to which 443,898 service members (60% of the total force) were assigned. CCEP participants served in a very large number of different units, and eighty-five percent (85%) of UICs represented in the CCEP had four or fewer participants. Two hundred (200) individuals in the CCEP served in 62 different units (of 10 or more persons assigned) where CCEP participation rates were equal to or exceeded 10% of members of that UIC.

Self-Reported Exposures

The “CCEP Patient Questionnaire” asks the participants about exposures they experienced during the Persian Gulf War. This “self-reported” exposure information is dependent upon the participant’s ability to recall events. Confirmation or validation of self-reported exposures was not possible using existing data sources for a given individual’s exposures. Table 2 summarizes the most frequently self-reported exposures, including:

passive cigarette smoke (86%), diesel/other fuels (85%), pyridostigmine bromide tablets (70%), oil fire smoke (68%), and tent heater fumes (68%). Least often reported were suspected nerve gas/nerve agents (5%) and mustard/blistering agents (2%). The average number of positive exposure responses per CCEP participant was 11 of 20 potential exposures. Twenty-nine percent (29%) of the CCEP participants report they are current smokers, smoking an average of 16 cigarettes per day.

Table 2. CCEP Self-Reported Exposure History (n=10,020)

Exposures Reported By Participant	Positive Report	
	Number	%
Cigarette Smoke (Passive)	8,667	86
Diesel/Other Fuels	8,547	85
Pyridostigmine Bromide	7,020	70
Tent/Heater Fumes	6,784	68
Oil Fire Smoke	6,863	68
Personal Pesticide Use	6,400	64
Ate Non-U.S. Food	6,369	64
Had Anthrax Immunization	4,956	49
Solvent	4,508	45
Chemical Agent Resistant Coating (CARC) Paint	4,363	44
Other Paint	3,927	39
Microwaves	3,469	35
Bathed In/Drank Non-U.S. Water	3,199	32
Had Botulism Immunization	2,558	26
Taken Oral Medicine To Prevent Malaria	2,649	26
Ate Contaminated Food	2,050	20
Bathed In Contaminated Water	1,934	19
Depleted Uranium	1,415	14
Nerve Gas/Nerve Agents	501	5
Mustard Gas/Blistering Agents	234	2

Symptoms

The CCEP medical evaluation documents participants' chief health complaints and any other health complaints they may be experiencing. Table 3 summarizes the frequency distribution of positive responses to the "Provider-Administered Symptom Questionnaire."

Table 3. Symptom Frequency for CCEP Participants (N=10,020)

Symptoms Reported By Participants	Chief Complaint	Any Complaint
Fatigue	11%	47%
Joint Pain	11%	47%
Headache	8%	39%
Rash/Dermatitis	7%	29%
Memory Loss	4%	33%
Abdominal Pain/Gastrointestinal	2%	16%
Back Pain	2%	2%
Diarrhea	2%	18%
Dyspnea	2%	16%
Sleep Disturbance	2%	32%
Chest Complaints	1%	1%
Cough	1%	1%
Depression	1%	23%
Muscle Pain	1%	22%
Sinus Problems	1%	1%
Allergies	0%	0%
Bleeding Gums	0%	8%
Difficulty Concentrating	0%	27%
Dizziness	0%	0%
Hair Loss	0%	11%
Insomnia	0%	0%
Nausea	0%	0%
Weight Loss	0%	7%
People With No Chief Complaint	29%	
People With No Chief Or Any Complaint		11%

The most frequently reported chief complaints were: fatigue (11%), joint pain (11%), headache (8%) and memory loss (4%). Among the reported symptoms, whether a chief or associated complaint, the most common symptoms from the symptom questionnaire included: fatigue (47%), joint pain (47%), headache (39%), memory loss (33%), sleep disturbance (32%), and difficulty concentrating (27%). The average number of reported symptoms for CCEP participants was five.

Diagnostic Categories

The distribution of CCEP diagnoses according to International Classification of Diseases-Ninth Revision, Clinical Modification (ICD-9-CM)¹⁹ coding categories is shown in Table 4. The ICD-9-CM coding system is the standard method used in medicine for classification of diseases, injuries, and symptoms.

In the CCEP, “Psychological Conditions” (19%), “Symptoms, Signs and Ill-Defined Conditions” (17%), and “Musculoskeletal System” (17%) represent the most frequent diagnostic categories, accounting for 53% of all primary diagnoses. Additionally, eleven percent (11%) of participants had diagnoses involving “V Codes”. “V Codes” are used to describe three groups of individuals in the CCEP: 1) those individuals without symptoms who request a medical evaluation, 2) those individuals with a normal medical evaluation, and 3) those individuals with a history of a preexisting condition but without a current illness. The average number of diagnoses per patient was three.

Of the 19% of CCEP participants with a primary diagnosis consisting of a “Psychological Condition,” four diagnoses represent 59% of this category: tension headache, major and minor depressive disorders, and prolonged posttraumatic stress disorder.

Of the 17% of the participants with a primary diagnosis within the ICD-9-CM category of “Symptoms, Signs, and Ill-Defined Conditions,” three diagnoses represent 63% of the total category and include: malaise and fatigue, sleep disturbance, and headache.

Table 4. Frequency Distribution of Primary and Any Diagnosis Among 10,020 Completed CCEP Evaluations (By ICD-9-CM Category)

Categories	Primary Diagnosis %	Any Diagnosis %
Psychological Conditions	19	37
Signs, Symptoms, and Ill Defined conditions ¹	17	41
Musculoskeletal	17	45
Healthy ²	11	19
Respiratory System	7	18
Nervous System	6	18
Digestive System	6	22
Skin & Subcutaneous	6	20
Infectious Disease	3	9
Endocrine	2	11
Circulatory System	2	8
Neoplasm	1	3
Genitourinary System	1	6
Injury and Poisoning	1	3
Congenital Anomalies and Conditions of the Perinatal Period	<1	<1
Total	100	N/A

¹Includes conditions categorized according to ICD-9 nomenclature consisting of cases for which no diagnosis is classifiable elsewhere; no more specific diagnosis can be made; signs or symptoms that prove to be transient; and, cases in which a more precise diagnosis was not available for any other reason.

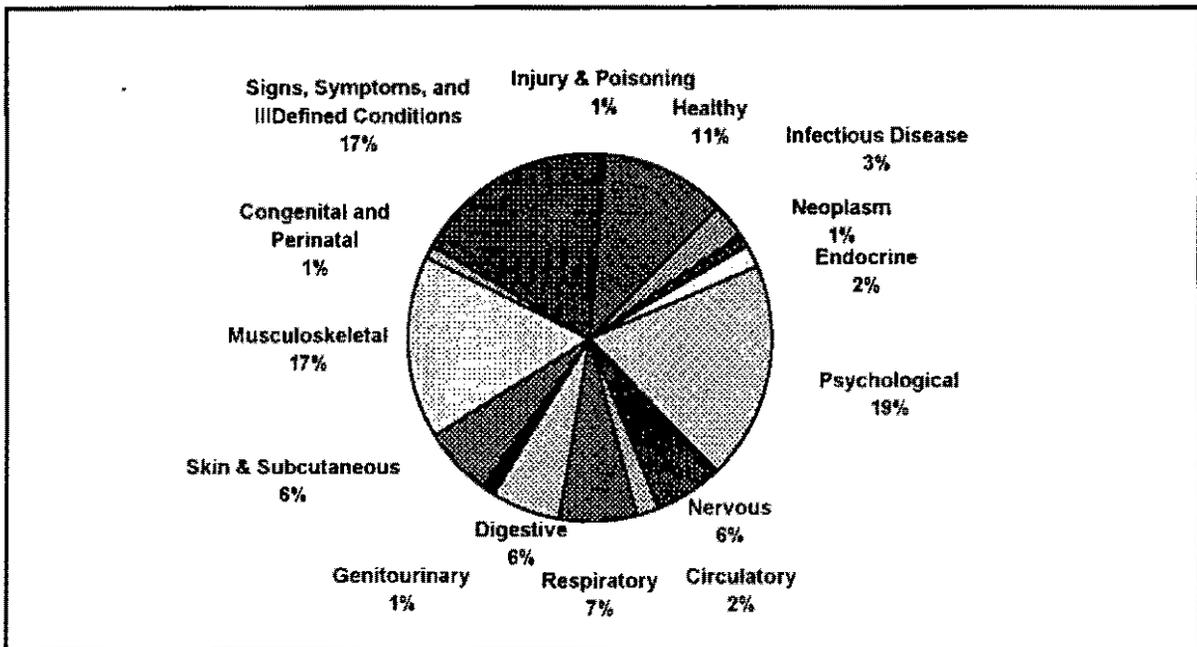
²Includes “V Codes” which refer to CCEP participants who: a) are seeking consultation without complaint or illness. b) are not currently sick, and/or c) have a circumstance or problem which influences a person’s health status but is not in itself a current illness or injury

Of the 17% of CCEP patients with a primary diagnosis of “Musculoskeletal and Connective Tissue Conditions,” three diagnoses represent 51% of the category: pain in joint (s), osteoarthritis, and backache/lumbago.

Neoplasms represent 1% of all primary diagnoses. Malignant disease was diagnosed in 56 (0.6 %) of all CCEP participants. The most frequently diagnosed malignant neoplasms were skin cancers (15 participants) and lymphoma (12 participants).

The frequency distribution of primary diagnoses is shown in Figure 2.

Figure 2. Distribution of Primary Diagnoses Among 10,020 CCEP Participants.



The CCEP database includes the records of 136 dependent spouses of Persian Gulf War veterans and 81 children. The distributions of diagnoses among spouses and children are shown in Table 5 and Table 6.

Table 5. Frequency Distribution of Primary and Any Diagnosis Among 136 Completed CCEP Evaluations of Spouses (By ICD-9-CM Category)

Diagnoses	Primary Diagnoses %	Any Diagnoses %
Psychological Conditions	24	41
Signs, Symptoms, and Ill defined conditions ¹	11	35
Skin & Subcut. Tissue	10	24
Healthy ²	10	20
Musculoskeletal/ Connective	9	32
Respiratory System	8	19
Nervous System	7	17
Digestive System	6	23
Endocrine	5	15
Genitourinary System	4	16
Infectious Diseases	2	7
Circulatory System	2	10
Neoplasm	1	4
Congenital Anomalies and Perinatal Conditions	1	3
Injury and Poisoning	0	0
Total	100	N/A

¹Includes conditions categorized according to ICD-9-CM nomenclature consisting of cases for which no diagnosis is classifiable elsewhere; no more specific diagnosis can be made; signs or symptoms that prove to be transient; and, cases in which a more precise diagnosis was not available for any other reason.

²Includes "V Codes" which refer to CCEP participants who: a) are seeking consultation without complaint or illness, b) are not currently sick, and/or c) have a circumstance or problem which influences a person's health status but is not in itself a current illness or injury.

Table 6. Frequency Distribution Of Primary Diagnoses Among 81 Children of Persian Gulf War Veterans in the CCEP.

Diagnosis	Number
Healthy (Normal Exam)	17
Congenital Abnormalities*	15
Dermatitis, Eczema, Folliculitis, Acne	6
Asthma, Reactive Airway Disease	5
Other	5
Psychosis, Depression, Obsessive/Compulsive Disorder	4
Developmental Delay	4
Otitis Media	3
Upper Respiratory Infections	3
Rash	3
Nephritis, Vesicoureteral Reflux, Hydrocele	3
Tinea Capitis	2
Dermoid Cysts, Hemangiomas	2
Attention Deficit/Hyperactivity	1
Choroid Plexus Carcinoma	1
Anemia	1
Chronic Pneumonia	1
Chronic Diarrhea	1
Milk Allergy	1
Seizures	1
Insomnia	1
Static Encephalopathy of Childhood	1
Total	81

*Specific diagnoses include: Hydrocephalus (1), Glaucoma(1), Microsomia(1), Major Cardiac Anomalies(2), Cleft Palate(3), Trisomy 21(1), Fragile X Syndrome(1), Marcus-Gunn Syndrome(1), Pectus Excavatum(2), Left Hand Aphalangia(1), Omphalocele(1) These congenital abnormalities are based only on children whose parents chose to enroll them in the CCEP. Because of the self-selected nature of the CCEP and the absence of information concerning all births of Persian Gulf veterans, this data can not be used to determine a rate of birth defects that can be compared to a non-Persian Gulf population.

Self-Reported Work Days Lost Due to Illness

The CCEP questionnaire asks how many days of work the participant has lost because of illness within the last 90 days. Over 80% of participants reported not missing any work days in the 90 days prior to the evaluation. The percentage of participants reporting "0 days lost" did not differ greatly between ICD-9-CM categories (range: 75-90%). Among

diagnostic categories, the average number of work days lost ranged from 1-8, with "Neoplasms" representing the disease category with the greatest number of missed work days.

Satisfaction with CCEP

Approximately 64% of CCEP participants (6429/10020) responded to the question at the conclusion of their medical evaluation: "Were you satisfied with the care you received in the program?" Ninety one percent (91%) or (5853/6429) replied affirmatively. The satisfaction rate among respondents who completed Phase II evaluations was 97% (695/720) compared to 87% (5581/6380) for those who completed their evaluations at Phase I.

DISCUSSION

Epidemiological Considerations

The CCEP represents a large case series of over 10,000 comprehensive, systematic health evaluations. However, several methodological limitations associated with the CCEP need to be understood to interpret findings appropriately in this population. Since the CCEP represents individuals who have self-selected to enter the program and excludes individuals ineligible for care through the military medical system, it may not be totally representative of the overall population of veterans with health concerns of PGW veterans as a group.

The CCEP has conducted an aggressive campaign to provide medical examinations to Persian Gulf War veterans who believe they are experiencing medical problems related to their participation in the Gulf War. This pro-active "case finding" effort has resulted in the systematic evaluation of 10,020 patients, to date, including approximately 1700 intensive

evaluations conducted at one of 15 tertiary care medical centers within the Military Health Services System. A case series, such as the CCEP, is not definitive in determining risk factors, causality or specifically defining associations, particularly when self-reported exposures cannot be validated. However, the CCEP does have utility in detecting a potential new clinical syndrome and in describing the nature of symptoms and illnesses in a very large group of veterans.

Comparison Group Selection

From an epidemiological perspective, either non-deployed Gulf War-era veterans or Gulf War-era veterans who experienced some other deployment represent appropriate groups for comparative purposes. Studies of outpatient diagnoses for a population of non-deployed, Persian Gulf War-era veterans, while in progress, are incomplete at this time. However, for the purposes of the CCEP, until more definitive comparisons are made, use of both population-based surveys and examinations (e.g., National Ambulatory Medical Care Survey, National Institute of Mental Health Epidemiologic Catchment Area Studies, etc.), and other studies of symptoms and diagnoses in ambulatory patients, provide useful comparative information. Formal research efforts (which include appropriate control or comparison groups in their study design) by the Departments of Defense, Veterans Affairs and Health and Human Services (HHS) will, together with the CCEP, further characterize the health status of PGW veterans.

Demographics

Demographic variables of CCEP participants were compared with all who deployed to Operation Desert Shield/Desert Storm. A statistically significant difference was noted for each of the demographic variables with the exception of rank, Hispanic ethnicity, and Air Force affiliation. Given the self-selected nature of participants in the CCEP and eligibility criteria for access to DoD health care facilities, it is difficult to draw any meaningful conclusions from these differences, other than to say that CCEP participants are a non-random sample of the Persian Gulf War veteran population. The CCEP does, however, represent a somewhat balanced cross-section of all who deployed to the Gulf and there appear to be no unique characteristics among CCEP participants. Well-designed epidemiologic studies that compare the CCEP sub-population with an appropriately matched control population will provide the best information on which to base conclusions regarding demographics.

Unit Identification Codes - Specific Participation Rates

UIC specific CCEP participation rates indicated a low rate of CCEP participation in the great majority of UICs (mean 1.7 per 100 service members). This low rate of participation was present across a large range of UICs involving all services. The low "UIC-specific CCEP participation rates" across the wide range of UICs suggest that geographic clustering of illness did not occur. Although there appears to be no unique clustering of CCEP participants by UICs, the wartime and post-war experience of personnel within UICs with relatively higher rates of CCEP participation warrant further investigation.

Use of Unit Identification Codes to Validate Self-Reported Exposures

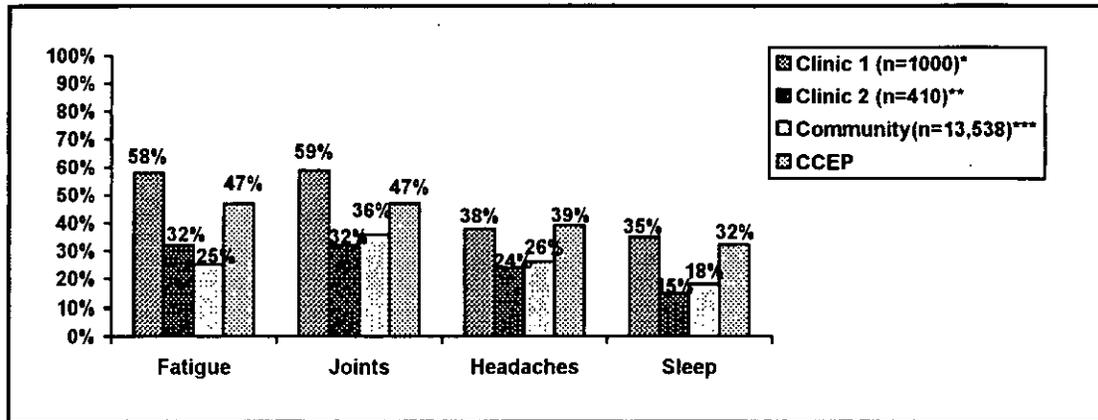
Several of the potential exposures which occurred in the Persian Gulf (as self-reported by CCEP participants) were confined to units in specialized occupations or certain geographic locations. For example, malaria prophylaxis was provided only to selected units based upon geographic location. Similarly, anthrax and botulinum immunizations were restricted to certain units which were deployed forward in ODS/S. Analysis of the CCEP population by UIC-specific locations and military occupational specialty groups may enable validation of these and other exposures. The U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) is currently integrating exposure data sets, troop movement data, and satellite imagery of the oil well fire period into a Geographic Information System (GIS) model thereby enabling spatial analyses. Additionally, analysis of classified and declassified operational, intelligence, medical sources of information, research databases, as well as anecdotal accounts of veterans will be correlated with findings of the CCEP and GIS to determine exposure relationships throughout the Persian Gulf theater of operations.

Symptoms

As shown in Figure 3, four of the most common symptoms reported by participants in the CCEP are also prevalent in the U.S. population as a whole and among patients in general medical practice. Three published surveys of outpatient practices are informative.^{20,21,22}

Because the characteristics of the study groups and duration vary, exact comparisons of symptoms and illnesses can not be made among the three studies.

Figure 3. Common Symptom Prevalence as Reported in 3 Studies of Outpatient Practice in the United States, as Compared with CCEP



*Clinical Survey 1 = 1000 patients presenting for care at four primary care clinics in the U.S.
 **Clinical Survey 2 = 410 patients attending a military general medicine clinic
 ***Community Survey 3 = Random survey of 13,538 persons in four communities in the U.S.

There appears, however, to be strong consistency of reported symptoms between large population studies of outpatient medical clinics and symptoms reported by CCEP participants. Referring to Figure 3, fatigue was reported by 22-58% (CCEP 47%) of respondents; joint pains by 26-59% (CCEP 47%); headaches by 21-37% (CCEP 39%), and sleep complaints by 15-35% (CCEP 32%). Not shown in Figure 3, but also very common in these surveys, were dyspnea for 14-32% (CCEP 16%) and abdominal pains for 11-24% (CCEP 16%).

The similarity of these particular CCEP symptoms in the U.S. general clinic population is further confirmed by examining data from the National Ambulatory Medical Care Survey (NAMCS). This national sample of medical clinics in the United States reported, that in 1989, the estimated number of outpatient visits in the United States was: 7 million visits for fatigue;

9.6 million visits for headaches; 17 million visits for joint pains; 14 million visits for skin rash; and 7 million visits for depression.

Patients commonly report experiencing multiple symptoms. Studies have shown that when patients complete symptom checklists one third of patients complain of 0-1 symptoms, one-third complain of 2-3 symptoms, and one-third complain of 4 or more symptoms.^{21,23} Research conducted by Kroenke et al indicates that typical outpatients will endorse a median of 4 symptoms as bothersome.^{22,24} CCEP patients reported an average of 5 symptoms per patient.

“Symptom syndromes”, i.e., illnesses manifested solely by combinations of symptoms with no consistent objective findings on physical examination or positive laboratory abnormalities and for which an adequate etiologic explanation is yet to be determined, are common in clinical practice and the general population. Symptom syndromes include entities such as irritable bowel syndrome, fibromyalgia, Chronic Fatigue Syndrome (CFS) and depression. Moreover, the overlap of specific symptoms can be considerable.^{25,26,27,28,29} For example, Table 7 compares the frequency of various symptoms seen in CCEP patients and three other common symptom syndromes.

Table 7. Prevalence of Various Symptoms in 3 Common Symptom Syndromes Compared with CCEP Patients

Symptom %	CCEP Patients (%)	CFS(%)	Fibromyalgia(%)	Major Depression(%)
Fatigue	47	100	85+	80+
Myalgia	47	40-50	100	40+
Headache	39	35-85	44-88	70+
Memory	33	50-85	-	80+
Sleep	32	15-90	56-80	80+
Depressed Mood	23	46-85	20-71	90+

Physical symptoms in both clinic patients and the general population frequently lack a clear-cut or definitive physical explanation or “cause.” Four community-based studies have shown that 20 to 75% of symptoms lack an association with a definitive diagnosis after a medical evaluation.^{20,22,23,24} The best estimate is that about one-third of symptoms cannot be linked to a defined diagnosis.

A recent study by the Centers for Disease Control and Prevention (CDC) compared the prevalence of symptoms in Persian Gulf veterans to non-deployed, Persian Gulf-era veterans.³⁰ Preliminary findings indicated that chronic symptoms, similar to those seen in CCEP participants, were reported more commonly by Persian Gulf veterans than non-deployed, Persian Gulf-era veterans. Comprehensive medical evaluations by CDC physicians and a review of medical records for fifty-nine Persian Gulf War veterans in the initial case series did not identify any consistent physical or laboratory abnormalities. A case-control study is currently being completed to compare symptoms and illnesses in deployed and non-deployed Persian Gulf War service members.

Existence of a Unique Illness

DoD physicians have diagnosed a wide range of medical conditions commonly seen in general medical practice, but have found no clinical evidence for a unique illness among CCEP participants. The large number of patients participating in the CCEP, the thoroughness of the evaluations; and the clinical impressions of CCEP physicians are the primary basis for forming conclusions regarding the existence of a new or unique condition or syndrome. Although

CCEP physicians have not found clinical evidence for a unique illness or syndrome in examining individual patients, analysis of demographic, exposure, symptom and diagnostic results is useful in characterizing the nature of illnesses being experienced by Persian Gulf veterans participating in the CCEP.

CCEP Diagnoses Relative to Other Ambulatory Care Studies

The National Ambulatory Medical Care Survey (NAMCS) is considered the most representative study of outpatient medical practice in the U.S.³¹ It must be noted, however, that the NAMCS includes not only individuals with persistent symptoms but also patients with acute illnesses or injuries, healthy persons needing school physicals, employment or insurance examinations and other types of “walk-in” clinic visits. In contrast, the CCEP is more likely to include individuals with persistent symptoms and, as such, does not include patients whose symptoms typically are short-lived. Additionally, differences in the proportion of male and female participants in the two populations would contribute to differences in the size and composition of diagnostic categories. Therefore, because the populations differ, even general comparisons should be made with caution.

Generally speaking, the frequency distribution for a number of the ICD-9-CM codes appear similar in the NAMCS and CCEP patient populations (see Table 8), except for “Psychological Conditions,” “Respiratory System,” “Genitourinary System,”

“Musculoskeletal System,” “Symptoms, Signs, and Ill-Defined Conditions,” “Injury and Poisoning,” and “V Codes” (Healthy).

Table 8. Frequency Distribution of Principal Diagnoses in U.S. Ambulatory Care Survey* (NAMCS) and in the CCEP

Frequency Distribution Of Principal Diagnoses In United States Ambulatory Care (NAMCS) And In The CCEP			
Primary Diagnoses	ICD-9-CM	NAMCS³¹	CCEP
		--Percent Distribution--	
Infectious Diseases	001-139	3.5	2.9
Neoplasms	140-239	2.4	1.1
Endocrine	240-279	3.0	1.8
Psychological conditions	290-319	6.0	18.6
Nervous System	320-389	6.5	5.4
Circulatory System	390-459	3.1	2.2
Respiratory System	460-519	11.7	6.7
Digestive System	520-579	3.8	6.4
Genitourinary System	580-629	8.1	1.5
Skin & Subcut. Tissue	680-709	5.8	6.3
Musculoskeletal System & Connective Tissue	710-739	6.8	17.0
Symptoms, Signs & Ill-Defined Conditions	780-799	4.1	17.5
Injury And Poisoning	800-999	10.7	0.7
“V Codes” (Healthy)		19.9	10.9
All other Diagnoses ¹		2.3	1.0
Unknown or blank ²		2.3	0.0

¹NAMCS data for ages 25-44

¹Includes diseases of the blood and blood-forming organs (280-288)/complications of pregnancy, childbirth, and the puerperium (630-676); congenital anomalies (740-759); and certain conditions originating in the perinatal period (760-779).

²Includes blank diagnoses, uncodable diagnoses, and illegible diagnoses.

For purposes of general comparison, respiratory system diagnoses appear to occur more commonly in the NAMCS (11.7% vs. 6.7%), probably because upper respiratory illnesses (URI’s), such as the common cold, are one of the leading reasons for outpatient visits in the United States. Because URI’s typically resolve in a week or less, very few patients with

URI's would be represented in the CCEP. Injury and poisoning account for 10.7% of diagnoses in the NAMC but only 0.7% in the CCEP. Such patients are acutely ill or injured, come in promptly for care, and are treated within a matter of hours to a few days. Thus, they would be common in an office practice seeing acute and chronic patients but would be rare in a sample of patients with persistent symptoms, such as the CCEP. "V Codes" (Healthy) appear to be more common in the NAMCS because the leading reason for outpatient visits in the United States is general medical examinations, such as routine physicals for school, employment, or insurance purposes or annual "checkups" for health maintenance reasons. Asymptomatic patients coming in for routine physicals or simple checkups would be less prevalent in the CCEP. The higher percentage of genitourinary diagnoses in NAMCS may reflect the larger proportion of women in that survey compared to the CCEP and an increased prevalence of gender related diagnoses, such as bladder infections.

On the other hand, three diagnoses - "Psychological Conditions," "Symptoms, Signs and Ill-Defined Conditions", and "Musculoskeletal System" are more common in the CCEP than in NAMCS (53% vs. 17%). Possible explanations for the apparently higher prevalence of these diagnostic categories in the CCEP warrant discussion, which follows.

Psychological Conditions

Psychiatric disorders such as depression, anxiety, and somatoform disorders are common in primary care, existing in 25-35% of all patients presenting for care in the outpatient setting.^{32,33} Overall prevalence of psychological conditions among CCEP patients (19% primary, 37% any diagnosis) may be somewhat higher than that found for other groups

of health care seeking individuals (Table 9) in which structured psychiatric interviews were used.

Table 9. Prevalence Of Psychological Conditions In CCEP Participants Compared To Other Community And Primary Care Cohorts

Sample Source	Prevalence of Psychological Conditions (All Conditions)
Midtown Manhattan Study (Community)	23%*
NIMH Epidemiologic Catchment Area Studies (Community)	18-27%
Primary Care	25%-35%
CCEP	19-37%

*percentage of respondents with "serious impairment".

The most common psychological conditions among CCEP patients are: somatoform problems, especially tension headache; nonspecific, mild, or stress-related anxiety and/or depression; posttraumatic stress disorder, and alcohol-related disorders. None of these disorders was noticeably more prevalent than available figures from previous community and primary care based studies (see Table 10).^{34,35}

Table 10. Most Common Psychological Conditions Among CCEP Participants, General Population And Primary Care Patients

Psychological Condition	CCEP		General Pop'n	Primary Care
	Primary Dx	All Dx		
Somatoform Problems	5%	15%	---	---
Somatization Disorder	0.8%	2%	0.1-1%	1-5%
Tension Headache	4%	12%	20%	---
Mood Depression	6%	12%	4-6%	15-25%
Major Depressive Disorder	2%	3%	2-5%	5-14%
Mild Depressive Syndrome	4%	8%	7%	---
Anxiety Disorders	4%	8%	7%	5-15%
Posttraumatic Stress Disorder	3%	5%	1-14%	---
Mild Anxiety Syndromes	0.6%	2%	---	---
Adjustment Disorders	2%	4%	---	---
Substance Related Disorders	0.5%	2%	---	---
Alcohol Related Disorders	0.4%	2%	4-6%	6%

Psychological conditions may be more common in the CCEP because patients with persistent or unexplained symptoms have high rates (50% or more) of underlying mood or anxiety disorders. This need not always mean that the symptoms are caused by the mood or anxiety disorder since it is possible that depression or anxiety can be a consequence of persistent, disabling physical symptoms. Nonetheless, the mood or anxiety disorders that coexist in half or more of such patients can further aggravate such symptoms through worsening sleep, increased fatigue, lowered pain tolerance, and mental suffering.

Ill-Defined Signs and Symptoms

Approximately 17% of CCEP participants have primary diagnoses categorized by the ICD-9-CM as “Signs, Symptoms and Ill-Defined Conditions.” Although an illness or symptom may fall in the 780-799 ICD-9-CM code range, that code may represent a well-defined condition not classified elsewhere (e.g., obstructive sleep apnea) or a nonspecific laboratory abnormality (e.g., elevated sediment rate). Also, patients with persistent symptoms in whom physical examination and diagnostic testing is normal often end up with a “symptomatic” diagnosis (e.g., lower back pain, headache, sleep disturbance, fatigue) rather than a more precise, anatomic or pathophysiologic diagnosis.

Depression and anxiety show a particularly strong association with unexplained or ill-defined physical symptoms. Studies have demonstrated that ill-defined (compared with better-defined) symptoms or syndromes tend to occur much more frequently in individuals with common, treatable anxiety and depressive disorders.^{21,22} Treatment of depression and anxiety is known to decrease the severity of physical symptoms.

The higher proportion of “ill-defined diagnoses” (as compared with the NAMCS) is consistent with the earlier observations that the CCEP preferentially selects for patients with persistent symptoms and underrepresents those with acute, self-limited illnesses.

Musculoskeletal Conditions

Seventeen percent (17%) of CCEP participants had a primary diagnosis of musculoskeletal/connective tissue disorders. Forty-two percent (42%) of the diagnoses in this category consist of pain in joint, osteoarthritis, and unspecified arthropathy. Osteoarthritis is commonly the chronic result of occupational and recreational overuse injuries. Such injuries frequently occur as a consequence of the physical activity associated with military operations and training. Review of military disability evaluation system information confirms that musculoskeletal conditions are a leading category of disability in the Armed Forces. Musculoskeletal impairments are among the most common and disabling of medical disorders.³⁶ Therefore, the increased prevalence of musculoskeletal conditions in the CCEP relative to NAMCS may be related to the physical demands military service.

Additional Diagnostic Considerations

Infectious diseases and conditions associated with symptoms of fatigue, sleep disturbances and memory loss are of special concern and warrant further discussion.

Infectious Diseases

The threat to deployed military personnel posed by infectious diseases was recognized and preparations were made from the earliest stages of Operation Desert Shield.³⁷ Specific

infectious diseases observed in U.S. troops during Operations Desert Shield/Storm conformed with expected disease threats. Data suggest that overall exposure to recognized pathogens was quite low. Furthermore, it suggests that no route of infection, other than ingestion of locally-procured food, was common. The reported incidence of infectious diseases observed during the Operations is relevant to evaluation of current health complaints of Gulf War veterans.

Leishmaniasis has been one of the infectious diseases of particular concern in evaluating Persian Gulf veterans. Since the Gulf War a total of 31 cases of leishmaniasis have been identified among Persian Gulf veterans (12 cases of viscerotropic disease and 19 cases of cutaneous disease).³⁸ Virtually all of these cases were identified prior to initiation of the CCEP, and none was identified by the CCEP. All but one of the cases were characterized by the presence of objective findings on physical examination or screening laboratory assays. The low incidence of leishmaniasis during and immediately after Operations Desert Shield/Storm, the absence of other sandfly-borne diseases in our troops, and the low prevalence of objective findings pointing to leishmanial disease among 10,000 CCEP patients, all indicate that viscerotropic leishmaniasis plays no significant role in the current complaints of Gulf War veterans.

The CCEP itself has identified a wide variety of infectious diagnoses. Of these, by far the largest group has been fungal infections of the skin due to fungi common in the United States. Virtually all of the remaining infections have represented common illnesses, such as sinusitis, diarrheas, and a few cases of viral hepatitis, not specific to the Persian Gulf region.

The overwhelming majority of these diagnoses represent incidental diagnoses which would not explain persistent systemic complaints.

Fatigue

Chronic Fatigue Syndrome (CFS) has been suggested as a unifying diagnosis for unexplained illnesses among Persian Gulf veterans. Complaints of chronic fatigue lasting greater than six months are not uncommon in the general population seeking medical care^{39,40} However, patients meeting the Chronic Fatigue Syndrome case definition are relatively rare. Records of 4.6% (464/10,020) of the CCEP patients carried a primary diagnosis of "fatigue" (ICD-9-CM 780.7 - 780.79). These records were reviewed to determine if they met the 1994 CDC case definition of CFS. Forty-two of the 464 participants with a primary diagnosis of fatigue (9 %) met the case definition. This represents a prevalence in the CCEP study population of 0.42% (42/10,020). This rate is similar to the prevalence rate of 0.3% reported in a general medical population.⁴⁰

An additional syndrome Fibromyalgia Syndrome (FMS) is often mentioned together with CFS because fatigue is prominent among the somatic symptoms seen with this entity. The definition for FMS has been published by the American College of Rheumatology.⁴¹ CCEP records were examined for FMS in both primary and secondary diagnoses. Fibromyalgia was found as the primary diagnosis in 78 of 10,020 individuals (0.78%) and in 175 individuals (1.75%) in primary or secondary diagnoses. These prevalence rates are consistent with those seen in the U.S. population.

Sleep

Sleep disturbances represent medical conditions which can be systematically evaluated and treated. Sleep disturbance was the fifth most common complaint among CCEP participants, with 32% reporting this symptom. Epidemiological surveys of the general population yield similar results of subjects reporting sleep problems ranging from 30-40%. A recent Gallop survey based on 1,950 phone interviews found that 36% of Americans suffer from some type of sleep problem.⁴² Substantial numbers of sleep disorders (ICD-9-CM 307.4, 780.5) were found in the CCEP participants, with 357 (4%) having a sleep disorder as the primary diagnosis. Sleep disorders most frequently diagnosed in the CCEP participants were sleep apnea and disorders involving initiating and maintaining sleep (insomnias). The prevalence of sleep disorders in CCEP participants did not exceed that expected for the general population.^{43,44}

The common sequelae resulting from these sleep disorders is chronic sleep deprivation. It is well documented that chronic sleep deprivation can lead to various physical and psychological complaints, many of which are the same as described by the CCEP participants (See Table 3).⁴⁵ Evidence from epidemiological studies suggests a strong association between sleep and other somatic complaints, though there is no clear cause-and-effect relationship.⁴⁶

Memory Problems

Memory problems are a frequent complaint associated with the medical conditions diagnosed among the Persian Gulf veterans. They are the fourth most common symptom

among CCEP participants. Memory is not an isolated function, but rather a complex of neurobiological and neuropsychological processes. It represents one of the neurobehavioral functions most sensitive to central nervous system disruption.⁴⁷ In-depth neuropsychological evaluations in the CCEP population have identified no evidence of an increased prevalence of neurologic etiologies for memory loss. Organic mental disorders (ICD-9-CM code 310.1, 310.1, 310.8, 310.9) confirmed by neuropsychological testing and evaluation were found in only 0.6% of CCEP participants, which is less than expected within the general population.

Patients with depression, sleep disorders, chronic fatigue, and chronic pain often complain of memory problems.^{48,49,50} These medical conditions represent potentially treatable causes of memory complaints.

Diagnoses in Spouses and Children

Some Gulf War veterans have expressed concern that the health of their spouses and children may have been affected by their military service in the Gulf War. The spectrum of diagnoses in spouses and children (Tables 5 and 6) spans a wide range of organ systems. Although relatively few spouses have enrolled in the CCEP, the distribution of their diagnoses is consistent with the types of conditions commonly seen in clinical practice and seen in CCEP participants overall. Likewise, the diagnoses of children enrolled in the CCEP appears to be similar to that seen in pediatric practice. As the number of these self-referred spouses and children in the CCEP cohort is small, comparisons with other study groups would not yield worthwhile results.

Reproductive Health Concerns

Some Persian Gulf War veterans have reported adverse birth outcomes and reproductive problems. The CCEP includes 15 children with congenital abnormalities whose parents chose to enroll them in the program. These birth defects span a wide range of conditions which are not concentrated in any single organ system or congenital syndrome. Because of the self-selected nature of the CCEP and the absence of information about a representative sample of births of all Persian Gulf veterans, data are insufficient to determine a rate of birth defects that can be compared to a non-Persian Gulf population.

Investigations by state and national public health agencies and DoD have identified no elevated rates or unusual patterns of birth defects in babies born to Gulf War veterans or their spouses.^{51,52,53} In response to veterans' concerns, specific questions regarding reproductive history were added to the revised CCEP questionnaire in February, 1995. Less than 8% of the CCEP records in this report contained self-reported reproductive history; therefore, analysis has been deferred to future reports. However, to date, the birth defects which have been documented in pediatric CCEP participants are few in number and dissimilar in type. Population-based reproductive health outcome studies currently in progress will provide a more definitive assessment of possible reproductive health consequences related to service in the Persian Gulf War.

Disability

As an approximation of severity of morbidity and/or acute disability, "lost work days due to illness in the past 90 days" were obtained. Most CCEP participants (81%) did not

report missed work due to illness or injury during the 90 days prior to their initial evaluation. The distribution of “lost work days” did not vary substantially among different disease categories. Seven percent of CCEP participants self-reported missing more than one week of work due to illness during the previous 90 days. Sixty-one participants reported not working during the entire 90 day period; 19 individuals had psychological conditions and 12 individuals had diagnoses in the “Symptoms, Signs and Ill-Defined Conditions” category. Although absenteeism is only one marker for the assessment of disability, the data suggest that few CCEP participants are experiencing disabling symptoms severe enough to interfere with work.

Patient Satisfaction

In an effort to assess satisfaction with the CCEP, participants were asked whether or not they were satisfied with the CCEP program. Of the 65% of patients who answered the question regarding satisfaction, 91% were satisfied with the care received in the program. Percentages did not differ among the subsets of patients with a 780-799 ICD-9-CM diagnosis (90%), and “V Codes”, (healthy) diagnosis (92%), or a mental disorder diagnosis (90%). By comparison, in the largest national study of outpatient satisfaction to date (the Medical Outcomes Study involving 17,671 patients), the percentage of patients rating their care as very good to excellent was 87% overall, but in managed care settings (the system most similar to the military health care system), the percent satisfied was somewhat lower.⁵⁴ In general, the satisfaction ratings concerning the care received in the CCEP are similar to satisfaction surveys in the civilian sector.

Additional Research Efforts

The CCEP and the VA Persian Gulf Health Registry are providing information about the types of symptoms and illnesses experienced by Gulf War veterans. However these clinical programs are not able to fully determine the prevalence, incidence, or risk factors of disease related to ODS/S deployment. Therefore, an extensive research program has been initiated by DoD, DVA, and HHS which will complement registry findings.⁵⁵ Among the efforts in process, are three major epidemiological studies being conducted by the Naval Health Research Center, the CDC, and the DVA. The Naval Health Research Center, San Diego, CA (in collaboration with the DVA, HHS, and the University of California), is conducting a series of epidemiological studies of active duty military personnel. Studies include personal interviews and physiologic testing of 750 ODS/S veterans and 1500 non-deployed Gulf-era veterans, analysis of the hospitalization records of 1.2 million service members; and review of pregnancy outcomes among Gulf War veterans and their spouses. Initial findings from these studies are expected in late 1995.

The DVA Environmental Epidemiology Service, Washington, DC, (in collaboration with DoD and HHS) is planning a random survey of 15,000 veterans who served in the Persian Gulf and 15,000 "control" era veterans. This mail/telephone survey is designed to: a) describe symptomatology experienced after Gulf service; b) assess the current health status of veterans and their family members, including reproductive health; and, c) evaluate the risk of potential environmental exposures.

The CDC is also planning to investigate the prevalence of reported symptomatology, illnesses, and exposures among Persian Gulf service members who list Iowa as their home of record.

Other ongoing research studies will further assess reproductive health, evaluate new diagnostic tests for infection, and study the health effects of exposure to depleted uranium and possible interactive effects of chemical exposures. This extensive research program will provide a comprehensive evaluation of the health consequences of Persian Gulf service and will contribute to the development of programs to protect the health of military personnel during future deployments.

The information maintained in the CCEP database constitutes a large case series, and was not designed to be a research study. Nevertheless, the CCEP database provides valuable descriptive information and, as such, is useful for generating hypotheses for future research. Once privacy act provisions have been met which ensure the protection of individual participants, the entire CCEP data set will be placed in a format that will allow access to a broad range of scientific investigators. The DoD anticipates working on this project with the National Technical Information Service through the Defense Technical Information Center.

Individual and Group Response to Environmental Hazards as a Factor Contributing to Health Consequences Among CCEP Participants

Fatigue, stress, fear, sleep disturbances, posttraumatic stress symptoms, anxiety and depression are common conditions which have been observed among military populations after participation in armed conflicts^{56,57 58 59 60} as well as persons who have experienced

natural and manmade disasters.⁶¹ Such physical and psychological effects may persist long after a disaster has occurred. War is one of the most complex of the man made environmental disasters.⁶² Persian Gulf War veterans experienced the hazards of war which are always associated with combat. In addition, they experienced the unique environmental exposures and threats of exposure of the Persian Gulf, (e.g., the Kuwaiti oil well fires). Combat stressors (environmental exposures and the threat of environmental hazards) are complex events with multiple physiological, psychological and social responses in individuals who experience them.⁶³

Service in the Persian Gulf involved numerous stressors, i.e., infectious diseases, chemicals, radiation, smoke from oil well fires, and possible reactions to prophylactic drugs and vaccines. For many, the threat of an environmental hazard was ever present.

It is clear that the Persian Gulf War experience itself, combined with an atmosphere of uncertainty concerning possible health consequences, has resulted in stress for many CCEP participants. The experience of environmental threat or the threat of a disaster can be very important in determining chronic stress and mental health effects. People may experience symptoms which are a direct result of exposure and/or threat of exposure. An individual will often link symptoms to an exposure threat.

The CCEP has identified/confirmed symptoms and diagnosable diseases, both physical and psychological, that would be expected in a general population. Psychiatric diagnoses account for 19% of all primary diagnoses in the CCEP. These diagnoses reflect both expected rates in the general population and the influence of chronic stress on this group of patients as a result of their concerns about exposures. Further research on the relative impact of the Gulf

War experience in terms of development of medical conditions seen in the CCEP will require epidemiologic studies involving appropriate comparison groups.

CONCLUSIONS

The large size of the CCEP cohort and the thoroughness of CCEP examinations provide considerable clinical insight for understanding the nature of illnesses and health complaints being experienced by this group of veterans. However, self-selection of patients, differential eligibility, recall bias, inability to validate self-reported exposures, and lack of an appropriate control group limit the generalization of these findings to other Gulf War veterans.

The CCEP has conducted an aggressive campaign to provide medical examinations to Persian Gulf War veterans who believe they are experiencing medical problems related to their participation in the Gulf War. This pro-active "case finding" effort has resulted in the systematic evaluation of 10,020 patients, to date, including approximately 1700 intensive evaluations at one of 15 tertiary care medical centers within the Military Health Services System. The large number of patients participating in the CCEP, the thoroughness of the evaluations, and the clinical impressions of CCEP physicians are the primary basis for conclusions regarding the lack of existence of a new or unique condition or syndrome.

Based on the CCEP experience to date, there exists no clinical evidence for a new or unique illness or syndrome among Persian Gulf veterans. DoD physicians have diagnosed a wide range of medical conditions commonly seen in general medical practice. The results of the CCEP are consistent with conclusions of a National Institutes of Health Technology Assessment Workshop that "no single disease or syndrome is apparent, but rather multiple

illnesses with overlapping symptoms and causes." Although CCEP physicians have found no clinical evidence for a unique illness or syndrome, the analysis of demographic information, exposure data, symptoms, and diagnostic results, are useful in characterizing the types of illnesses being experienced by Persian Gulf veterans participating in the CCEP.

In general, there appear to be no unique distinguishing characteristics of CCEP participants. CCEP participants served in a large number of units during the Persian Gulf. Preliminary analysis indicates no apparent clustering of CCEP participants on the basis of unit of assignment during the Gulf War. The exposures which CCEP participants describe span a wide range of occupational and environmental chemical/physical agents, vaccines and medications. Confirmation of these exposures was not within the scope of the CCEP, since the primary objective of the exposure questionnaire was to assist the physician in the diagnosis of the patient's medical condition. However, in specific instances, exposures are known to have been limited to relatively small numbers of individuals (e.g., depleted uranium, malaria prophylaxis, and botulinum toxoid).

CCEP participants commonly report experiencing symptoms of fatigue, joint pain, headache, and sleep disturbances. Review of studies of patients with similar chronic health complaints seeking primary care in the U.S. indicate these symptoms are routinely reported and are not unique to CCEP participants. Although the types of symptoms being experienced by CCEP participants are not unique, studies using appropriate control populations will determine whether these symptoms are associated with greater illness in subsets of Persian Gulf veterans than might be expected.

The CCEP has identified a wide range of primary diagnoses commonly seen in clinical practice (e.g., tension headache, migraine headache, fatigue, osteoarthritis, back pain, depression and stress related conditions). Using standard ICD-9-CM coding criteria, 51% of the CCEP diagnoses can be classified as “Psychological Conditions,” “Signs, Symptoms, Ill-Defined Conditions,” and “Musculoskeletal & Connective Tissue.” Review of NAMCS data suggests that these diagnostic categories may be over represented in the CCEP. Potential explanations for these differences include, but are not limited to: 1) aggressive “case finding” which has attracted Persian Gulf war veterans with chronic, non-specific symptoms; 2) selection of individuals with background physical conditions (musculoskeletal injuries) associated with the physical demands of military service; 3) use of a structured, in-depth protocol to diagnose physiologic and psychological conditions which might otherwise not be evident in the course of routine, primary care; and, 4) factors directly related to the Persian Gulf War experience, such as exposure to stressful circumstances.

Concern regarding the possible existence of “unexplained illnesses” was a major consideration in the design of the CCEP. Although CCEP physicians have not identified a unique illness or syndrome, 17% of CCEP primary diagnoses can be categorized as “Signs, Symptoms and Ill-Defined Conditions” according to ICD-9-CM coding criteria. It should be noted that these diagnoses refer to a variety of conditions (well-defined conditions not classified elsewhere in the ICD-9-CM system, generalized symptoms, nonspecific findings, and abnormal laboratory tests) commonly encountered in primary care medical practice. As previously discussed, physical symptoms in both clinic patients and the general population frequently lack a clear-cut or discrete physical explanation or “cause.” Coding of a diagnosis

within the category of "Signs, Symptoms and Ill-Defined Conditions" primarily reflects limitations in diagnostic and/or coding criteria rather than an impression as to whether or not the condition can be explained.

Severe disability measured in terms of lost work days is not a major characteristic of CCEP participants. Some CCEP patients with severe disability may benefit from participation in special programs which focus on rehabilitation, restoration of function and promotion of general well being. The DoD has established Specialized Care Centers, staffed by interdisciplinary teams, to provide such programs.

The broad issue of exposure to combat stressors (environmental exposures and threat of environmental hazards) is complex in terms of psychological, physiological and social responses of those who experience them. Research to assess the relative impact of the Persian Gulf experience as a contributing factor in the development of medical conditions seen in the CCEP will require epidemiologic studies involving appropriate comparison groups.

The CCEP has documented symptoms and confirmed diagnoses in over 10,000 individuals. Results of questionnaires and surveys suggest that CCEP participants have generally been very satisfied with the care they have received. DoD will continue to provide comprehensive, quality health care to eligible Persian Gulf veterans and will maintain an ongoing search for unique symptom/illness patterns. The Department is committed to an ongoing exchange of health information with other government agencies and Persian Gulf veterans to further understand this important public health issue.

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