

**THE BOARD'S ROLE IN ASSISTING THE MILITARY
TO DEFINE ITS POLICY REGARDING
ACQUIRED IMMUNODEFICIENCY SYNDROME
AND EXPOSURE TO HUMAN T-LYMPHOTROPIC VIRUS TYPE III**

During his tenure as Executive Secretary, Colonel Robert Nikolewski often reminded me that the Board needed an important new issue to enhance its image. The problems of acquired immunodeficiency syndrome (AIDS) and human T-lymphotropic virus type III (HTLV-III) filled that need. At the end of the Board's 6 June 1985 meeting, when new business was discussed, Lt. Colonel John Herbold, USAF, then in the Office of Health Affairs, asked, out of the blue, "What does the Board have to recommend for the military regarding AIDS?" What a question! We thought that we had escaped any difficult or controversial problems to consider as action items at this meeting! I was the President of the Board at that time, and I advised Dr. Herbold that the Board did not respond to verbal requests, and that all such queries should be submitted in writing through the proper channels. That was on 6 June 1985. Never has the system witnessed such rapid transit of a set of provocative questions; they reached the AFEB office from the Office of Health Affairs on 10 June 1985—a record. The memorandum for the Board, dated 10 June 1985, from J. Jarrett Clinton, M.D., Deputy Assistant Secretary of Defense, follows:

SUBJECT: HTLV-III Antibody Positivity

As introduced at the June 6 meeting of the Subcommittee on Disease Control, request the Board address the issue of the public health significance of HTLV-III antibody positivity.

Specifically, what guidance can the Board provide regarding the appropriate implementation of public health surveillance and control measures? Given the spread of HTLV-III infection outside previously identified high-risk groups, what studies should the services conduct and what data should be gathered to better define the natural history of and potential military importance of this infectious agent in active-duty populations? Given the comprehensive health care system of the Armed Forces, a closed system, how might our concerns and approaches differ from those of the civilian sector?

Your considered deliberation of this critical issue is requested.

The AFEB has traditionally responded expeditiously when major health problems involve both the military and the public. Accordingly, a special meeting of the Board's Subcommittee on Infectious Diseases was convened at WRAIR on 9 August 1985. The offices of Health Affairs and the respective Surgeons General were bombarded with comments and questions from all sources. These offices were soon spared the nuisance of so many inquiries when the word got out that the AFEB was to direct its attention to AIDS. Neither Colonel Nikolewski nor I nor our secretaries logged the number of calls, but they were numerous. Heads of various lay groups, gay rights groups, and the press called. The Board received demands for allocations of speaking times and placement on the agenda of the pending August meeting. The Board's meetings are, by law, open sessions. I assured the head of the gay rights movement that he would receive agenda time; I asked him to limit his discussion to one-half hour, and to limit the number of persons who would attend the meeting with him because space was limited. We gave no specific answers to questions, and the calls were finally diverted to the proper public relations officer at the Department of Defense. There were many disruptions, but 9 August soon arrived.

I awakened with the chickens that morning, got an early start from Baltimore in order to beat the beltway traffic, and arrived at WRAIR at 0730, well ahead of the meeting. Outside the meeting room were two large and impressive military guards. Unaware as to why they were there, I had them relocated to another floor. I thought that those attending the meeting, particularly the press, might have adverse reactions to seeing armed guards. It was not clear in advance whether the meeting would be orderly and informative or disorderly and controversial, since the public, through the press, was polarized at this time. Soon Conference Room 3092 was packed—a record—with extra chairs and standing room only.

The agenda for that meeting follows, and the roster of Board member, military personnel, invited guests, and press representation is on page 225. (To my knowledge, this was the first time that the press had ever attended a meeting of the AFEB.)

AGENDA	
ARMED FORCES EPIDEMIOLOGICAL BOARD TASK FORCE ON HTLV-III ANTIBODY POSITIVITY WALTER REED ARMY INSTITUTE OF RESEARCH	
9 August 1985	
0900–0915	Welcome, Introduction of Members and Visiting Consultants <i>Dr. Theodore Woodward</i>
0915–1000	Military Medical Issues Regarding HTLV-III-LAV Disease <i>Col. Edward Tramont, USA, MC</i>
1000–1030	Presentation, National Gay Task Force <i>Jeffrey Levi Mathilde Krim</i>
1030–1045	Department of Defense Blood Bank Program <i>Lt. Col. Tony Polk, USA, MSC</i>
1045–1145	Preventive Medicine Officers' Report <i>Col. Manmohan Ranadive, USA, MC Lt. Col. (P) Ernest Takafuji, USA, MC Capt. William B. Mahaffey, MC, USN Col. Alfred K. Cheng, USAF, MC</i>
	Comments <i>Lt. Col. Herbold</i>
1145	Discussion <i>Dr. Theodore E. Woodward</i>

The meeting was orderly. Colonel Edmund Tramont reviewed the current knowledge regarding AIDS. Mr. Jeffrey Levi, Director of the National Gay Task Force, raised the human rights issues of confidentiality and ethical practices. I informed Mr. Levi that the AFEB comprised some of the most ethical and well-informed scientists, epidemiologists, and clinicians in this country, and that questions and recommendations would be directed toward protecting the individual. He was assured that the Board's recommendations would be in the best interests of both the military and the public.

The meeting's main purpose was fulfilled by providing important information on the effectiveness and limits of HTLV-III antibody testing and clarifications of problems relating to the protection of the

blood supply. Clinical descriptions of the disease syndrome, the means of classifying phases of the AIDS spectrum, the incidence of the disease, the known methods of spread of the virus, and the current and anticipated incidences were also elucidated.

Another principal function of the meeting was to allay the suspicion, misinformation, and incrimination which seemed to have polarized the public. The stage was set for the Board to gather its data, to crystallize its understanding of the problem, and to fulfill its mission at its fall meeting, planned for 11–13 September 1985. At this meeting, various other agenda items would be discussed, and the Board's final recommendations regarding the AIDS problem would be formulated.

Roster of Participants

9 August

AFEB Members:

Theodore E. Woodward, M.D.	Board President
William S. Jordan, Jr., M.D.	Board Member
William R. Harlan, M.D.	Board Member
Frank M. Townsend, M.D.	Board Member
Samuel D. Thompson, Ph.D.	Board Consultant
Robert F. Nikolewski, COL, USAF, BSC	Executive Secretary
Robert A. Wells, COL, USA, MSC	Executive Secretary (Designate)

Invited Consultants:

Abram S. Benenson, M.D.	San Diego State University
Saul Krugman, M.D.	New York University Medical Center

Also Attending:

Thomas M. Geer, GB, USA, MC	Director, Professional Services, DASG
Philip K. Russell, BG, USA, MC	Commander, Fitzsimmons Army Medical Center
Harold Jaffe, M.D.	Centers for Disease Control
	AIDS Section, Epidemiology and Treatment
Roger Dodd, M.D.	American Red Cross Laboratory, Bethesda
Harry W. Haverkos, M.D.	National Institutes of Health
Jim Hill, Ph.D.	National Institutes of Health (representing Dr. Fauci)
Alfred J. Saah, M.D.	National Institutes of Health
Manmohan Ranadive, COL, USA, MC	Preventive Medicine Officer, USA
Ernest Takafuji, LTC(P), USA, MC	Disease Control Consultant (DASG)
William B. Mahaffey, CAPT, MC, USN	Preventive Medicine Officer, USN
Alfred K. Cheng, COL, USAF, MC	Preventive Medicine Officer, USAF
Edmund C. Tramont, COL, USA, MC	Chief of Microbiology, WRAIR
A. J. Polk, LTC, USA, MSC	Department of Defense Blood Program
T. R. Cuthbert, COL, USA	Office Secretary of Defense (MRA&L)
John R. Herbold, LTC, USAF, BSC	Health Affairs
Michael Murphy, LTC, USA	Public Relations, Department of Army
Dave Russell, MAJ, USA	Public Relations Office, Chief of Public Affairs,
	Department of the Army
Tansill Johnson	Public Relations, DASG
Jeffrey Levi	National Gay Task Force
Mathilde Krim	National Gay Task Force

Reporters Representing the Following:

Army Times, The New York Times, Chronicle Broadcasting, Pentagram, The Washington Times, The Advocate, Washington Stripe, The Washington Post, U.S. Medicine, and The Washington Blade.

Prior to the September meeting, the Department of the Army, on 15 August 1985, and the Department of Defense's Office of Health Affairs, on 9 September 1985, had presented specific memoranda and questions for the Board's consideration. These questions provided a structure for the Board's response,

particularly after the current knowledge of AIDS had been clarified and discussed. These new memoranda, and the agenda and attendance roster for the 11–13 September meeting, follow:

MEMORANDUM FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

SUBJECT: Questions for the Armed Forces Epidemiological Board on HTLV-III Infections in the Military

1. At the recent meeting of the Armed Forces Epidemiological Board (AFEB) Subcommittee on Infectious Diseases held on 9 August 1985, the respective services were requested by Dr. Theodore Woodward, Chairman of the AFEB, to submit specific questions pertaining to HTLV-III infections and AIDS to the Board that could be addressed at its September meeting.

2. In response to that request, the following questions are provided:

- a. Based on current level of understanding, what is the significance of a positive Western blot-confirmed antibody test for HTLV-III infection?
- b. Are individuals who are antibody-positive at increased risk of having more severe reactions to live virus vaccines? What would their immunological response be to live and killed vaccines?
- c. With the requirement to continue vaccinating military members against smallpox, is routine HTLV-III antibody screening of basic trainees (and other new entrants into the military) prior to receiving smallpox vaccine medically justified? Should prior screening be performed before administration of any other live virus vaccines?
- d. Should the Army be involved in the collection of medical data and the conduct of epidemiological studies on HTLV-III infections?

3. Your assistance with these difficult questions is greatly appreciated.

FOR THE SURGEON GENERAL:

Ernest T. Takafuji, M.D., Lt. Colonel, MC

for:

Manmohan V. Ranadive, M.D.

Colonel, MC, Chief, Preventive Medicine Consultants Division

MEMORANDUM FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

SUBJECT: HTLV-III Antibody Positivity

In our June 10, 1985 memorandum to the Armed Forces Epidemiological Board, we requested advice on broad public health issues of HTLV-III antibody positivity in the military. Your specific attention to the following questions in the context of the original request will assist this office in the development of policy guidelines:

1. Should personnel on active duty be screened for HTLV-III antibody?
2. What steps should be taken with respect to active duty personnel who screen confirmed positive for HTLV-III antibody?
3. Should confirmed HTLV-III antibody positive individuals, identified through screening of potential active duty accessions, be permitted to join the military services?
4. What public health risk does a confirmed HTLV-III antibody positive individual pose in the military operational setting?
5. What public health risk does a confirmed HTLV-III antibody positive individual pose in the military community setting?

J. Jarrett Clinton, M.D.

Deputy Assistant Secretary [of Defense] (Professional Affairs & Quality Assurance)

AGENDA

**ARMED FORCES EPIDEMIOLOGICAL BOARD
(CLOSED MEETING)
McCORMICK FACILITY, PARSON'S ISLAND, MARYLAND**

Wednesday, 11 September 1985

1300-1700 Select Immunodeficiency Diseases
 Letter Questions: OSD(HA)
 Acquired Immunodeficiency Syndrome
 Letter Question: Preventive Medicine Consultants Division
 (DA-OTSG)
 Acquired Immunodeficiency Syndrome
 Letter Question: Commander, Naval Medical Command
 Asplenic Individuals

Thursday, 12 September 1985

0830-0845 Armed Forces Medical Intelligence Center Current Update
 Capt. Finnegan, USA, MSC
0845-1200 Select Immunodeficiency Diseases (Continued)

1300-1345 Germ Cell Tumors of the Testicle Among Aircraft Repairmen
 Lt. Cmdr. A. M. Ducatman, MC, USNR
1345-1400 Questions

1400-1445 Review of the U. S. Army Ambulatory Care Data Base
 Lt. Col. Fred Cecere, USA, MC
 Lt. Col. Terry Misener, USN, MC

1445-1500 Questions

1500-1600 Preventive Medicine Officer Reports
 Col. Ranadive, USA, MC
 Col. Cheng, USAF, MC
 Capt. Mahaffey, USN, MC
 Cmdr. Stockwell, USCG
 Special Award to Colonel Robert Nikolewski

Friday, 13 September 1985

0800-1100 **Overview and Summary**
 Dr. Theodore Woodward
 Presentation to Dr. William E. Mayer and **Dr. J. Jarrett Clinton**

Roster of Participants

12 September

AFEB Members:

Paul M. Densen, D.Sc.
Carol J. Johns, M.D.
William S. Jordan, Jr., M.D.
Richard Hornick, M.D.
Samuel Thompson, Ph.D.
Saul Krugman, M.D.
Theodore E. Woodward, M.D.
Abram S. Benenson, M.D.

AFEB Staff:

Lt. Col. Robert A. Wells, Ph.D., MSC, USA
Col. Robert F. Nikolewski, BSC, USAF
Jean P. Ward, DAC

Military Preventive Medicine Officers and DoD Staff:

Col. Alfred K. Cheng, MC, USAF
Col. Robert G. Self, MC, USAF
Lt. Col. John Herbold, BSC, USAF
Capt. William B. Mahaffey, MC, USN
Col. Manmohan Ranadive, MC, USA
Capt. Vernon D. Schinshi, MSC, USN
Cdr. John R. Stockwell, USPHS

Attendees:

Lt. Col. Fred A. Cecere, MC, USA
Col. Richard N. Miller, MC, USA
Lt. Col. Terry R. Misener, ANC, USA
Capt. Kenneth F. Wagner, MC, USN
Lt. Col. George E. Crawford, MC, USAF
Col. William H. Bancroft, MC, USA
Lt. Col. Ernest Takafuji, MC, USA
Col. Thomas E. Bowen, MC, USA
Lt. Cdr. Alan M. Ducatman, MC, USN
Lt. Col. Donald Burk
Capt. John McNeil, MC, USA
Capt. Mark S. Davis, MC, USN
Maj. John F. Brundage, MC, USA
Maj. Benedict M. Diniega, MC, USA
Capt. Jeffrey D. Gunzenhauser, MC, USN
Maj. Robert R. Redfield, MC, USA
Col. William H. Wolfe, MC, USAF
Lt. Col. James W. Kirkpatrick, MC, USA

Capt. Douglas M. Stetson, MC, USMC
Col. Edmund C. Tramont, MC, USA
James R. Allen, M.D.

13 September

AFEB Members:

Theodore E. Woodward, M.D.
Frank Townsend, M.D.
Abram S. Benenson, M.D.
Samuel Thompson, Ph.D.
Richard Hornick, M.D.
William S. Jordan, Jr., M.D.
Carol J. Johns, M.D.
Leonard Kurland, M.D.
William R. Harlan, M.D.

Senior DoD Staff and Representative of the Surgeon General:

William Mayer, M.D.
Jarrett Clinton, M.D.
Maj. Gen. Monte B. Miller, MC, USAF

AFEB Staff:

Lt. Col. Robert A. Wells, MSC, USA
Col. Robert Nikolewski, BSC, USAF
Jean P. Ward, DAC

Military Preventive Medicine Officers and DoD Staff:

Col. Alfred K. Cheng, MC, USAF
Col. Manmohan Ranadive, MC, USA
Capt. William Mahaffey, MC, USN
Lt. Col. John R. Herbold, BSC, USAF
Col. Robert G. Self, MC, USAF
Cdr. John R. Stockwell, USPHS

Attendees:

Cdr. Mark L. Dembert, MC, USN
Lt. Cdr. Alan M. Ducatman, MC, USNR
Cdr. Mark S. Davis, MC, USN
Lt. Col. James W. Kirkpatrick, MC, USA
Lt. Col. Terry R. Misener, ANC, USA
Lt. Col. Fred A. Cecere, MC, USA
James R. Allen, M.D.
Lt. Col. George Crawford, UC, USAF
Col. William H. Wolfe, MC, USAF

The Board Formulates Its Resolutions on AIDS

Further discussions were held during evening sessions. Specific answers and recommendations to the questions relating to AIDS were formulated. On the morning of 13 September, Dr. William E. Mayer, Assistant Secretary of Defense for Health Affairs, and his Deputy, Dr. J. Jarrett Clinton, arrived at Parson's Island by helicopter. I presented the Board's answers to their specific questions and our recommendations to Dr. Mayer. He commented, after expressing his thanks, 'We can live with that.' The final report was presented to the Office of Health Affairs and the respective Surgeons General on 17 September 1985, and follows:

MEMORANDUM FOR

THE ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)
THE SURGEON GENERAL, DEPARTMENT OF THE ARMY
THE SURGEON GENERAL, DEPARTMENT OF THE NAVY
THE SURGEON GENERAL, DEPARTMENT OF THE AIR FORCE

SUBJECT: Human T-Lymphotropic Virus Type III (HTLV-III) Antibody Positivity

1. At the request of the Assistant Secretary of Defense, Health Affairs, the Armed Forces Epidemiological Board (AFEB) members, consultants and respective military medical service representatives met 11 through 13 September 1985 to consider a set of questions on the above subject (Enclosures 1 and 2).

2. The AFEB traditionally has conceived its mission to be that of rendering advice to the end of ensuring the maintenance of a healthy, effective military service which is ready at all times for rapid deployment. It believes that HTLV-III infections should be addressed in the military services as any other infectious or contagious disease. In this regard it is noteworthy that its similarities to hepatitis B are striking in many respects. The primary objective of the Board must be to protect the health of the individual and simultaneously to prevent the spread of infection to other personnel within the Armed Forces.

3. The Board makes its recommendations relevant to HTLV-III antibody positivity in the light of its evaluation of the current state of knowledge of this complex disease. The Board is well aware of the present threat and of the potential for greater threat based on the comprehensive assessment of several factors to include: (a) the risks to the infected individual incident to military service, (b) the risk of transmission of illness to non-infected personnel, (c) the impact of infected individuals on the function of their unit, and (d) the safety of the blood supply.

4. The recommendations of the Board may be subject to change at such time as the natural history of HTLV-III infection becomes more clear. Under these conditions, pertinent and longitudinal studies would be appropriate. Under ideal circumstances the screening of all active duty military personnel for HTLV-III antibody and hepatitis B antigen could be advisable. However, such screening is unnecessary based on information currently available relative to the threat of illness to others or the limitations of personnel to perform their duties. Moreover, the prospect of screening all active military members for HTLV-III antibody at this time is not envisioned as feasible—not only because of the logistical and economical requirements, but especially because of the limited availability of trained personnel and medical resources. The qualifying criterion is simply that it is unknown whether an individual with HTLV-III will progress to active illness. Future studies of the natural history of the syndrome should help clarify this important matter.

5. Based on a thorough review of available information and subsequent discussion, the Board makes the following recommendations:

- a. All active duty personnel pending reassignment to overseas permanent duty stations should be screened for the presence of HTLV-III antibody. If these individuals are found to be positive by ELISA and by an appropriate confirmatory test, the service member should be medically evaluated to determine the status of his or her infection. This is appropriate to allow identification of those at high risk for progression of infection and at high risk from exotic diseases before an extended overseas tour.
- b. Individuals who are antibody positive but manifest no evidence of progressive clinical illness or immunological deficiency may be considered for worldwide duty. All antibody positive persons should receive a comprehensive and immunological evaluation at least annually. They should be counseled on risks of transmission and be designated as blood-donor ineligible. Military personnel with progressive clinical illness or immunological compromise should be referred to a medical evaluation board for a determination of fitness for worldwide duty.
- c. New candidates for active duty identified as HTLV-III antibody positive (two ELISA and confirmatory tests) at the time of induction will be rejected from military service. The candidate will be advised to consult his or her personal physician.

This judgment is based on the possibility that such antibody positive persons may have an increased potential to develop the Acquired Immune Deficiency Syndrome—particularly when they are given required live biologic vaccines, when they are exposed to or are infected with agents such as the *Plasmodium* of malaria or are subjected to other biological or physical stresses. It is conceivable that future testing and medical evaluation may show that individuals with positive antibody alone may be healthy and therefore should not be ultimately precluded from consideration for military service.

6. Current evidence indicates that HTLV-III is transmitted to others by blood transfusion from an infected person by the injection of infected blood products or by intimate contact with an infected person. The risk of transmission of HTLV-III is not completely understood and requires further evaluation. However, day-to-day association with infected persons by close household contacts does not pose a threat to the uninfected individuals. There are hundreds of instances where adults or children living with persons with AIDS or positive for HTLV-III antibody have themselves failed to become infected or antibody positive. The same situation has been observed regarding medical contacts with known patients. Moreover, health professionals who have experienced needle puncture with needles contaminated with materials from AIDS patients have very rarely developed illness or serologic evidence of infection. Specifically, only one such case has been reported at present. The Board, therefore, makes the following recommendation relative to military operational settings:

Environmental contacts in military operational settings such as tanks, submarines, and aircraft are not regarded as significant risks for infection by HTLV-III. In accordance with United States Public Health Service recommendations, personnel who are HBsAg and/or HTLV-III antibody positive should be designated as unsuitable as blood donors.

7. Although generally there is no perceptible risk of transmission by non-sexual person-to-person contact, there are other concerns which are relevant within the military/community setting. The following recommendations by the Board are intended to address these issues:

- a. Service planning on contingency blood samples should take the potential for HTLV-III infection into account. The periodic screening of all military personnel is not recommended **due to** excessive screening costs weighed against low **risk and** the inability to ensure the absence of infectivity by random testing. However, the Board recommends that donated blood be screened to detect HTLV-III antibody and Hepatitis-B antigen wherever a significant number of blood units are to be processed.
- b. Although personnel pending overseas assignment are recommended for the highest screening priority, those currently serving at an overseas duty station may also be candidates for screening. Such screening should be accomplished in a prioritized fashion, with the highest priority to those assigned at locations with a high risk of endemic disease or with minimal medical capability.
- c. The Board recommends that additional education be provided on techniques to minimize the transmission of this infection in order to reduce unfounded fears regarding the etiology and epidemiology of the disease.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. Woodward, M.D.
President. AFEB

Robert A. Wells, Ph.D.
Lt. Colonel (P), USA, MSC
Executive Secretary

The Secretary of Defense Establishes Policy

Acting without delay, Secretary of Defense Caspar W. Weinberger transmitted the following memorandum and policy procedures, dated 24 October 1985:

MEMORANDUM FOR

SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN, JOINT CHIEFS OF STAFF
ASSISTANT SECRETARY OF DEFENSE (FM&P)
ASSISTANT SECRETARY OF DEFENSE (RA)
ASSISTANT SECRETARY OF DEFENSE (PA)
ASSISTANT SECRETARY OF DEFENSE (HA)
ASSISTANT SECRETARY OF DEFENSE (LA)
GENERAL COUNSEL

SUBJECT: Policy on Identification, Surveillance, and Disposition of Military Personnel Infected with Human T-Lymphotropic Virus Type III (HTLV-III)

The following policy is established relative to infection of military members with Human T-Lymphotropic Virus Type III (HTLV-III). This initial policy is intended to reflect current knowledge regarding the natural history of this disease, the risks to the infected individual incident to military service, the risk of transmission of disease to noninfected personnel, the effect of infected individuals on the function of the unit, and the safety of the blood supply. These policies are adopted as interim guidance which shall be reviewed within one year. This review shall assess developments in the medical management of HTLV-III infections, information obtained through longitudinal epidemiologic studies of the natural history of HTLV-III infection, and the effects of this interim guidance on force management. Appropriate changes to DOD directives shall be promulgated within 30 days of the conclusion of this review.

A. Accession

Applicants for enlisted service shall be screened for exposure to HTLV-III at the Military Entrance Processing Station or the initial points of entry to military service. Candidates for officer service shall be screened for exposure to HTLV-III during their pre-appointment or pre-contracting physical examinations. Individuals confirmed as HTLV-III antibody positive (Food and Drug Administration-approved enzyme immunoassay (EIA) serologic test and, if positive, a positive immunoelectrophoresis test (Western blot) are not eligible for military service. The rationale for this policy is [that:]

- the condition existed prior to service,
- the Department avoids potential medical costs and the possibility that the individual shall not complete his or her service commitment,
- clinical evidence indicates that pre-AIDS patients may suffer adverse and potentially life-threatening reactions to some live virus immunizations administered at basic training,
- an antibody positive individual is not able to participate in battlefield blood donor activities or other blood donation programs, and
- presently, there is no way to differentiate between antibody positive individuals who will progress to clinical disease and antibody positive individuals who will remain healthy.

B. Disease Surveillance

1. Active duty and reserve component military personnel shall be screened for the presence of HTLV-III antibody. Generally, implementation should be in the following priority order:

. individuals serving in, or subject to deployment on short notice to areas of the world with a high risk of endemic disease or with minimal existing medical capability,

- *individuals serving in, or pending assignment to, all other overseas permanent duty stations,
- *individuals serving in units subject to deployment overseas,
- *other individuals or units deemed appropriate by the respective military department such as medical personnel involved in the care of HTLV-III infectious patients, all remaining individuals in conjunction with routinely scheduled periodic physical examinations.

2. Individuals who are confirmed to be antibody positive shall be medically evaluated to determine the status of their infection and the potential adverse consequences to the individual of serving in a particular geographic region. The Assistant Secretary (Health Affairs) shall convene a Tri-Service medical working group to develop a standardized clinical protocol to ensure consistent evaluation and staging of each patient at all military medical treatment facilities.

3. The medical assessment of each exposure to and/or case of HTLV-III infection shall include an epidemiological assessment of the potential transmission of HTLV-III to close personal contacts and family of the patient. This information is vital to provide appropriate preventive medicine counseling and to the continued development of scientifically based information regarding the natural history and transmission pattern of HTLV-III. Therefore, the occurrence of HTLV-III infection shall not be used as a basis for punitive action against an individual.

4. Each military medical service shall conduct ongoing clinical evaluations of each antibody positive individual's health status at least annually, provide appropriate preventive medicine counseling to individual patients, provide public health education materials to the beneficiary population, conduct longitudinal [studies], and prepare internal reports to facilitate timely review and reassessment of current policy guidelines.

C. Retention

1. Individuals who are antibody positive but manifest no evidence of progressive clinical illness or immunological deficiency (based on) physical and laboratory assessment, demonstration of ability to respond to immunizations, and ability to mount a protective immune response to immunizations or exposure to naturally occurring pathogens) shall be retained. The Service Secretaries, in order to protect the health and safety of infected individuals and of other military persons, may limit assignment of such individuals with respect to the nature and location of the duties performed in accordance with operational requirements.

2. All antibody positive persons shall receive a comprehensive clinical and immunological evaluation at least annually. Each individual shall be counseled on the risks of disease transmission, methods of prevention, and informed that they are ineligible to donate blood.

D. Separation

1. Individuals who are infected with HTLV-III and demonstrate progressive clinical illness shall be referred for medical evaluation for a determination of fitness for continued service in accordance with Title 10 United States Code Section 1201, et seq.

2. Individuals who are infected with HTLV-III and are found not to have complied with preventive medicine counseling for individual patients may be separated for the convenience of the Government.

3. Separation for the convenience of the Government or for misconduct based upon evidence other than HTLV-III infection is unaffected by this policy memorandum.

E. Safety of the Blood Supply

DOD Military Blood Program Office policies and Food and Drug Administration guidelines shall be followed by the Military Departments' Blood Programs and by civilian blood agencies collecting blood on military installations. In the event that units of blood shall not be screened for infectious agents prior to transfusion (contingency or battlefield situations), the DOD Military Blood Program Office in coordination with the Military Departments shall provide guidance to operational units to ensure that potential donors have been screened.

F. Limitations on the Use of Information

1. Results obtained from laboratory tests for HTLV-III performed under this memorandum and information concerning personal drug use or consensual sexual activity disclosed by a Service member as part of an epidemiological assessment under this memorandum may not be used against the Service member in actions under the Uniform Code of Military Justice, in a Line of Duty determination, or on the issue of characterization in separation

proceedings. Such information may not be used as the basis for separation of the service member except for (a) separation based upon physical disability, or (b) separation for the convenience of the Government after a hearing before a board of officers and approval by the Secretary or an Assistant Secretary of the Service concerned.

2. The limitations in paragraph F.1. do not apply to:

- (a) The introduction of evidence for impeachment or rebuttal purposes in any proceeding in which the evidence of drug abuse or relevant sexual activity (or lack thereof) has been first introduced by the Service member;
- (b) Disciplinary or other action based on independently derived evidence.

Caspar W. Weinberger
The Secretary of Defense

Enclosure (References)

References

- (a) Armed Forces Epidemiological Board Memorandum, 17 September 1985, Human T-Lymphotropic Virus type III (HTLV-III) Antibody Positivity.
- (b) Deputy Secretary of Defense Memorandum, 30 August 1985, HTLV-III Testing.
- (c) Assistant Secretary of Defense (Health Affairs) Memorandum, 14 August 1985, Standardization of Reporting Requirements for Blood Collection Agencies on Military Installations.
- (d) Assistant Secretary of Defense (Health Affairs) Memorandum, 17 July 1985, Military Implementation of Public Health Service Provisional [*sic*].
- (e) DoD Military Blood Program Office Memorandum, 13 March 1985, Military Implementation of Public Health Service Provisional Recommendations.
- (f) Department of Defense Directive 6200.1, April 27 1973, Policy Concerning the Venereal Disease Control Program of the Armed Forces.
- (g) Department of Defense Directive 1332.18, September 9, 1968, Separation from the Military Service by Reason of Physical Disability.
- (h) Title 10 United States Code Section 1201, *et seq.*

Despite the difficult logistical adjustments, the three military services persevered, collaborated, and applied their personnel and resources to effect the Boards recommendations. The Assistant Secretary of Defense for Health Affairs expressed his appreciation to the Board in the following letter, dated 5 December 1985:

Dear Dr. Woodward:

I wish to commend and thank the Board for its assistance in addressing issues of critical importance regarding the emergence of Human T-lymphotropic Virus Type III infections among military personnel. To assist the Department of Defense in maintaining a current and balanced approach on this issue, I request that the AFEB establish a standing committee on HTLV-III infection that would evaluate and comment on current DOD initiatives and programs from the perspective of prevention, epidemiologic assessment, and risk management. Your continued support and valuable insight are greatly appreciated. I look forward to meeting personally with you and whomever you appoint to discuss the details of the AFEB's continuing work on this disease.

Sincerely yours,

William Mayer, M.D.

The AFEB Responds to Requests from the Department of Defense

In keeping with Dr. Mayer's request, a standing AFEB Subcommittee on HTLV-III Infections was appointed, with the following membership: Abram S. Beneson, Chairman, and William S. Jordan, Jr., Frank M. Townsend, and me. Later, Walter H. Dowdle, Richard B. Hornick, and Llewellyn J. Legters also

WILLIAM E. MAYER, M.D.

Dr. Mayer, a psychiatrist, became the Pentagon's top medical advisor in December 1983, when he was appointed Assistant Secretary of Defense for Health Affairs. He served in both the Army and the Navy Medical Corps and, following the Korean War, he conducted a special study for the Army on prisoners of war. He served as Director of the California State Department of Health while Ronald Reagan was Governor, and was head of the Alcohol, Drug Abuse, and Mental Health Administration in the Department of Health and Human Services while he was also on active duty in the Public Health Service Commissioned Corps.

Dr. Mayer and his very able Deputy, Dr. Jarrett Clinton, soon made it clear that they wished to work with the Armed Forces Epidemiological Board and the respective military services. Problems of great importance that intimately involved the Board came under intense discussion during their administration, some of which were: acquired immune deficiency syndrome; asbestosis; agent orange; cardiovascular screening for military personnel age 40 and older; safety considerations of the M2 Bradley Fighting Vehicle; military health standards; and population-based epidemiological forecasting.

joined. On September 25, 1986, J. Jarrett Clinton, M.D., Deputy Assistant Secretary of Defense, addressed the following letter of request to the AFEB:

Dear Dr. Woodward:

The Department of Defense has initiated a policy review of our current HTLV-III program guidance. As you recall, our initial guidance was promulgated after recommendations were provided by the AFEB. The assistance of the AFEB throughout this past year has been instrumental in our ability to maintain a steady course in addressing the myriad problems associated with this disease in a scientific and medically sound manner.

It would be most helpful if the AFEB would address the following questions at your October meeting:

(a) What is the significance of a p24 band alone? Should DoD maintain a dichotomized, positive/negative standard or should laboratory results be reported as positive, negative, or indeterminate? Should laboratory results report the band patterns and explanation of results to the attending physician?

(b) Is periodic testing of the total force medically indicated? If so, how frequently? Does the current DoD recommended order of priority for cohort screening of military personnel for HTLV-III infection maximize the dual objectives of protecting individual health and minimizing transfusion associated transmission in contingencies? Could the total force screening effort currently being undertaken by the Military Services be effectively integrated into existing procedures such as pre-enlistment physical examinations, medical qualification for overseas assignment or assignment to rapid deployment units, and in conjunction with scheduled periodic physical examinations?

(c) For which high risk patient populations, if any, should military medical facilities offer or require HTLV-III screening (for example STD clinics, prenatal clinics, surgical or all hospital inpatients)?

(d) Given the rationale for HTLV-III screening of military personnel, should we require population-based screening of DoD civilian employees, either within the United States or overseas?

(e) What restrictions, if any, should be placed on health care workers who are HTLV-III antibody positive? If an HTLV-III infected health care worker continues to work, does the patient have a right to know about the health care worker's status, even if the risk of transmission is negligible?

We appreciate your attention to these difficult issues.

Additionally, any guidance regarding other aspects of this disease that you deem appropriate would be most welcome. I am looking forward to joining **you** at the meeting.

Sincerely,

J. Jarrett Clinton, M.D.
Deputy Assistant Secretary
(Professional Affairs & Quality Assurance)

cc: Surgeons General
Executive Secretary, AFEB

The Subcommittee on AIDS and the Board discussed these questions at its fall 1986 meeting, and transmitted the following recommendations on Human Immunodeficiency Virus (HIV) infections — note that the policy on the name of the virus has been changed to HIV from HTLV-III — to DoD's Office of Health Affairs on 10 November 1986:

SUBJECT: Recommendations on Human Immunodeficiency Virus (HIV) Infection

1. At the request of the Assistant Secretary of Defense, Health Affairs, the Armed Forces Epidemiological Board (AFEB), military medical service representatives and appropriate members of the civilian medical community met 16–17 October 1986 to consider a *set* of questions on the above subject (Enclosure 1).

WALTER R. DOWDLE, Ph.D.

Walter Dowdle received his B.S. degree from the University of Alabama in 1955, his M.S. degree from Alabama in 1957, and his doctorate in Microbiology from the University of Maryland in 1960. Most of Dr. Dowdle's experience has been at the Center for Disease Control in Atlanta, where he has served as Director of the Center for Infectious Diseases. He has published broadly in the field of infectious diseases on pneumonia, herpetic infections, influenza, and HIV infections.

Dr. Dowdle joined the AFEB in 1986, bringing his considerable epidemiological experience to help unravel the complicated relationship between HIV infection and its impact on health care in the military.

LLEWELYN J. LEGTERS, M.D.

Lew Legters graduated from the State University of New York at Buffalo School of Medicine, and served as a house officer in general medicine before he joined the Army Medical Department, where he developed his capabilities in epidemiology and preventive medicine. He maintained close contact with the AFEB during his tenure as the Army's Chief of Preventive Medicine from 1975 to 1977. During his service years, Lew was always well-informed on the incidence of diseases, and could easily separate out matters of consequence. His reports to the Board were always concise and informative.

Lew became Chairman of the Department of Preventive Medicine at the Uniformed Services University of the Health Sciences School of Medicine, where he developed an effective epidemiological unit that applies its expert services in geographic sites of medical and military importance. Lew has served the Board as an actively participating member; his advice greatly assists the Subcommittee on Infectious Diseases. He is one of the few career officers who has maintained a close association with the Board after his retirement from the service.

RICHARD B. HORNICK, M.D.

After he trained at The Johns Hopkins School of Medicine, Dick Hornick worked as a medical officer in infectious diseases at USAMRIID. Then, for two decades, he conducted innovative research on the development and application of viral, rickettsial, and bacterial vaccines at the University of Maryland School of Medicine. He helped develop the strong Division of Infectious Diseases there, which he directed until 1979, when he was named Chairman of the Department of Medicine at the University of Rochester School of Medicine.

Dick served as a member of the AFEB's Commissions on Epidemiological Survey and Enteric Diseases. Later he was appointed to the Board, where he provided support for the Subcommittee on Infectious Diseases. Dick's contributions to our knowledge of typhoid fever, other enteric infections, tularemia, and rickettsial diseases, and in particular to their control by vaccines and the development of a better understanding of their pathogenesis, have benefited our whole society.

2. a. With regard to the question of the significance of a solitary p24 band of the bands in the Western blot test which are characteristic of AIDS infection, and the preferred contents of the laboratory report, the Board recognized that Western blot preparations vary in sensitivity and may produce false positive reactions. A solitary p24 band in a Western blot test cannot be regarded as definitive. While it may indicate an early stage of infection with HIV, it may be a false positive reaction; i.e. a true negative. Thus the Board recommends that:

A solitary p24 band should be regarded as neither positive nor negative, but as an intermediate result requiring further testing of the serum sample by more definitive procedures such as testing by the solid phase ELISA with recombinant antigen or by the radio-immunoprecipitation assay. This testing should permit a report of a positive or negative test for antibodies against HIV; rarely the testing might result in indeterminate findings requiring a new serum specimen for repeating testing.

b. To answer the question whether periodic screening of the total force is medically indicated, the Board considered the issues involved in the problem of AIDS among military personnel. The current program of mass screening will identify those in the Armed Forces who are presently infected with the human immunodeficiency virus (HIV); the exclusion of recruits who are serologically positive assures that no infected individuals are added to the active duty pool. The periodic medical evaluation of those active duty personnel who were found to be seropositive will assure that the military population is fully fit for duty insofar as AIDS is concerned, except that these individuals, and the much larger number of carriers of the hepatitis B virus, must be appropriately identified by "dog-tag" or other device as disqualified from serving as blood donors.

Repeating total force screening would detect those active duty personnel who have developed new infections, and would provide important epidemiological information. The latter can be more economically obtained by testing appropriate numbers of active duty personnel selected randomly from various segments, geographic and otherwise. Findings of the current screening may suggest groups of epidemiological importance.

For detection of new cases, screening would best be integrated into existing medical encounters such as medical qualification for overseas assignment, assignment to rapid deployment units, and periodic physical examinations. The transmission of AIDS is very similar to that of syphilis; it is primarily transmitted sexually and also by exchange of blood (by needles shared among intravenous drug users and, before the tests became available, by blood transfusion); control of AIDS would be best effected by using the methods successful in controlling syphilis. These methods were based on identifying infected individuals and tracing the contacts from whom they may have acquired or to whom they may have transmitted their infections, and appropriately managing all who proved to be infected.

While there is now no proven effective drug for treatment of AIDS, the epidemic can be controlled by preventing further spread. This involves counseling the seropositive individuals on the techniques and need for the practice of "safe sex." For those who were involved in intravenous drug abuse, drug rehabilitation and impressing on the infected drug addict the danger he poses to others if he persists in his drug habits and shares syringes and needles with others.

The Board recommends that:

Following completion of the present total force screening, further HIV detection should be applied on a selective basis. Subsequent HIV screening for the military forces should be integrated into existing procedures such as pre-enlistment examinations, medical qualification for assignment overseas or to rapid deployment units, and in conjunction with scheduled periodic examinations. Major military medical facilities should acquire the expertise to carry out the serologic tests for screening for infection. Quality control measures must be reinforced to insure the validity of results.

c. With respect to the question to which high risk patient populations should HIV screening be required or offered, it is to be noted that the four-year interval between periodic physical examinations of those in the 20-30 age group, among whom the prevalence of seropositivity has been found to be highest, is too long a period to adequately protect the health of the individual or the safety of emergency-required blood for transfusion. This interval can be shortened by serological screening for HIV when the individual is admitted to a hospital or receives other medical care, with consideration of how recently the last serological screening had been performed. Because

they fall into high risk groups, testing should be required on those who attend drug rehabilitation or STD clinics because of the likelihood that infection with HIV may have occurred concurrently; testing should be repeated 2-3 months later if a negative test is reported since serological positivity may not have developed yet. Because of the threat to the newborn child, and because infected service members may be found among the contacts of a seropositive woman, screening is advisable for those attending prenatal clinics. Serological testing should be performed in the laboratories of major medical facilities; the technology for HIV testing is much simpler than the Wassermann test which is routinely performed in larger hospitals and regional laboratories. To assure a high level of performance, quality assurance testing will be required.

The Board therefore **recommends** that:

HIV testing should be a requirement for all military personnel admitted to a military hospital unless a test has recently been performed. It should be required of all personnel admitted to clinics for sexually transmitted diseases (STD) and drug rehabilitation; tests should be repeated in two to three months if negative on first testing. HIV screening is advisable for patients in prenatal clinics. Major medical facilities should acquire the expertise to carry out the appropriate serological tests; quality control measures must be enforced to insure the validity of results.

d. Regarding the question on the screening of DOD civilian employees either within CONUS or overseas, the Board considered the indications for screening civilian employees of the Armed Forces. Within CONUS, DOD has no medical responsibility for civilian employees; however, overseas the sick civilian becomes the responsibility of the military medical system. A seropositive individual going overseas might be assigned to duty in an isolated area with poor access to medical care; should clinical manifestations of AIDS such as pneumonia develop, the welfare of the individual would be jeopardized. From the point of view of the service, the seropositive civilian employee has an increased likelihood of becoming a burden to the medical system, and the probability of completing the contracted tour of duty is reduced. Therefore, the Board **recommends** that:

Testing for HIV should be included in any medical clearance procedures now in use prior to assignment of civilian personnel overseas.

e. With reference to the question on restrictions on HIV-infected health care workers, the Board **recommends** that:

HIV-positive health care workers who are otherwise healthy may continue to provide health care, conducting themselves in accordance with the guidelines published by the U.S. Public Health Service in *Morbidity and Mortality Weekly Report*, Vol. 35, No. 14, dated 11 April 1986, "Recommendations for Preventing Transmission of Infection with HTLV-III/LAV during Invasive Procedures." (Enclosure)

3. The Board commends the services for developing a working staging system for AIDS. The Board also suggests that the methods of reporting data related to AIDS prevalence and incidence be presented in a standard format and that specific rates be stated to permit interservice comparisons.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. Woodward, M.D.
President

Robert A. Wells, Ph.D
Colonel, USA, MSC
Executive Secretary

The Neuropsychiatric and Secondary-Infection Aspects of AIDS

During each of its meetings, the Subcommittee on Infections and the Board always discussed some aspect of the HIV infection problem. On 5 February 1988, John F. Mazzuchi, Ph.D., who succeeded Dr. Clinton as Acting Deputy, Assistant Secretary of Defense for Health Affairs, presented the following memorandum to the AFEB for its consideration:

MEMORANDUM FOR ARMED FORCES EPIDEMIOLOGICAL BOARD

SUBJECT Human Immunodeficiency Virus (HIV) and Implications for Military Service

Human Immunodeficiency Virus (HIV) infection continues to be a serious concern for the military. Preliminary information on the progression of HIV infection, the neuropsychiatric aspects of HIV infection and their potential effect on job performance, and risks of secondary infection, such as coccidiomycosis, in HIV infected soldiers raises some questions.

1. Is there sufficient epidemiological evidence to support the hypothesis that military service accelerates progression of HIV infection? In other words, is the rate of progression greater than would be expected in comparable HIV infected civilian populations?

2. Is there sufficient medical evidence to demonstrate neuropsychiatric impairment at levels great enough to warrant excluding HIV seropositive military personnel, based solely on seropositivity, from military occupations requiring a high level of alertness, correct judgement, and precise motor skills?

3. Is there sufficient epidemiological evidence to demonstrate that HIV seropositive military personnel are at increased risk of developing disseminated coccidiomycosis when assigned to, living in, or traveling to geographical areas endemic for coccidiomycosis when compared to military personnel not infected with HIV?

It is requested that the Board address these questions during its February meeting.

After discussion and consideration, the Subcommittee on HIV Infections and the Board transmitted the following memorandum to the Office of the Assistant Secretary of Defense for Health:

In response to the memorandum from the Office of the Assistant Secretary of Defense on 5 February 1988, the AFEB considered the data presently known about asymptomatic infections with the human immunodeficiency virus (HIV). Based on the excellent presentation, the AFEB states:

1. There is insufficient epidemiological evidence presently available to support the hypothesis that military service accelerates the progression of HIV infection.

2. There is insufficient medical evidence to demonstrate that individuals who are HIV antibody positive, but asymptomatic, experience neuropsychiatric impairment in excess of HIV antibody negative personnel. Until more reliable data are available, the following AFEB recommendation [applying] to neuropsychiatric abnormalities [that] might result from various medical illnesses, including HIV infection, is made:

If mental depression or other neuropsychiatric states occur in any serviceman [or servicewoman] assigned to a stressful or occupationally sensitive position, that person is to have [a] full medical evaluation and [be] returned to that sensitive position only after shown to be functionally fit for duty.

3. While there is sufficient epidemiological evidence to demonstrate that patients with clinically manifest AIDS (those with depressed T4 cells, etc.) are at increased risk of developing disseminated coccidiomycosis when exposed to *Coccidioides immitis*, there is not sufficient evidence to indicate greater susceptibility to infection or dissemination in those individuals in the WRAIR Groups 1 & 2.

I had participated in the meetings of the Subcommittee on HIV Infections and the Board, but did not fully concur with all of the recommendations. I had expressed my opinions to members of the Board, and

decided to **submit** a personal letter to Dr. Mayer, the Secretary of Defense for Health Affairs. That letter, dated 9 March 1988, follows:

Dear Dr. Mayer:

The AFEB recently held its winter meeting at WRAIR and devoted considerable time for discussion of the AIDS problem in the Military Services. This discussion culminated in a series of responses to important questions which had been presented to the Board. These responses and recommendations have been transmitted to your office under separate cover.

Often, answers to delicate medical problems are not as precise as they might be simply because there is insufficient data upon which a recommendation is based. During the recent meeting, Doctor Mazzuchi and Lt. Col. Peterson reiterated that your office wished to have the recommendations and answers based solely on scientific evidence which was to form the basis for, and conclusions reached, by the Board and its panel of experts.

These answers to the specific questions are now in your hands. It was my privilege to participate in these discussions and to help formulate the recommendations as submitted. However, my personal view is at slight variance with those recommendations, which viewpoint is not fully shared by all members of the Board.

To my mind, there are factors other than those which are directly related to medical or psychoneurological abnormalities. These factors can transcend the known facts and can well relate to functional capability. To be sure, there are currently conflicting data as to whether a person with AIDS, in its early stages, has clearly measurable abnormalities of the central nervous system which would predictably interfere with his or her functional capacity in a high risk or sensitive position. Those factors that transcend this point of reference relate to day-to-day considerations of anxiety, stress, and tension, which clearly relate to function. These human reactions may develop after any catastrophic human event, of which AIDS is a representative example. In contemporary society, the social reaction to this horrible disease influences not only the victim but some of those who are associated with that unfortunate person. Clearly, there are members of society newly placed in contact with an AIDS patient who might react inappropriately to the threat of acquiring AIDS. This is true even though there is no evidence that casual contact relates in any way to transmission of the virus. These are the weaknesses of human behavior. The threat regarding aberrant behavior may pertain to the victim as well as the one who is associated with that victim.

Any physician who has practiced medicine or psychiatry with a disturbed patient in the confidence of his sick room has witnessed abnormal behavioral traits repeatedly, which have influenced function, even though that person would test negatively to the available scientific measurements.

Until society has fully sifted out and accepted the troublesome and conflicting facets of this dread virus disease, my view is simply that those persons in the military service who are clearly identified as having HIV infection should not be assigned to high risk and sensitive positions. Examples of such high risk and sensitive positions might be the piloting of an airplane, directing the activities of an air traffic station, a high security position and similar occupations. Perhaps with the passage of time, these viewpoints may be found to be obtuse. It seems to me that with the current state of knowledge and uncertainty, better judgment favors the aforementioned consideration.

Sincerely yours,

Theodore E. Woodward, M.D.

President, Armed Forces Epidemiological Board

The Resolution Concerning Confidentiality

In all of the discussions pertaining to AIDS, the Board, collaborating with the military, had continually expressed the need to maintain confidentiality to the highest degree possible. During its February 1986 meeting in San Antonio, the Board had formulated the following resolution:

The AFEB is pleased that its recommended guidelines directed to the means of restriction of spread and control of [HIV] infection within the Armed Forces was favorably received by the Office of Health Affairs of the DoD. The Board maintains its original opinion that

CAROL J. JOHNS, M.D.

Following her graduation from The Johns Hopkins University School of Medicine and her residency in medicine at its hospital, Carol Johns joined the faculty of that institution. As an exceptionally well-qualified clinician, she chose pulmonary diseases, and in particular, Beck's sarcoid, for her research interest. Carol has contributed importantly to the clinical and basic knowledge of this strange granulomatous disease. In Baltimore, she is called upon as a consultant in many difficult medical problems.

She served her alma mater, Wellesley College, as its Acting President, and she graciously joined the AFEB as a member despite her heavy academic responsibilities. She has brought a balance to the Board in matters relating both to internal medicine and to the particular needs of women in the Armed Forces.

Armed Forces Epidemiological Board and Commission Directors
6-7 June 1985

Seated, left to right: Norton Nelson, Ph.D.; Paul M. Densen, D.Sc.; Abraham S. Benenson, M.D.; Colonel Robert F. Nikoleski, BSC, USAF, Executive Secretary, Theodore E. Woodward, M.D., President of the Board; and Frank M. Townsend, M.D.

Standing left to right: Hans O. Lobel, M.D.; Ronald C. Shank, Ph.D.; Richard B. Homick, M.D.; Samuel D. Thompson, Ph.D.; Llewellyn J. Legters, M.D.; Leonard T. Kurland, M.D.; and Frank B. Engley, Jr., Ph.D.

Armed Forces Epidemiological Board and Committee Directors
San Antonio, Texas
13–14 February 1986

Seated, left to right: Dr. Frank B. Engley, Jr.; Dr. William E. Jordan, Jr.; Dr. Carol J. Johns; Dr. Theodore E. Woodward, President of the Board; Major General Floyd W. Baker, Commanding General, Health Service Command; and Dr. Paul M. Densen.

Standing, left to right: Dr. Leonard T. Kurland; Dr. Llewellyn J. Legters; Dr. Abram S. Benenson; Colonel Robert A. Wells, MSC, USA, Executive Secretary; Dr. Richard B. Hornick; Dr. Frank M. Townsend; and Dr. Saul Krugman.

the preservation of individual confidentiality be maintained if the program is to succeed. The Board commends the Military Services for the plan to perform a longitudinal evaluation of those persons who now show the presence of [HIV] antibody. Only in this way will it be possible to understand the natural history of this disease which, to this point, has been uniformly fatal once active signs of infection occur. The valuable data which will accrue from a long-term study will provide valuable information of inestimable importance to the Military Services and to the public at large. The governmental policy should be designed so as to insure that all types of accurate medical and epidemiologic information is obtained. In the interrelationships with [HIV]-infected persons, the data collection must allow free communication between the infected service member and the health care provider. Free interchange of reliable information must not be stifled. If there is misunderstanding, lack of confidence and the fear that an adverse policy reaction will penalize or embarrass those involved, no reliable epidemiologic data will accrue. Under such adverse conditions, service members will be motivated to deny or withhold such relevant risk factors as homosexual behavior or drug abuse. An atmosphere of trust will greatly assist in acquisition of reliable epidemiologic information; otherwise, a scientific and accurate study is not possible. Added to the need of insuring an accurate scientific evaluation is the obligation to protect the rights of the individual, an undeniable right.

THE HEALTH PROBLEMS OF ASPLENIC PERSONS

In 1985, another potentially serious medical problem was presented to the Board by the Commander of the Navy Medical Command. Specifically, the Board was requested to determine the immunization requirements for three categories of asplenic persons: congenital asplenic, those whose spleens were removed before they entered the service, and those who had undergone splenectomy following their induction into active duty. After much discussion and review of the pertinent medical literature, the Subcommittee on Infections and the Board formulated the following memorandum and recommendations, dated 25 September 1985:

MEMORANDUM FOR:

THE ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)
THE SURGEON GENERAL, DEPARTMENT OF THE ARMY
THE SURGEON GENERAL, DEPARTMENT OF THE NAVY
THE SURGEON GENERAL, DEPARTMENT OF THE AIR FORCE

SUBJECT: Immunization of Asplenic Personnel

1. At the request of the Commander, Naval Medical Command, Washington, D.C., the Armed Forces Epidemiological Board (AFEB) members and consultants considered a set of questions on asplenic military personnel during the Fall Meeting of the Board at Parson's Island, Maryland.

2. Although asplenic individuals have been shown to produce lower levels of antibody in response to some antigenic stimuli than those with intact spleens, they withstand common infectious agents including viruses as well. However, asplenic individuals may fail to control infections by encapsulated bacteria such as *Streptococcus pneumoniae*, *Neisseria meningitidis*, and *Haemophilus influenzae*. Vaccines for these infections are available. In addition, blood protozoal infections (malaria, babesiosis) may not be resisted as well as by the normal host. The post-splenectomy **sepsis** syndrome, however, is a rare event.

3. It has been reported that significantly higher antibody titers against pneumococci develop if vaccine is

administered to traumatized persons before splenectomy [rather] than afterwards. There is an antibody response in either instance.

4. The Board recommends [that]:

- a. All personnel known to be asplenic should receive one dose of pneumococcal polyvalent vaccine. A second dose need not be given.
- b. It should be established that all asplenic persons have received quadrivalent meningococcal vaccine upon entry into the service. If not, this vaccine should be given.
- c. Vaccine against Influenza B should be administered to all asplenic individuals.
- d. Active duty personnel who require splenectomy should be given the pneumococcal and *H. influenzae* vaccine prior to removal of the traumatized spleen, if feasible.
- e. Asplenic persons should be counselled regarding the importance for them to comply with all anti-malarial measures, especially those related to the use of prophylactic drugs.
- f. In areas where babesiosis is prevalent, anti-tick measures should be employed.
- g. No restrictions on deployment are necessary for asplenic personnel.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. Woodward, M.D.
President, AFEB

Robert A. Wells, Ph.D.
1st Colonel (P), USA, MSC
Executive Secretary

The Department of the Army raised several additional questions regarding a newly recognized gram negative bacteria known as Dysgonic Fermenter Type 2 (DF-2) in splenectomized individuals. The Subcommittee on Infections and the Board, after discussion and review, submitted the following memorandum, dated 23 September 1987, in answer to the questions presented;

MEMORANDUM FOR

THE ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)
THE SURGEON GENERAL, DEPARTMENT OF THE ARMY
THE SURGEON GENERAL, DEPARTMENT OF THE NAVY
THE SURGEON GENERAL, DEPARTMENT OF THE AIR FORCE

SUBJECT: Recommendations on Infections with Dysgonic Fermenter Type 2 in Splenectomized Individuals

1. At the request of the Department of the Army Surgeon General, the Armed Forces Epidemiological Board (AFEB) considered at its 7-8 September 1987 meeting a request for recommendations for the problems posed by the serious infections by Dysgonic Fermenter-2 (DF-2) experienced by asplenic individuals following dog and cat bites.

2. Concerning restrictions to be placed on duty assignments of splenectomized individuals which involve contact with dogs and cats, the Board recommends that:

Splenectomized individuals not be newly assigned to duties involving significant exposure to dogs and cats. Those presently assigned or previously trained in animal care should be informed of the risks involved in case of bite and the need for immediate appropriate wound treatment and chemoprophylaxis.

3. With regard to the request for special precautions, if any, following animal bites, the Board recommends that:

Appropriate cleansing of the wound be performed with debridement, if necessary, together with an appropriate antibiotic such as Amoxicillin and clauvanic acid (Erythromycin or Tetracycline if the individual is penicillin-sensitive). The need for a booster dose of tetanus must be considered.

4. Concerning guidance to be provided splenectomized pet owners, the Board **recommends** that:

Splenectomized individuals who own pets should be advised of the hazard of serious infections which may follow bites from cats and dogs. They should be informed of the necessity to seek medical care and chemoprophylaxis, even if the bite is slight.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. Woodward, M.D.

President, AFEB

Robert A. Wells, Ph.D.

Colonel, USA, MSC

Executive Secretary

**THE BOARD ASSISTS THE DEPARTMENT OF DEFENSE
IN FORMULATING POLICY REGARDING THE
HEALTH RISKS ASSOCIATED WITH THE M2 BRADLEY FIGHTING VEHICLE**

On 6 November 1986, Maj General Robert H. Buker, MC, the Deputy Surgeon General, in a memorandum to the President of the AFEB, requested that selected members of the Board and other appropriate authorities be convened to discuss and review health hazard issues associated with the M2 Bradley Fighting Vehicle. An ad hoc group of the Board had reviewed this subject at USAMRIID just the day before, on 5 November. Brig. General Philip Russell chaired the meeting, which I attended with AFEB members Norton Nelson and Ronald Shank, and Executive Secretary Robert A. Wells. Colonel Joel Gaydos and Lt. Colonel Hugh McAlear provided the technical information. It was decided at this meeting to convene a special group of national authorities as *soon* as possible.

Accordingly, a meeting was held at WRAIR on 6 January 1987. The civilian authorities who participated in this meeting were Drs. Arthur Dubois, Gareth Green, and Roger McClellan, in addition to the Board members and technical authorities aforementioned. The thorough discussions provided sufficient information and reliable data. The ad hoc Committee formulated the following memorandum and recommendations, dated 2 February 1987, which were approved by the Board and submitted to the Surgeon General of the Army:

MEMORANDUM FOR
THE SURGEON GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Recommendation on the Potential for Health Risks of the Bradley Fighting Vehicle (BFV)

1. The Armed Forces Epidemiological Board (AFEB) met to consider the enclosed set of questions pertaining to the health risks of the BFV. In order to respond to the request, Board members Dr. Norton Nelson, Dr. Ronald Shank and Dr. Theodore Woodward met with Dr. Arthur Dubois, Dr. Gareth Green and Dr. Roger McClellan. Drs. Dubois, Green and McClellan, as well as Drs. Nelson and Shank are all known, recognized authorities in the fields of toxicology and pulmonary function. Two complete briefings and meetings were held, the first at USAMRDC on 5 November 1986 and the second at WRAIR on 6 January 1987. All of the known data pertaining to the BFV were

presented and thoroughly reviewed with similar and knowledgeable officers of the Department of Defense and WRAIR with LTC Yancy Phillips as briefing officer.

2. At the outset it was recognized that the combat environment is inherently hazardous. It was likewise clear that given a potentially lethal armored-combat scenario, transient environmental exposure to agents such as fire suppressing chemicals and their pyrolysis products may well represent a reasonable preference over the obvious alternative. This professional advisory group, as any such group, faced an enormous challenge in interpreting the data provided as background to the questions being addressed. Compounding the challenge was the necessity for extrapolating from these data those segments which appeared to have meaningful relevance to the potential health risks of the crew and passengers of the BFV during combat and beyond. An additional task was that of evaluating and prioritizing numerous simultaneous variables within the BFV regarding both the supporting test data and the supposition of events occurring on the battlefield. It was in this manner that the group considered the data and their implications and rendered its recommendations. It should also be noted that these recommendations represent the best possible advice from facts and projections currently available. These recommendations are forwarded with the understanding that as advice, they will be considered for application, modification or rejection as deemed appropriate.

3. Regarding the question on the Halon fire suppression system, it is obvious that the immediate risk within the BFV is fire. Supporting hard copy and film data convincingly showed that the Halon system is an effective fire-fighting system which will serve the immediate needs of the BFV occupants. Emphasis for the group's consideration focused on the associated decomposition and oxidation by-products of this system and their potential for toxicity. The Board makes the following **recommendation**:

The application of the **Halon** automatic fire suppression system poses an acceptable alternative risk to the occupants of the BFV at this point in time. Continuing efforts should be made to further reduce fire-extinguishing time. Concurrent reexamination of evacuation procedures and those related to personal protection (masking) and ventilation are highly encouraged.

4. With reference to question b—vaporific effects: It was noted that considerations regarding fuel and ammunition were not included in this issue. Following extensive deliberation, the Board feels that:

the vaporific effect does not appear to represent an unreasonable health risk to soldiers in the BFV outside the spill zone.

5. Regarding question c—measurement end points: Extensive effort was expended in reviewing underlying BFV test data with consideration of both the underlying questions being addressed and the structuring of the tests. It was the consensus of the group that the studies currently underway will produce valuable information regarding health risks related to nonfragment hazards. In addition, the Board provides the following guidance:

Physical and chemical measurement end points are appropriate with the exception that there should be a review of all sampling flow rates and times with reference to the analytical methods and instrumentation being used to assure they are matched to anticipate exposure constituents and concentrations. In addition, particle size distribution studies should be conducted as well as studies of gas particle interactions.

6. With reference to question d—laboratory animal research: The consensus was that the studies cited represent an excellent starting point for the generation of valuable data. The basic problem is estimating the response to complex mixtures of gases and particles rather than the response to single gases. Thus, the general impression was that these tasks should be structured to mimic the anticipated exposure scenarios as much as possible in the interest of generating useful information in a timely manner. The proposed research will not completely resolve uncertainties relating to health risks from Halon degradation products as found in actual BFV fires. However, they can considerably improve the evaluation of actual risk. Specifically, the Board **recommends** that:

More emphasis should be placed on field and laboratory stimulation of actual conditions as defined by field studies. Both laboratory and field studies will require the use of animals. Questions to be resolved should include the extent of interaction between gases,

NORTON NELSON, Ph.D., D.Sc.

Norton Nelson directed the Institute of Environmental Medicine at New York University from 1954 to 1980. He was recognized as one of this country's authorities on environmental pollution, air quality, toxic hazards, and safety evaluation. In view of the many problems involving the environment, the AFEB would not have functioned so efficiently as an advisor to the military without Dr. Nelson's wise counsel. During the years that the Board had a commission system, Norton Nelson spearheaded our understanding of, and the guidelines needed to control, the problem of substance abuse in the military. His work on asbestosis, pesticides, other pollutants, and toxic products related to housing development gave the Board help that was instrumental in saving the government significant financial sums.

the particle-effect on dose-delivery to lung tissues, and other issues related to the mode of action of Halon degradation products.

7. Regarding question e—eardrum rupture: The review suggested that ear injury can reduce immediate and future individual effectiveness, although this may be difficult to distinguish from motivational factors. Following a review of the data, the group endorsed the position that:

By itself eardrum rupture is not likely to cause significant acute disability. Further studies should be conducted in the areas of blast-associated structural and functional disturbances to the inner ear, the shielding effects of hearing protectors, and operational liability of hearing loss for military tasks.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. Woodward, M.D.
President, AFEB

Robert A. Wells, Ph.D.
Colonel, USA, MSC
Executive Secretary

KOREAN HEMORRHAGIC FEVER

During the summer of 1987, the Departments of the Army and Navy presented the AFEB a series of questions pertaining to the methods of preventing and managing Korean hemorrhagic fever (KHF). Various field operations, including the exercise "Bear Hunt" in the Republic of Korea, had resulted in the development of hemorrhagic fever among military personnel. Korea is highly endemic for this disease. Captain Norman A. Dean, MC, USN, Officer in Charge, Navy Environmental and Preventive Medicine Unit No. 6, Pearl Harbor, Hawaii, had previously prepared a comprehensive report of a hemorrhagic fever outbreak. Dr. Dean reported that among ten severely ill patients fever, fatigue, thrombocytopenia, proteinuria, nausea, and vomiting had occurred in all of them. Diarrhea and myalgia were present in eight patients, and conjunctival injection in five.

After careful study and discussions with the Army and Navy officers who had participated in these field exercises, the Subcommittee on Infections and the Board transmitted the following memorandum and recommendations, dated 23 September 1987

MEMORANDUM FOR

THE ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)
THE SURGEON GENERAL, DEPARTMENT OF THE ARMY
THE SURGEON GENERAL, DEPARTMENT OF THE NAVY
THE SURGEON GENERAL, DEPARTMENT OF THE AIR FORCE

SUBJECT: Recommendations on Korean Hemorrhagic Fever

1. The Armed Forces Epidemiological Board (AFEB) considered the problems posed by Korean Hemorrhagic Fever (KHF) with renal syndrome in Korea during its meeting of 17–18 September 1987. These problems were referred to the AFEB by the Surgeons General of the Army and Navy. With respect to appropriate environmental control measures, the AFEB noted that identification of the *Apodemus* mouse as a reservoir of the etiological Hantaan virus indicates the need to minimize man-mouse contact for the control of this disease. Definitive recommendations cannot be made without additional bionomics of this animal species. The establishment of a planned research laboratory should provide the needed information. Until then, the analogies of some epidemiologic characteristics to those of scrub typhus suggest the best approach.

2. Concerning questions on semi-permanent bivouacs or camps in areas endemic for KHF, the Board recommends that:

Bivouac or camps preferably should not be located at any site known to have been a focus of infection for this disease. The Corps of Engineers should prepare a site by first clearing the entire campsite by flame-burning and bulldozing, including the preparation of a wide perimeter extending beyond the bivouac area. The construction of a concrete or gravel base for each tent is advised to prevent rodent harborage. It is essential that all known rodent control measures, including sanitary measures for solid waste, be continually applied. Qualified officers should make regular inspections of the campsite to ensure application of these preventive measures.

3. The environmental control measures instituted in the garrison setting in addition to maintenance of high level of rodent control activities will necessitate behavioral activities by all personnel which minimize the presence of rodents. The Board recommends that:

Continual rodent control measures be strictly applied by all personnel including rodent-proofing of waste food and food scraps, and management of solid wastes (rubbish, etc.) to eliminate harborages. Continual live trapping should be performed with virus studies of the trapped *Apodemus* mice if facilities for this are available.

4. With regard to personal protective measures for individuals residing in highly endemic areas, the Board states that:

The data presently available do not provide any evidence that there is need for decontamination of individual or unit equipment.

5. In responding to the query on medical evaluation of suspected and confirmed cases of KHF, the Board notes that:

It is desirable that diagnostic competence for the early identification of KHF be available in readily accessible units. Medical competence to treat seriously ill patients, including the capacity for renal dialysis, should be provided. Medical professionals, including contract physicians, who understand the serious complications of the disease, are required to treat such patients. This includes the knowledge and capability to apply measures to combat hypovolemic shock and renal failure. Army and Navy hospital commanders should apply these principles with a clear understanding that transport of seriously ill patients after the first few days is ill advised. Thus, evacuation should only be carried out when the required professional competence cannot be arranged; proper handling of the patient depends on very early diagnosis, and evacuation should be accomplished at sea-level cabin pressure to the closest site where appropriate professional care can be provided.

6. As requested by the Navy Surgeon General, the AFEB reviewed field guidance on KHF made by the Navy Environmental and Preventive Medicine Unit No. 6 (NEPMU-6) on 29 June 1987. The Board states that:

It concurs with the recommendations made in the guidance rendered by NEPMU-6. Concerning the preparation of the campsite, this would preferably be addressed more aggressively as indicated in Paragraph 2 above.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. Woodward, M.D.
President, AFEB

Robert A. Wells, Ph.D.
Colonel, USA, MSC
Executive Secretary

SCOTT B. HALSTEAD, M.D.

Scott Halstead qualified in medicine at Columbia University College of Physicians and Surgeons, and was a house officer in medicine in New York at Bellevue Hospital. He was commissioned in the U.S. Army Medical Corps in 1958, and compiled a distinguished record at the 406th General Laboratory, the U.S. Army SEATO Medical Research Laboratory in Bangkok, Thailand, and WRAIR. His work embraced the field of virology, and he made major contributions to the understanding of dengue hemorrhagic fever and the immunopathogenesis of shock in this epidemic viral disease.

Scott contributed to the Commission on Viral Diseases, specifically in arboviruses. He has been Associate Director and Acting Director of the Health Sciences Division of the Rockefeller Foundation while serving simultaneously as a member of the AFEB.

Armed Forces Epidemiological Board and Committee Directors
16–17 April 1987

Left to right: Leonard T. Kurland, M.D.; Walter R. Dowdle, Ph.D.; Samuel D. Thompson, Ph.D.; Frank B. Engley, Jr., Ph.D.; Ronald C. Shank, Ph.D.; Richard B. Hornick, M.D.; William R. Harland, M.D.; Frank M. Townsend, M.D.; Llewellyn J. Legters, M.D.; and Colonel Robert A. Wells, Ph.D., MSC, USA, Executive Secretary.

Left to right: Carol J. Johns, M.D.; **Abram S. Benenson**, M.D.; **Theodore** E. Woodward, M.D., President *of the* Board; Paul M. Densen, D.Sc.; and William S. Jordan, Jr.; M.D.

On 26 May 1989, Lt. Colonel James Le Duc briefed the Board on the current status of Hantaan virus infection and KHF. He recalled that during 1951 and 1952, many medical scientists with capabilities in virology, epidemiology, and clinical medicine worked with military medical officers in Korea on the hemorrhagic fever-renal syndrome. The Board had formed a Hemorrhagic Fever Commission, which was directed by Dr. Joseph E. Smadel and Dr. Marshall Hertig. In spite of intensive research, the Commission did not find the viral cause of this hemorrhagic disease. Not until two decades later did a Korean scientist, Dr. Ho Huang Lee, identify the causative agent.

Dr. Le Duc described the serological results of the lyophilized serum samples that Dr. Smadel had arranged to have collected and stored at WRAIR twenty years earlier. Commission workers had taken pains to collect acute (early) and late (convalescent) serum. IgM and IgG assays were tested for Hantaan virus infection and urban-rat-associated Seoul virus with the plaque-reduction neutralization test and enzyme and antibody-capture immunoassays.

Most of the sera from the 245 patients tested showed anti-Hantaan virus antibodies; IgM titers reached their maximal levels within the first few days of illness. IgG titers rose more slowly and reached their maximal levels during the second week of illness. Measurement of IgM specific antibodies appeared to be the method of choice for early diagnosis of Hantaan virus infections.

In the United States, Dr. Le Duc has collaborated with Dr. James Childs and his associates at The Johns Hopkins School of Public Health on a surveillance of Hantaan virus infection in Baltimore rats. Adult rats taken in urban Baltimore neighborhoods showed evidence of the infection in as much as 50 percent of some populations. Attempts are being made to equate hemorrhagic fever virus infection in patients with significant proteinuria, hypertension, and a history of cerebrovascular accidents. The primary focus of the study was inner-city black patients. The thesis under consideration is whether Hantaan virus infections are responsible for a portion of the patients who have chronic renal disease and hypertension. Investigators found that persons who tested seropositive for Hantaan virus fell into the group with chronic renal disease, hypertension, and cerebrovascular accidents. Since acute infection has not been detected in such patients, it is conceivable that subacute infection could lead to chronic renal disease.

AFEB CONTRIBUTION TO CARDIOVASCULAR SCREENING OF SOLDIERS AGED 40 AND OLDER

On 26 October 1987, Brig. General James H. Rumbaugh, MC, transmitted a memorandum on behalf of the Surgeon General of the Army to the President of the AFEB. That memorandum follows:

SUBJECT: Review of the 40 and Over Cardiovascular Screening Program

1. The Army revised its Physical Fitness Program in June 1981 to require soldiers 40 years of age and older to take the semi-annual PT test, from which they had been excused since WWII. To prevent exercise-related deaths, a cardiovascular screen is administered as part of the periodic physical examination which is done every 3 years. The screen is a multiphase evaluation; a risk-factor analysis, a cardiology consult and exercise tolerance test, nuclear studies and coronary angiography, and a fourth phase of medical or surgical treatment.

2. Clearance before entrance into the Army's physical training and testing program is required of all soldiers 40 years of age and older. Clearance may occur during any phase; progressively smaller numbers enter phases II, III, and IV.

3. The Army has screened over 100,000 active-duty soldiers. The data are contained in a computer registry at The Armed Forces Institute of Pathology (AFIP), Washington, DC. The Chief of Staff of the Army intends to extend

this program to the 152,000 over-40 members of the Reserve Components, National Guard, and Army Reserve.

4 A Blue Ribbon Panel of Medical Experts endorsed the program design and objectives during a meeting at Walter Reed in December 1986. I also desire the AFEB to conduct its own comprehensive analysis of the Army's 40 and Over Cardiovascular Screening Program as to its scientific validity and value to the Army. If you can undertake this task, please advise me of the time and resources required to accomplish it. Members of my staff and AFIP will assist you. POC for further information is Colonel Manmohan V. Ranadive, MC.

FOR THE SURGEON GENERAL:

James H. Rumbaugh
Brigadier General, MC
Director, Professional Services

After consulting with appropriate authorities, the Board formed the ad hoc Subcommittee for the Study of Cardiovascular Screening of Soldiers Aged 40 and Over, which would review the Army's Cardiovascular Screening Program (CVSP) and provide guidance on soldiers aged 40 and older. It met on 27 January 1988 at the Mayo Clinic, in the splendid facilities of the Mayo Foundation in Rochester, Minnesota. Dr. Leonard Kurland was the host for the meeting. A delightful dinner in the Mayo Foundation Residence for Fellows, the former residence of Dr. Charles Mayo, was served. After dinner, I gave a short talk about the AFEB, emphasizing its early history, the founders, and their contributions.

The ad hoc Subcommittee comprised: William P. Castelli, Director of the Framingham Heart Studies; Roland N. Shamburek; L. Thomas Sheffield; David Ballard; and Thomas E. Kottke.

Board members who participated were: William R. Harlan, Chairman of the ad hoc Committee; Leonard Kurland; Lewellyn Legters (who was unable to attend); Robert A. Wells, Executive Secretary; and me. Military representatives who participated were: Lt. Colonel William FitzGerald, USA, MSC; Colonel James R. Hickman, Jr., USAF; Colonel Manmohan V. Ranadive, USA, MC; and Major Jerel Zoltick, USA, MC.

The questions that the Surgeon General of the Army had posed to the Board were contained in the following 1587 memorandum:

MEMORANDUM FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

SUBJECT Questions on Cardiovascular Screening of Soldiers Age 40 and Over

1. Does the available data collected in the 40 and over Cardiovascular Screening Program (CVSP) justify continuation of the program for **active** duty populations and its extension to the reserve component?

2. Has the CVSP prevented exercise-related sudden death or decreased mortality and/or morbidity from coronary artery disease?

3. If the CVSP has merit in previously sedentary populations, should it be continued in active duty populations now engaged in varying degrees of exercise just when they reach age 40?

4. Does the data justify repeating CVSP every 5 years?

5. If the CVSP should be continued, how can the screening criteria be modified to decrease the number of false positives requiring Phase II screen?

6. If the data collected since the inception of the CVSP in 1981 are not adequate to answer some of the above questions, how should the data collection be modified or what additional data can be collected to answer these questions in the future?

7. Should the **existing physical fitness standards be changed?** E.g., should **over-50 populations be exempted** from the APFT test or should these standards be relaxed to make it safer?

WILLIAM R. HARLAN, M.D.

Bill Harlan was first affiliated with the AFEB in 1974, when he served on an ad hoc Committee while he was Professor of Medicine at Duke University School of Medicine. At this time, he was actively involved as an advisor to the American Heart Association. That ad hoc group, which was appointed by Herschel Griffin when he was President of the AFEB, made **key** recommendations regarding the desired weight and blood pressure measurements for military personnel. Most recently, Bill chaired the ad hoc Committee on Cardiovascular Screening for Soldiers Age 40 and Older. This significant report was rendered on 7 April 1988, and for this work, the AFEB is in **his debt**.

**COLONEL
MANMOHAN V. RANADIVE, MC, USA**
Director, Health and Fitness Division

**LIEUTENANT GENERAL
QUINN H. BECKER, MC, USA**
The Surgeon General

8. Should the present program of screening for detection of asymptomatic significant coronary artery disease be replaced by a program of screening for coronary risk factors and risk factor modification?

9. Is there a medico-legal (or standard of practice) requirement to provide state-of-the-art cardiovascular disease screening program every five years just because an organization requires individuals to undergo mandatory physical fitness testing every six months?

10. In the present CVSP an individual with two or three risk factors (smoking, high cholesterol, etc.) can pass the treadmill test and be cleared to take the APRT. Does the program give this individual a false sense of security and would getting clearance on the treadmill test act as a disincentive for this individual to change risk factors?

FOR THE SURGEON GENERAL

Manmohan V. Ranadive
Colonel, Medical Corps
Director, Health & Fitness Division

The ad hoc Subcommittee members reviewed extensive data and experiences in the Army, Air Force, foreign military services, and the U.S. civilian sector pertinent to the questions at hand. The primary focal points for discussion were (a) whether CVSP has prevented exercise-related sudden death, and (b) whether the screening program has decreased overall morbidity and mortality from coronary disease.

Screening for occult coronary artery disease was initially developed to evaluate personnel 40 years of age and older, to reduce fatal and non-fatal coronary events as those personnel increased their physical activity for the mandated Army Physical Fitness Test (APFT). An observational study by Zoltick, et al., which analyzed 188 cardiovascular deaths in the Army since 1981, indicated that screening did not successfully identify those who had fatal episodes when coronary artery disease was the primary cause of death. (References for these studies include Zlotnick, J. M., McAllister, H. A., and Bedynek, J. L., Jr. *The United States Army Cardiovascular Screening Program. J. L. Cardiac Rehab.* 4: 530-535, 1984; Whitney, E. J. and Boswell, R. N. Cardiovascular Risk Modification: A Multidisciplinary Approach. *Military Medicine* 151: 473-477, 1986; and Hatsell, C. P. and Gaughan, D. L. USAF Health Evaluation and Risk Tabulation Program. *Military Medicine* 148: 122-126, 1983.) Although the relative risk of a fatal cardiovascular event was less for those "cleared" by CVSP, over half of the deaths occurred in those "cleared to take the APFT." Air Force studies of flight personnel over 40 years of age have found similar difficulties in identifying occult coronary heart disease without performing invasive studies. Parenthetically, a review of a British study of the physical fitness training and testing programs suggested that coronary deaths were not increased significantly during exercise. After all available data were considered, the ad hoc Subcommittee concluded that there was no evidence to suggest that cardiovascular morbidity and mortality had decreased as a result of the screening program of soldiers aged 40 and over.

At its 7 April 1988 meeting, the AFEB heard Dr. Harlan's report of the ad hoc subcommittee. After thorough discussion, the Board approved the following memorandum on cardiovascular screening, and transmitted it to the Surgeon General of the Army:

1. There is no need to screen personnel who have been previously active, have passed the Army Physical Fitness Test (APFT), and who continue to exercise regularly and vigorously without symptoms, solely because they have reached the age of 40 years.

2. The panel reviewed the requirements for expanded studies of the program in weighing options for enhanced clarification and improvement of the program. [The AFEB **recommends** that:]

An in-depth evaluation of the effect of the Cardiovascular Screening Program (CVSP) on exercise-related death should be conducted. This should include a comparison of death rates before the initiation of the program with those during the program, and to the extent

possible, the circumstances surrounding events. A study on age-specific, cause-specific death rates (not necessarily exercise-related) before and during the program should be performed. Collection of this baseline would seem essential in determining the effectiveness and the quality control of the program.

3. The current multi-phase approach used in CVSP was reviewed to identify more efficient and effective approaches to risk screening and interventions. A concern with primary screening criteria has been the high false-positive referral rates for subsequent cardiovascular consultations. It was determined that personal and family medical history, e.g., regarding blood pressure, coronary disease, diabetes, smoking, etc., is often poorly completed and/or poorly scored and probably not sufficiently specific to be useful. [The AFEB recommends that:]

Emphasis be placed on the most reliable of conventional risk factors combined with follow-up counseling and intervention and instructional guidelines for behavior modification. Appropriate coronary risk factor analysis should be continued during routine periodic medical examinations. Emphasis must be placed on improving the measurement of total serum cholesterol and HDL cholesterol with standardization using Centers for Disease Control (CDC) criteria. Other risk factors should include blood pressure measurement and a review of daily smoking status. A total cholesterol to HDL ratio of 6.0 or greater, or the presence of 3 combined risk factors, namely, cigarette smoking (10 cigarettes or greater a day), a blood pressure of 160/90 or above, and a serum cholesterol greater than 250 mg/dl suggest an individual may be at significantly greater cardiovascular risk. Based on these criteria, it was felt that the number of such soldiers requiring Phase II cardiovascular evaluation and treadmill testing should be small. Phase II screening with treadmill exercise for any other criteria is not indicated.

4. Individuals who have significantly abnormal treadmill tests, as described below, should be referred for cardiac catheterization without nuclear studies.

a. Criteria for significantly abnormal treadmill tests:

- (1) = less than 2 mm ST horizontal or downslope depression at 0.08 msec at 60% or less age adjusted maximal workload (generally greater than = 8 METs or 27 ml/kg/min).
- (2) ST depression remains abnormal longer than 2 minutes post exercise.
- (3) = less than 1 mm ST depression accompanied by chest pain.
- (4) blunted blood pressure with = less than 1 mm ST depression with early exercise at greater than 80% maximum workload.

b. Nuclear testing should be reserved only for those individuals who have treadmill tests that cannot be adequately interpreted by conventional criteria because of abnormal resting ECG; e.g., LBBB, abnormal ST or T wave changes.

c. Individuals with abnormal treadmill tests who do not fall into either of the above two categories would receive no further diagnostic cardiovascular tests. They should be given counseling for risk factor reduction and individualized exercise prescription. [The AFEB recommends that:]

Asymptomatic active persons with risk factors do not need treadmill testing every five years but should be followed with counseling and intervention to correct unhealthy behavior, and, if they are already exercising, encouraged to continue a regular aerobic exercise program.

5. A review was conducted of APFT standards among soldiers of different age groups. It is understood that given current testing requirements within the Army, most soldiers should have remained relatively active under age 50, and should be able to safely participate in physical activities commensurate with the current APFT requirements. After consideration of these factors, the Board recommends that:

The APFT standards be relaxed for soldiers over 50 years of age, more importantly to protect individuals exercising in this age group, an individualized exercise program

should be part of the screening program and their duties should be less physically demanding.

6. In evaluating the overall Army CVSP, it was felt that certain general parameters should be altered or eliminated. The current program does not serve as an incentive for behavioral change that would modify risk factors or increase physical activity. In fact, clearance by CFSP may falsely reassure the individual that behavioral change is not needed to be considered healthy and thus lead to continuance of unhealthy lifestyles. The Board recommends that:

A medical screening program for risk-factor detection and modification be developed as the most promising means of improving health and decreasing the risk of coronary related episodes. An individually graded exercise (2-3 times weekly) with pulse monitoring is prescribed to increase the physical activity and aerobic capacity of all soldiers, particularly those over the age of 40. The current design of the 40-and-over CVSP appears not to serve as an incentive to modify life-endangering behavior into healthier lifestyles. There is no compelling rationale for continuing the current CVSP in active duty soldiers or to extend it to the reserve component.

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD

Theodore E. *Woodward*, M.D.
President, AFEB

Robert Wells, Ph.D.
Colonel, MSC, USA,
Executive Secretary

When he retired as Surgeon General of the Army in June 1988, Lt. General Quinn H. Becker expressed his appreciation to the Board for its assistance in helping to solve some of the aforementioned issues:

Dear Dr. Woodward:

With the approach of my retirement, I want to thank you for your service as President of the Armed Forces Epidemiological Board (AFEB).

You have played a key role in many critical decisions of great importance to the Army and its sister services. Your contributions have involved an array of multi-billion dollar issues including Acquired Immunodeficiency Syndrome (AIDS), Asbestosis, Agent Orange, Cardiovascular Screening and the M2 Bradley Fighting Vehicle. Both your professional knowledge and your leadership are greatly revered by others including myself. I depart my post knowing that our nation is in good hands thanks to your talented and patriotic service to the Board.

Warm regards.

Sincerely yours,

Quinn H. Becker
Lt. General, U.S. Army
The Surgeon General