DEPARTMENT OF DEFENSE
ARMED FORCES EPIDEMIOLOGICAL BOARD
5109 LEESBURG PIKE
FALLS CHURCH, VA 22041-3258

REPLY TO
ATTENTION OF

AFEB (15-1a) 96-2

21 February 1996

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: Recommendation for Tick-Borne Encephalitis (TBE) Vaccine Use in DoD Personnel Deployed to Bosnia

1. In response to the question of the risk of tick-borne encephalitis (TBE) and use of vaccine in U.S. troops deployed to Bosnia, the Board offers the following evaluation:

a. **BASED ON CURRENT AND HISTORICAL DATA, TICK-BORNE ENCEPHALITIS REPRESENTS A POTENTIAL RISK THAT IS DIFFICULT TO QUANTIFY, BUT WHICH COULD RESULT IN LESS THAN 10 TO MORE THAN 20 CLINICAL CASES IN U.S. TROOPS IN THE SPECIFIC AREAS OF HUNGARY, CROATIA, AND BOSNIA WHERE THEY ARE CURRENTLY DEPLOYED. THE SPECIFIC RISK IN BOSNIA CAN ONLY BE ASSESSED. INDIRECTLY BUT APPEARS TO BE PRESENT, ALBEIT AT LOWER LEVELS, AS AN EXTENSION FROM THE HIGHLY ENDEMIC REGIONS TO THE NORTH. DISRUPTION OF HABITAT AND MOVEMENT OF ANIMALS AND PEOPLE DURING RECENT CONFLICTS MAY HAVE INCREASED THE RISK IN BOSNIA AND OTHER AREAS OF POTENTIAL DEPLOYMENT.**

b. **IT IS ANTICIPATED THAT THE RISK OF TBE WILL INCREASE SHARPLY IN THE SPRING BEGINNING IN MARCH, PEAKING IN JULY, AND LASTING UNTIL OCTOBER. DUE TO SHORT ATTACHMENT TIMES FOR INFECTION BY TICKS AND INFECTION OF ALL STAGES OF TICKS, INDIVIDUAL PROTECTIVE MEASURES MAY NOT BE COMPLETELY EFFECTIVE IN PREVENTING EXPOSURE.**

c. **THE ACUTE CLINICAL ILLNESS OF TBE IS MORE SEVERE IN ADULTS AND HENCE CAN BE SERIOUS IN A MILITARY SETTING. TBE CAN BE FOLLOWED OCCASIONALLY BY LONG-TERM, PERMANENT NEUROLOGIC SEQUELAE. PROPER MANAGEMENT OF ACUTE INFECTIOUS NEUROLOGIC DISEASES IN THE FIELD IS DIFFICULT, AND TBE, BECAUSE OF ITS BIPHASIC COURSE, CAN BE A PARTICULAR PROBLEM.**

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d. TBE VACCINE IS USED ROUTINELY IN SEVERAL COUNTRIES IN EUROPE IN HIGH RISK GROUPS SUCH AS FORESTRY WORKERS AND THE MILITARY AND IS A ROUTINE CHILDHOOD IMMUNIZATION IN AUSTRIA. OVER 26 MILLION DOSES OF THE CURRENT VACCINE HAVE BEEN ADMINISTERED THROUGHOUT EUROPE. THE ESTIMATED EFFICACY IS OVER 90%. ALTHOUGH NOT LICENSED IN THE UNITED STATES, THE VACCINE WOULD APPEAR TO HAVE EQUIVALENCE WITH U.S.PRODUCTS IN THE STANDARDS FOR ITS MANUFACTURE AND SAFETY. THE MANUFACTURER IS PREPARED TO PROVIDE SUFFICIENT VACCINE ON SHORT NOTICE TO IMMUNIZE ALL TROOPS IN THE AREA.

e. THE ACCELERATED SCHEDULE OF IMMUNIZATION ON DAYS 0,7,AND 28 IN THE CURRENT IND PROTOCOL APPEARS TO GIVE RAPID AND STRONG IMMUNITY BASED ON ANTIBODY RESPONSES. SOME DEGREE OF CROSS-PROTECTION TO RUSSIAN SPRING-SUMMER ENCEPHALITIS WILL DEVELOP AFTER TBE VACCINE.

f. TBE IS CLASSICALLY FOUND IN STABLE ENVIRONMENTAL FOCI. IDEALLY, IMMUNIZATION COULD BE TARGETED TO INDIVIDUALS WHO WILL BE DEPLOYED IN AREAS OF ESTABLISHED RISK. HOWEVER, ACCURATE INFORMATION ON CURRENT FOCI OF TBE ACTIVITY IS NOT AVAILABLE, AND LOCATIONS OF TROOP DEPLOYMENT MAY UNEXPECTEDLY CHANGE OVER TIME. THEREFORE, SELECTIVE IMMUNIZATION BASED ON CURRENT DEPLOYMENT PLANS WOULD NOT PROVIDE ANY PROTECTION TO UNITS WHO WILL SUBSEQUENTLY BE MOVED TO AREAS OF RISK.

g. SIDE EFFECTS FOR TBE VACCINE INCLUDE LOCAL PAIN AND/OR REDNESS IN 3-5% OF VACCINEES. TEMPORALLY ASSOCIATED TOTAL ADVERSE REACTIONS HAVE BEEN REPORTED AT A RATE OF 1 IN 33,000 AND SERIOUS REACTIONS, INCLUDING SIGNIFICANT NEUROLOGIC PROBLEMS, AT A RATE OF APPROXIMATELY 1 IN 170,000 IN THE 26 MILLION PERSONS IMMUNIZED IN EUROPE. THESE REPORTS ARE BASED ON A PASSIVE SURVEILLANCE SYSTEM AND ARE SIMILAR TO THOSE REPORTED WITH OTHER WIDELY USED VACCINES.

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2. Based on these factors and others contained in the TBE memo prepared by USACHPPM, the Board recommends:

a. **PERSONAL PROTECTIVE MEASURES TO MINIMIZE TICK EXPOSURE, INCLUDING LONG LASTING UNIFORM IMPREGNATION, MUST BE IMPLEMENTED BY COMMANDERS IN THE FIELD.**

b. **TBE VACCINE IS RECOMMENDED FOR ALL TROOPS DEPLOYED TO THE HUNGARY, CROATIA AND BOSNIA AREAS WITHOUT RESPECT TO ACTIVITY OR UNIT OF ASSIGNMENT. PRIORITY SHOULD BE GIVEN TO HAVE THE FIRST DOSE ADMINISTERED TO UNITS AT THE HIGHEST RISK OF EXPOSURE BY MARCH 15.**

c. **THE PROCEDURES REQUIRED TO USE THIS PRODUCT UNDER IND PROTOCOL, INCLUDING OBTAINING INFORMED CONSENT AND MAINTAINING ADEQUATE DOCUMENTATION, WILL REQUIRE ADDITIONAL RESOURCES SO AS NOT TO SLOW ITS DELIVERY TO TROOPS IN THE FIELD AND INCREASE THEIR RISK OF CONTRACTING TBE.**

d. **MEASURES FOR RODENT EXCLUSION SHOULD BE IMPLEMENTED TO REDUCE THE RISK OF THIS AND OTHER VECTOR-BORNE AND RODENT ASSOCIATED DISEASES, E.G., HANTAVIRUS, CRIMEAN-CONGO HEMORRHAGIC FEVER, AND LYME DISEASE.**

e. **INGESTION OF RAW MILK OR ANY UNPASTEURIZED LOCAL DAIRY PRODUCTS FROM CATTLE, SHEEP OR GOATS SHOULD BE PROHIBITED.**

FOR THE ARMED FORCES EPIDEMIOLOGICAL BOARD:

Michael S. Ascher

MICHAEL S. ASCHER, M.D.
Chairman, Disease Control

Vicky L. Fogelman

VICKY L. FOGELMAN
Colonel, USAF, BSC
AFEB Executive Secretary

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