INFORMATION PAPER

Military Vaccine Agency
17 February 2011

SUBJECT: Yellow Fever Infection and Yellow Fever Vaccine

1. Purpose. To describe yellow fever and the vaccine to prevent it.

2. Facts.

a. Microbiology. Yellow fever virus (YFV) is a mosquito-borne flavivirus. It is antigenically related to the West Nile virus, St. Louis encephalitis and Japanese encephalitis virus.

b. Disease. Clinical disease can vary widely from a mild febrile illness to a severe infection with jaundice and hemorrhagic symptoms. Yellow fever presents with an abrupt onset after an incubation period of 3 to 6 days. Symptoms may be nonspecific with abrupt onset of fever, headache, muscle aches, weakness, nausea and vomiting but 15% of infected patient will develop more severe symptoms within 48 hrs. Severe YFV symptoms include jaundice (liver malfunction leading to yellow skin or eyes) and bleeding from the gums or gastrointestinal tract. A YFV infection will be fatal for 20-50% of those with a severe infection. No treatment for a VFV infection exists and infected individuals need hospitalization for supportive care.

c. Epidemiology. YFV is transmitted through the bite of an infected mosquito. Mosquitoes acquire the virus by feeding on infected nonhuman or human primates. The YFV cannot be transmitted directly from person to person. YF predominantly occurs in sub-Saharan Africa and tropical South America. Although some countries are free of the virus, they harbor mosquitoes that could transmit yellow fever if infected. Therefore, those countries take precautions at their borders to prevent introduction of the virus.

d. Vaccine. Sanofi pasteur's vaccine, YF-Vax®, is a live attenuated 17D-204 strain yellow-fever virus. YF-Vax® is prepared by culturing the 17D-204 strain of yellow fever virus in grown in chicken embryos. The lyophilized vaccine contains sorbitol and gelatin as a stabilizer and is hermetically sealed under nitrogen. No preservative is added.

e. Cautions.

1) YF-Vax should not be administered to any individuals with a hypersensitivity to dry natural latex, gelatin and egg or chicken protein. Persons with a depressed immune system due to medication or disease may be at increased risk of adverse events and should not receive the YF vaccine.

2) Vaccinations of adults older than 65 years of age should be limited to individuals who are traveling to or reside in know yellow fever endemic or epidemic

areas because of the increased risk for systemic adverse events. When vaccination is deemed necessary, evaluate the health status of these individuals prior to vaccinations and they should be monitored for adverse events for 10 days post.

f. Immunization.

1) Administer reconstituted YF-Vax® as a single, 0.5-mL dose subcutaneously to persons 9 months of age and older. The vaccine powder must be reconstituted immediately before use with the diluent supplied; once reconstituted, a multidose vial should be maintained at 2°C–8°C, and the remaining doses should be used or discarded within 1 hour. YF-Vax® is a slight pink-brown suspension after reconstitution. Immunity develops by the tenth day after vaccination. Booster doses are required every 10 years for those at continuing risk of exposure to sustain immunity.

g. Adverse Events. Adverse reactions to YF-Vax® generally include mild headaches, myalgia, low-grade fevers, or other minor symptoms that may begin within days after vaccination and last 5-10 days. Local injections site pain, swelling and redness have also been reported. Immediate hypersensitivity reactions, characterized by rash, urticaria, or asthma or a combination of these, are uncommon and occur principally among persons with histories of egg allergies. Anaphylaxis has been reported to occur in persons with no history of reactions to the components of the vaccine. All persons should be observed for at least 15 minutes following administration and epinephrine should be readily available. YF vaccine reaction may be delayed up to several hours after vaccination and all patients should be advised of signs and symptoms of an allergic reaction.

h. DoD Policy. YF vaccination is required for all DoD personnel for deployment or travel to YF-endemic areas. Refer to Service specific policies for DoD members not on deployment or travel orders. Military requirements fluctuate at any given time; personnel (civilians and military) should be advised to contact the nearest military medical facility to determine deployment requirements for designated areas.

i. Special Consideration.

1) Yellow fever vaccinations must be administered at a certified YF vaccination center. As proof of vaccination individuals must possess an International Certificate of Vaccination or Prophylaxis (ICVP) (Form CDC 731); validated with the provider's signature and an official FY vaccination center stamp. An ICVP must be complete in every detail; if it is incomplete or inaccurate, it is not valid. An ICVP will become valid 10 days after vaccination for a period of 10 years. Travelers arriving without a completed International certificate of Vaccination or Prophylaxis (ICVP) for Yellow Fever may be quarantined or refused entry unless submitting to onsite vaccination.

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2) International Health Regulations stipulate that a medical provider may issue a waiver of FY vaccination to a traveler if the provider judges the vaccination to be medically contraindicated. The "Medical Contraindications of Vaccinations" section of

the ICVP, a signed and dated letter on letterhead stationary clearly stating the contraindication and bearing the official YF vaccination stamp must be issued for the waiver to be accepted.

3. References.

a. Centers for Disease Control and Prevention. Yellow Fever Vaccines Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2010;59 (RR#7):[1-26]

b. Centers for Disease Control and Prevention. CDC Health Information for International Travel 2010. Atlanta: U.S. Department of Health and Human Services, Public Health Service, 2009

c. Multiple resources (e.g., product insert, Vaccine Information Statements) assembled by the Military Vaccine Agency: www.vaccines.mil/yellowfever.

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