

University of Pittsburgh Safety Manual	EH&S Guideline Number: 05-021	
Subject: JAPANESE ENCEPHALITIS VIRUS (JEV)	Effective Date 09/09/13	Page 1 of 4

RESEARCH WITH JAPANESE ENCEPHALITIS VIRUS (JEV)

Laboratory-acquired JEV infections have been reported in the literature. An effective FDA-approved Japanese Encephalitis vaccine is available and is offered free of charge to employees who are determined to have an elevated risk of exposure to Japanese Encephalitis Virus through duties of employment with the University of Pittsburgh. These Guidelines establish a system of information and safeguards that should be followed at the University of Pittsburgh when using Japanese Encephalitis Virus.

1. SCOPE

- 1.1. **Agent** - Japanese encephalitis virus (JEV) is a flavivirus antigenically related to St. Louis encephalitis virus.
- 1.2. **Incidence** - Leading cause of viral encephalitis in Asia with 30,000-50,000 cases reported annually. Less than 1 case/year among U.S. civilians and U.S. military personnel traveling to and living in Asia. There have been rare outbreaks in U.S. territories in the western pacific, and JEV is not endemic in the U.S.
- 1.3. **Sequelae** - Case-fatality rate is reported to be 20-30%; and the rate of cases with serious neurological sequelae is reported to be 30-50%.
- 1.4. **Vaccine** – The Ixiaro [JE-VC] Japanese Encephalitis vaccine is licensed in the United States and is available for persons 2 months of age or older. The primary vaccination series for JE-VC is 2 doses administered 28 days apart. The 2 dose series should be completed at least 1 week before potential exposure to JEV. Current recommendations from the CDC’s Advisory Committee on Immunization Practices indicate an annual booster dose of JE-VC for individuals with continued potential exposure to JEV. For information on the most commonly reported adverse events for JE-VC and the medical contraindications, which include pregnancy and individuals sensitive to protamine sulfate, see the Vaccine Information Sheet.
- 1.5. **Laboratory Hazards and Communicability**
 - 1.5.1. Use of JEV is restricted to Biosafety Level 3 or Animal Biosafety Level 3 (BSL-3/ABSL-3) facilities with strict adherence to BSL-3/ABSL-3 practices.
 - 1.5.2. JEV can be transmitted in a laboratory setting through needle sticks and inhalational accidental exposures. Vaccine-induced immunity presumably protects against exposure through a percutaneous or inhalation route. Exposure to aerosolized JEV, and particularly to high concentrations of virus that might occur during viral purification, potentially could lead to infection through mucous membranes.

University of Pittsburgh Safety Manual	EH&S Guideline Number: 05-021	
Subject: JAPANESE ENCEPHALITIS VIRUS (JEV)	Effective Date 09/09/13	Page 2 of 4

1.5.3. JEV infections are not transmitted person to person, or via contact or common vehicles

1.6. **Employees at Risk-** Handling of the JEV agent and/or research animals experimentally infected with JEV create the highest risk of exposure and potential infection. Due to the presence of BSL-3 engineering controls and work practices and the use of proper respiratory protection, employees entering areas where JEV is utilized are at less risk of infection

2. PROCEDURE

- 2.1. All Principal Investigators (PI's) using JEV must be registered with the Biosafety Officer/EH&S. A registration document may be obtained from the web site www.ehs.pitt.edu
- 2.2. Biosafety Level 3 practices and containment equipment are required for all activities involving the use or manipulation of JEV and infected animals
- 2.3. A protocol-specific Biosafety Level 3 Manual is required for all JEV research, and must be approved by EH&S and the University Biohazards Committee prior to obtaining JEV and initiating JEV research.
- 2.4. Laboratories shall be inspected by EH&S at least annually to verify appropriate BSL-3 containment, practices, and Biosecurity.
- 2.5. All individuals who directly handle a) cultures or b) animals contaminated or infected with non-attenuated JEV virus strains that infect humans must be medically screened by Employee Health Services for contraindications to JEV exposure and/or JEV vaccine. Vaccination is required for individuals seeking to handle JEV or JEV infected animals at the University of Pittsburgh.
- 2.6. Occupational Health Requirements
 - 2.6.1. All personnel entering any BSL-3/ABSL-3 facilities at the University of Pittsburgh must be enrolled in the University's Respiratory Protection Program.
 - 2.6.2. All personnel entering BSL-3/ABSL-3 facilities must have undergone a BSL-3 Worker Health Screening from Employee Health Services in the previous three years.
 - 2.6.3. Evidence of vaccination for JEV (or physician documented evidence of prior infection) is required for all Pitt faculty and staff before handling JEV cultures or

<p style="text-align: center;">University of Pittsburgh Safety Manual</p>	<p style="text-align: right;">EH&S Guideline Number: 05-021</p>	
<p>Subject: JAPANESE ENCEPHALITIS VIRUS (JEV)</p>	<p style="text-align: center;">Effective Date 09/09/13</p>	<p style="text-align: right;">Page 3 of 4</p>

JEV infected animals at the University of Pittsburgh. This requirement shall be stated in respective job descriptions for University personnel.

- 2.6.4. For all persons entering research facilities using JEV at the University of Pittsburgh but are not directly handling JEV agents or animals, the JEV vaccine is available at no cost by contacting Employee Health Services.

- 2.7. Individuals refusing or having a medical contraindication to the JEV vaccine as determined by the Employee Health Services will be prohibited from handling JEV or infected animals at the University of Pittsburgh. The determination of all prohibited tasks will be made by the employee's supervisor in consultation with the Department of Environmental Health and Safety.
 - 2.7.1. Staff members refusing or having a medical contraindication to the JEV vaccine shall be referred to their supervisor. The supervisor in consultation with the Office of Human Resources (and if necessary EH&S and Employee Health) will examine the feasibility of other duties for the employee that do not involve handling of JEV.

 - 2.7.2. Faculty members refusing or having a medical contraindication to the JEV vaccine shall be referred to the respective department chair or dean. The supervisor in consultation with the Office of Human Resources and the Office of the Provost (and as necessary EH&S and Employee Health Services) shall determine other duties for the faculty member that do not involve handling of JEV.

- 2.8. Visitors and other authorized persons who will not be handling JEV or JEV exposed animals are exempt from the vaccine requirements.

- 2.9. It shall be the responsibility of the Principal Investigator and/or any individuals responsible for control of access to a JEV facility to assure that individuals with potential JEV exposure are enrolled in the medical screening component of this Guideline and are vaccinated prior to initial handling of JEV. Individuals may begin handling JEV or JEV exposed animals 1 week after administration of the final dose of the initial two dose vaccine regimen.

- 2.10. Laboratory personnel must wear personal protective equipment when handling these agents to include at a minimum a lab coat, liquid barrier gloves and respiratory protection. All personnel entering BSL3 containment facilities must abide by the garbing requirements for the specific facility as established by EH&S. Refer to the University of Pittsburgh Safety Manual Section V, Policy 05-003 for more details on Biosafety level 3 requirements.

<p style="text-align: center;">University of Pittsburgh Safety Manual</p>	<p style="text-align: right;">EH&S Guideline Number: 05-021</p>	
<p>Subject: JAPANESE ENCEPHALITIS VIRUS (JEV)</p>	<p style="text-align: center;">Effective Date 09/09/13</p>	<p style="text-align: right;">Page 4 of 4</p>

3. REFERENCES

- 3.1. Japanese Encephalitis Vaccines: Recommendations of the Advisory Committee on Immunization. MMWR, March 12, 2010, Vol 59, #RR01.
- 3.2. Recommendation for use of a Booster Dose of Inactivated Vero Cell Culture-Derived Japanese Encephalitis Vaccine – Advisory Committee on Immunization. MMWR, May 27, 2011, Vol 60(20), 661-663.
- 3.3. Update on Japanese Encephalitis Vaccine for Children 0 United States, May 2011. MMWR, May 27, 2011, Vol 60(20), 664-665.