Exposure Response Plan for the Laboratories Handling *Vibrio parahaemolyticus*

**Background Information**

*V. parahaemolyticus* is a gram negative bacterium that routinely occurs in coastal marine environments throughout the world. This bacterium usually causes foodborne disease through ingestion of contaminated raw or undercooked seafood, notably oysters. Skin infections occur when an open wound is exposed to water or sediment containing the organism. Septicemia is a rarer occurrence.

Laboratory research has focused on pathogenicity factors. During the 1970’s two exotoxins were identified; thermostable direct hemolysin (TDH) and TDH-related hemolysin (TRH). However these are not the sole factors causing diarrhea. Research is now focused on disrupting cell-to-cell communication as an alternative to traditional antibiotics.

**Exposure Incidents:** Laboratory acquired infections (LAI) have been reported. In 1972 a worker subcultured the agent from multiple stock strains in a lab in India. There was no indication if a biosafety cabinet was used. A 2002 report from Taiwan identified a zoonotic infection originating from infected laboratory mollusks. The LAI was attributed to poor sanitation and hygiene after an earthquake. Infection is not spread person-to-person. People with reduced stomach acidity are at increased risk of infection from a lower dose of bacteria. Dosage for such people is estimated at $10^5 – 10^7$ CFU. Infection through ingestion of $10^7 – 10^8$ CFU is seen in immunocompetent persons. Major hazards in the lab are accidental ingestions and accidental inoculation.

**Reporting Exposure Incidents:** Report all exposures to the Principal Investigator or lab supervisor and seek immediate medical evaluation. If help is needed with injuries or clean up, members of the University will contact the Police at 6-6911 and members of the Medical Center will contact Security at 6-5100. Whenever there is an accident involving *V. parahaemolyticus*, the Biosafety Officer must be notified.

**Pre-exposure Health Screening:**

Prior to beginning work with *V. parahaemolyticus*, the PI or an Employee Health Professional will inform each person of the risks s/he takes and of the symptoms s/he may experience following exposure. Individuals with chronic liver disease, compromised immune systems, diabetes, cancer or a history of steroid use are at higher risk of illness. A discussion with the Occupational Health Provider is recommended.

**Before an Exposure Incident Occurs:**

A vaccine is not available. Infection with *V. parahaemolyticus* during pregnancy has not been studied.
After an Exposure Incident Occurs: Immediate Action by Route of Exposure

Needlestick, Laceration or Animal Bite: Wash the area with soap and running water. Report all needlesticks.

Mucous membranes (eye, nose, mouth): If contaminated material is splashed or sprayed contaminating the eyes, nose or mouth: Flush the eyes for 10-15 minutes. Rinse mouth out with clean water and do not swallow.

Inhalation: If contaminated materials are aerosolized outside of primary containment and potentially inhaled, rinse mouth twice with clean water expelling the rinsate. Do not swallow.

After an exposure incident occurs: medical evaluation and follow-up:

Following immediate post exposure actions, contact the TMC Employee Health Clinic (Boston), TCSVM Occupational Medical Clinic (Grafton) or the Mt. Auburn Occupational Health Services (Medford) and arrange for medical evaluation, diagnosis and treatment if needed.

Signs and Symptoms:

- diarrhea
- abdominal cramps
- nausea
- redness and swelling around a wound

Post-exposure prophylaxis:

The healthcare provider will determine the course of treatment. Milder infections in healthy people may not require treatment. Pregnant women who are treated for *V. parahaemolyticus* should make the HCP aware of the pregnancy.

If an employee develops signs and symptoms associated with *V. parahaemolyticus* in the absence of an exposure incident, the PI and Biosafety Officer shall be notified immediately. Infection will not be considered laboratory-acquired until proven otherwise as there are a large number of agents that cause similar signs and symptoms.