McMaster University
Medical Monitoring Program Information Sheet

The purpose of this document is to provide information on an agent/virus in order for all McMaster University staff and students to make an informed decision about entering our medical monitoring program.

Please review this document, print your name, sign and date the Memorandum of Understanding and Agreement and then provide it to your supervisor.

Vibrio cholera

The following summary is provided by the McMaster Biosafety Office.

For a complete copy of the excerpted text below please refer to: http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/vibrio-cholerae-eng.php

MODE OF TRANSMISSION: Humans are a reservoir for the disease as are animals around aquatic environments. The bacterium has been found in birds and herbivores surrounding freshwater lakes and rivers as well as in algae, copepods (zooplankton), crustaceans and insects.

SUSCEPTIBILITY TO DISINFECTANTS: Susceptible to 2-5% phenol, 1% sodium hypochlorite, 4% formaldehyde, 2% glutaraldehyde, 70% ethanol, 70% propanol, 2% peracetic acid, 3-6% hydrogen peroxide, and 0.16% iodine. Vibrio cholerae is sensitive to cold (loss of viability after a cold shock at 0ºC). Cholera can survive in well water for 7.5 ± 1.9 days and the El Tor biotype can survive 19.3 ± 5.1 days. It has been found on fomites at room temperature for 1-7 days (21).

LABORATORY-ACQUIRED INFECTIONS: 12 cases of infection with 4 deaths were reported up to 1979. The deaths were associated with mouth pipetting, contact with infectious feces and contaminated laboratory laundry. Feces and naturally or experimentally infected animals are the main specimens which contain the infectious agent. The primary hazards when working with this agent are ingestion and accidental parenteral inoculation. The risk of aerosol exposure is not known. The risk of infection is higher in people who don't have gastric acid (i.e. due to gastrectomy or achlorhydria).

RISK GROUP CLASSIFICATION: Risk group 2. Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potentially infectious materials, animals, or cultures. Lab coat. Gloves when direct skin contact with infected materials or animals is unavoidable. Eye protection must be used where there is a known or potential risk to splashes. All procedures that may produce aerosols, or involve high concentrations or large volumes should
be conducted in a biological safety cabinet (BSC). The use of needles, syringes, and other sharp objects should be strictly limited. Additional precautions should be considered with work involving animals or large scale activities.

The following summary is provided by Employee Health Services.

For a complete copy of the excerpted text below please refer to:

**Facts**
Cholera is an acute intestinal infection caused by the bacterium Vibrio cholerae.

Cholera is spread through:

- contaminated food and water, including undercooked or raw shellfish and fish
- eating or drinking food or water contaminated by infected persons
- exposure to feces of an infected person
- cholera can spread very quickly in areas where sewage and drinking water are poorly treated

Humans are a reservoir for the disease as are animals around aquatic environments\(^1\). The bacterium has been found in birds and herbivores surrounding freshwater lakes and rivers as well as in algae, copepods (zooplankton), crustaceans and insects\(^1,3\).

**Symptoms**
Cholera is an extremely virulent disease. It affects both children and adults and can kill within hours.

About 75% of people infected with *V. cholerae* do not develop any symptoms, although the bacteria are present in their feces for 7–14 days after infection and are shed back into the environment, potentially infecting other people.

Among people who develop symptoms, 80% have mild or moderate symptoms, while around 20% develop acute watery diarrhoea with severe dehydration. This can lead to death if untreated.

People with low immunity – such as malnourished children or people living with HIV – are at a greater risk of death if infected.

**Diagnosis**
Confirm diagnosis by dark field microscopy of a wet mount of fresh stool, PCR or ELISA\(^1,3,11\).
Treatment
Fluid replacement, electrolyte replacement and base i.v. fluid replacement followed by the WHO’s oral rehydration solution (Na+ 90 mmol/L, K+ 20 mmol/L, Cl- 80 mmol/L, citrate (10 mmol/L and glucose 110 mmol/L) is the recommended treatment for dehydration\(^1\). Administering an antibiotic like ciprofloxin, doxycycline or co-trimoxazole reduces the duration of the illness\(^1\).

Routine vaccination for laboratory workers and travelers is not recommended\(^{22,23}\). Traditional parenteral inactivated vaccine strains are available though not recommended for widespread use as they only provide protection for 3-6 months\(^{3,14}\). Oral vaccines that provide protection for several years (up to 3) are available but their efficacy in endemic areas has not been confirmed\(^{3,13}\). Chemoprophylaxis with antibiotics has not been shown to be effective\(^1\). Proper hygiene, sanitary measures, water treatment and careful food preparation are the best prophylactic measures in endemic areas\(^1\).

---

Memorandum of Understanding and Agreement (“MUA”) for BSL2 Medical Monitoring Program

Note: This MUA is to be signed by the employee/student and supervisor, filed and kept by the supervisor. It will be reviewed during the annual biosafety audit by the McMaster Biosafety office.

The employee/student named below acknowledges and agrees as follows:

- I have read and understand all of the information in this Medical Monitoring Information Sheet provided jointly by the McMaster Biosafety Office and Employee Health Services and reviewed the biologically hazardous agent to which I have potential exposure. Initial here____

- I will report a pregnancy or a compromised immune system (due to medication {steroid or other immunosuppressive therapy}, organ transplant, chemotherapy or radiation therapy, HIV infection etc.) to my supervisor and X (graduate students) or Employee Health Services Occupational Health Nurse at ext. 20310 (faculty and staff) Initial here____

- I will report an exposure to a biological agent to my supervisor immediately and complete a McMaster incident/accident report. Initial here____

- I will report any illness that resembles the symptoms listed in this Medical Monitoring Information Sheet to my supervisor. Initial here____
- I recognize my responsibility to observe all safety practices and precautions while present in the BSL2 laboratory. **Initial here**

- I am aware of, and wish to participate in, the medical monitoring program (RMM #605) for this biological level 2 agent. Please circle: [yes] [no] **Initial here**

Employee/Student print name: ____________________________

Supervisor print name: ____________________________

Signature: ____________________________

Signature: ____________________________

Date: ____________________________

Date: ____________________________