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.

**Escherichia coli O157:H7** Verotoxic e-coli

The following summary is provided by the McMaster Biosafety Office.

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


Enterohemorrhagic *Escherichia coli* (EHEC), Verotoxin producing *Escherichia coli* (VTEC),

Appears to have low infectious dose, 10 organisms by ingestion

**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, phenolics, glutaraldehyde, iodines, formaldehyde. Heat sensitive, inactivated by moist heat (121°C for at least 15 min) and dry heat (160-170°C for at least 1 hour). Does not survive long in slurry systems (innoculum of 10⁸ cfu/mL became undetectable after 9 days); survives well in contaminated feces and soil, only small reduction in organism number over 2 months

**LABORATORY-ACQUIRED INFECTIONS:** 4 reported cases of laboratory infections with *E. coli* since 1981

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices, containment equipment and facilities for activities involving cultures and infected clinical materials. Laboratory coat; gloves when contact with infectious materials is unavoidable. Good personal hygiene and frequent hand washing essential

The following summary is provided by Employee Health Services.
Facts

*Escherichia coli* O157:H7 (commonly referred to as *E. coli*) bacteria are found naturally in the intestines of cattle, poultry and other animals. If people become infected with these bacteria, the infection can result in serious illness. Several other types of *E. coli* can also infect people and cause illness.

*E. coli* bacteria can sometimes contaminate the surface of meat when animals are slaughtered, despite precautions. In highly processed or ground meat, the mechanical process can spread the bacteria through the meat. Raw fruits and vegetables can become contaminated with pathogens while in the field, by improperly composted manure, contaminated water, wildlife and poor hygienic practices of the farm workers.

*E. coli* bacteria are most often spread from person-to-person. Both animals and people infected with the bacteria can be carriers. Therefore, proper hygiene, safe food handling and preparation practices are key to preventing foodborne illness. If you think you are infected with *E. coli* bacteria or any other gastrointestinal illness, do not prepare food for other people. It's also a good idea to keep pets away from food storage and preparation areas.

Symptoms

Symptoms can develop within hours and up to 10 days after ingesting the bacteria, characterized by severe abdominal cramping. Some people may also have bloody diarrhea (hemorrhagic colitis). Others infected with the bacteria may not get sick or show symptoms, but they can carry the bacteria, and spread the infection to others. The incubation period is 2-8 days (median of 3-4 days).

Most people recover within seven to 10 days, but up to 15 percent develop Hemolytic Uremic Syndrome (HUS), an unusual type of kidney failure and blood disorder, which can be fatal.

Symptoms of HUS vary, depending on the person's health and the extent of the infection. Some people may have seizures or strokes and some may need blood transfusions and kidney dialysis. Others may live with side effects like permanent kidney damage. Although everyone is susceptible to *E. coli* infection, pregnant women, people with compromised immune systems, young children and the elderly are most at risk for developing serious complications.

Diagnosis

Infections are usually diagnosed through lab testing of stool specimens (feces).
Treatment
Fluid replacement therapy to prevent dehydration. Most individuals recover without treatment in 5–10 days. There is no immunization available.

Prevention
Good personal hygiene and frequent handwashing essential. Preventive measures for E. coli O157:H7 infection are similar to those recommended for other foodborne diseases. However, some of the measures may need to be reinforced for EHEC, particularly in view of its importance in vulnerable groups such as children and the elderly. Since a number of EHEC infections have been caused by contact with recreational water, it is also important to protect such water areas, as well as drinking-water sources, from animal wastes.

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 _____