**Biohazardous Agent Reference Document (BARD) and**

**Information for Healthcare Providers in the Event of an Exposure**

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| The BARD is an additional guidance tool. It is not a substitute for a risk assessment, biosafety training, lab-specific training, SOP as required by the IBC or a formal [IBC master protocol registration](https://www.uvm.edu/rpo/biosafety-oversight). This document must be readily available in the laboratory, and it is the responsibility of the Laboratory Supervisor or Principal Investigator to ensure that all personnel have read and understood the information. The BARD is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Please bring this IBC-approved BARD with you to the UVMMC Emergency Department if there has been an exposure and someone requires medical assistance.  INSTRUCTIONS for BARD Preparation   1. Complete the blue Information for Healthcare Providers section. 2. Review the standard information contained in the green section of this document. 3. Add/revise information that is specific to your work in the laboratory (such as strain-specific information). Please be sure that the track changes function is turned on to indicate any changes that you make. 4. Submit the BARD along with your IBC master protocol registration or amendment. 5. Once approved by the IBC, all personnel must review this BARD. The PI will attest during the submission of the registration or amendment to add new personnel that each lab member has read and understands the material. | |
| **Information for Healthcare Providers**  Dear Healthcare Provider,  This individual works in a UVM research laboratory and has been exposed to a pathogen or toxin. Information about the materials this person may have been exposed to is listed below. You may also find useful additional information in subsequent pages of this reference document. | |
| **Pathogen Name:** | Salmonella enterica typhimurium |
| **Pathogen/Toxin Classification:** |  |
| **List All Strains Used in the Laboratory:** |  |
| **List Resistant Genes Known to be Encoded:** |  |
| **Modes of Transmission *(mucous membranes, needle stick, inhalation)*:** | Ingestion, contact with non-intact skin, mucous membrane contact. Aerosol transmission unknown. |
| **Known Medical Precautions and Treatment** | |

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| **Prophylaxis** | None available |
| **Vaccines** | None available |
| **Treatment and/or Post-exposure Intervention** | Fluid and electrolyte replacement, antibiotics for patients with increased risk of complications |
| **Surveillance** | Monitor for symptoms and test using serology, PCR, or microbiological isolation |
| **Additional Medical Precautions (immunosuppression, pregnancy, allergies)** | Very young, very old, and immunocompromised individuals are at an increased risk |

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| **Health Hazards** | |
| **Host Range** | Humans, wild & domestic animals, livestock |
| **Signs and Symptoms** | Abdominal pain, cramping, diarrhea, nausea, vomiting, headache, chills, fever |
| **Infectious Dose** | 100,000 organisms via ingestion |
| **Incubation Period** | 6 – 72 hours for gastroenteritis, 5 – 21 days for enteric fever |
| **Exposure Procedures** | |
| **Mucous membranes** | Flush eyes, mouth or nose for 15 minutes at eyewash station. |
| **Other exposures** | Wash area with soap and water for 15 minutes. |
| **Medical Follow-Up** | Contact UVMMC Infectious Disease Dept. directly at **(802) 847-2700** for immediate assistance. Bring this document with you if seeking medical care. |
| **Reporting** | Report all exposures or near misses to:   1. Your immediate Supervisor 2. SOS at 802-656-2560 and ask to have the EH&S team paged 3. Risk Management: <https://www.uvm.edu/riskmanagement/incident-claim-reporting-procedures> |
| **Laboratory Hazards** | |
| **Laboratory Acquired Infections** | 109 cases with one death reported in 2011, 41 cases in 2014, 24 cases in 2017. |
| **Sources** | Cerebrospinal fluid, blood, abscesses, lesion exudates, urine, & feces from infected humans and animals, laboratory cultures, contaminated food & water |
| **Characteristics** | |
| **Morphology** | Gram-negative, non- spore forming, motile, rod-shaped bacterium. Member of the family Enterobacteriaceae. |
| **Strain Specific Characteristics** | Non-typhoid serovar |
| **Containment Requirements** | |
| **BSL - 2** | Manipulation of known or potentially infected clinical samples and cultures of laboratory adapted strains (RG2) |
| **BSL - 3** |  |
| **ABSL - 2** | Work with animals infected with risk group 2 strains |
| **ABSL - 3** |  |
| **Aerosol generating activities** | Centrifugation, homogenizing, vortexing or stirring, changing of animal cages, animal surgeries, cell sorting, pipetting, pouring liquids, sonicating, loading syringes |
| **Primary containment device (BSC)** | Use for aerosol-generating activities, high concentrations, animal manipulations, or large volumes |
| **Personal Protective Equipment (PPE)** | |
| ***Minimum PPE Requirements*** | Nitrile gloves, lab coat, appropriate eye/face protection. Wash hands after removing gloves. |
| ***Additional Precautions***  ***(Risk assessment dependent)*** | Risk assessment dependent |
| **Viability** | |
| **Disinfection** | Susceptible to 1% sodium hypochlorite, 70% ethanol, 2-5% phenol, 4% formaldehyde, 2% glutaraldehyde, 3-6% hydrogen peroxide, quaternary ammonium compounds, iodophors. Contact time of 10 minutes. |
| **Inactivation** | Inactivated by autoclaving for 15+ minutes, dry heat above 170°C for 1+ hour |
| **Survival Outside Host** | May survive for several months, can survive in soil for up to 231 days, in water for up to 152 days |
| **Spill Clean-Up Procedures** | |
| **Small Spill** | Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply approved disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before clean up and disposal. Dispose in double biowaste bags and biobox. |
| **Large Spill** | **Inside of a lab:** Call UVM Service Operations at 656-2560 and ask to speak to a dispatcher. Ask them to page Risk Management and Safety.  **Outside of the lab:** Pull the nearest fire alarm and evacuate the building. Wait out front of the building for emergency responders to arrive. |
| **References** | |
| **Canadian PSDS** | <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/salmonella-enterica.html> |
| **BMBL** | <https://www.cdc.gov/biosafety/publications/bmbl5/> |
| **CDC Guidelines** | <https://www.cdc.gov/salmonella/typhimurium-07-17/index.html> |