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| **CHARACTERISTICS** | |
| Morphology | Member of the Enterobacteriaceae family. Is a facultative anaerobe and is a gram negative motile rod shaped bacteria. |
| Disease | Gastroenteritis, bacteremia, enteric fever, and asymptomatic carriers. |
| Zoonosis | Yes - contact with infected animals and feces. |

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| **HEALTH HAZARDS** | |
| Host Range | Humans and animals. |
| Modes of Transmission | Contaminated food and water, contact with infected feces, infected animals or humans. |
| Signs and Symptoms | Gastroenteritis (food poisoning), fever, abdominal pain, myalgias, malaise, diarrhea, or constipation. |
| Infectious Dose | 1000 to 100000 |
| Incubation Period | Ranges from 5 to 72 hours depending on the incubation period. |

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| **MEDICAL PRECAUTIONS/TREATMENT** | |
| Prophylaxis | None. |
| Vaccines | Three vaccines (2 parenteral and 1 oral) are licensed for use in the US and should be considered for those working with serotype Typhi. |
| Treatment | Chloramphenicol, ciproflaxin, amoxicillin, cotrimoxazole, trimethoprim-sulfonamid, cephalosporins and norfloxacin. |
| Surveillance | Monitor for symptoms. |
| MSU Requirements | Report any exposures. |

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| **LABORATORY HAZARDS** | |
| Laboratory Acquired Infections (LAIs) | 64 cases and 2 deaths were reported from 1979 to 2004. |
| Sources | Blood, urine, feces, food and environmental materials. Cultures, frozen stocks, other samples described in IBC protocol. |

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| **RISK GROUP & CONTAINMENT REQUIREMENTS** | |
| Risk Group 2 | Agents that are associated with human disease which is rarely serious and for which preventive or therapeutic interventions are often available. |
| BSL2 | For all procedures involving suspected or known infectious specimen or cultures. |
| ABSL2 | For all procedures utilizing infected animals. |

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| **VIABILITY** | |
| Disinfection | Susceptible to 1:10 bleach:water, 70 % ethanol and 2 % gluteraldehyde |
| Inactivation | Inactivated by moist heat (60 minutes at 121° C) and dry heat (1 hour at 160-170° C). |
| Survival Outside Host | Can survive in cattle slurry for 19-60 days, cattle manure for 48 days, soil for 231 days, and water for up to 152 days. Survive on fingertips for 80 minutes. |

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| **SUPPLEMENTAL REFERENCES** | |
| BMBL | <https://www.cdc.gov/labs/BMBL.html> |
| NIH Guidelines | <https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf> |
| CDC | <https://www.cdc.gov/salmonella/index.html> |
| Canada PSDS | <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/salmonella-enterica.html> |

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| **SPILL PROCEDURES** | |
| Small | Notify others working in the lab. Remove PPE and don new PPE. Cover area of the spill with absorbent material and add fresh 1:10 bleach:water. Allow 20 minutes (or as directed) of contact time. After 20 minutes, cleanup and dispose of materials. |
| Large | * Immediately notify all personnel in the lab and clear all personnel from the area. Remove any contaminated PPE/clothing and leave the lab. * Secure the area by locking doors, posting signage and guarding the area to keep people out of the space.   For assistance, contact MSU's Biosafety Officer (406-994-6733) or Safety and Risk Management (406-994-2711). |

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| **EXPOSURE PROCEDURES** | |
| Mucous membrane | Flush eyes, mouth, or nose for 5 minutes at eyewash station. |
| Other Exposures | Wash area with soap and water for 5 minutes. |
| Reporting | Immediately report incident to supervisor, complete a [First Report of Injury](https://firstreportinjury.mus.edu/) form, and submit to Safety and Risk Management. |
| Medical Follow-up | **During business hours:**  Bridger Occupational Health 3400 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm  406-577-7674  **After business hours:**  Bozeman Deaconess Hospital Emergency Room  915 Highland Blvd |

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| **PERSONAL PROTECTIVE EQUIPMENT (PPE)** | |
| Minimum PPE Requirements | Lab coat, disposable gloves, safety glasses, closed toed shoes, long pants |
| Additional Precautions | Additional PPE may be required depending on lab specific SOPs and IBC Protocol. |