

PATHOGEN SAFETY DATA SHEET

Enteropathogenic Escherichia coli

| CHARACTERISTICS | |
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| Morphology | Gram negative rod non-spore forming bacteria |
| Disease | Typical Enteropathogenic E. coli (EPEC) primarily causes disease in neonates and young children, with most cases occurring in children < 2 years old and particularly in those < 6 months old. Disease may occur in adults if sufficiently high inocula are ingested. Outbreaks have occurred in pediatric wards, nurseries, and day care centers and in adults that have consumed contaminated food from a buffet. In developing countries, EPEC are highly prevalent and are an important cause of childhood diarrheal disease and dehydration-associated deaths. Studies in Brazil, Mexico, and South Africa have shown that 30 -40% of infant diarrhea can be attributed to EPEC. Atypical EPEC are prevalent in both developed and developing countries. They appear to cause disease in a broader range of ages and have been associated with outbreaks in developed countries. However, the enteropathogenicity and the role of certain atypical EPEC strains is controversial. At least two case-control studies showed no statistical difference in infection rates between cases and matched controls suggesting they may be part of the normal human flora. It is likely that EPEC and atypical EPEC in particular, are vastly under-reported. |
| Zoonosis | May be transmitted when handling infected cattle, dogs, cats, sheep, rabbits, and horses. |

| HEALTH HAZARDS | |
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| Host Range | Humans and animals. |
| Modes of Transmission | Ingestion of contaminated food, fecal-oral transmission, and person-to-person transmission |
| Signs and Symptoms | Low grade fever with nausea, diarrhea, and vomiting may be present. Stools are typically not bloody, mucoid, or dysenteric |
| Infectious Dose | Estimated to be around 1 million organisms. |
| Incubation Period | 6 to 48 hours. |

| MEDICAL PRECAUTIONS/TREATMENT | |
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| Prophylaxis | None available. |
| Vaccines | None available. |
| Treatment | Electrolyte fluid therapy. Trimethoprim/sulfamethoxazole or quinolones reduces the duration of diarrhea. |
| Surveillance | Monitor for symptoms. Stool culture is a common method used to identify E. coli. DNA probes and techniques such as PCR can be applied directly to clinical samples |
| MSU Requirements | Report any exposures |

| LABORATORY HAZARDS | |
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| Laboratory Acquired Infections (LAIs) | 12 reported cases. |
| Sources | Contaminated food and feces. Cultures, frozen stocks, other samples described in IBC protocol. |

| SUPPLEMENTAL REFERENCES | |
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| Canadian MSDS: | http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/index-eng.php |
| BMBL | https://www.cdc.gov/labs/BMBL.html |
| CDC | https://www.cdc.gov/ecoli/ |
| NIH Guidelines | https://osp.od.nih.gov/wp-content/uploads/NIH_Guidelines.pdf |

| RISK GROUP & CONTAINMENT REQUIREMENTS | |
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| 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. |

| SPILL PROCEDURES | |
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| 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 | <ul style="list-style-type: none"> 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). |

| EXPOSURE PROCEDURES | |
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| 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 form, and submit to Safety and Risk Management. |
| Medical Follow-up | During business hours: Bridger Occupational Health 3406 Laramie Drive Weekdays 8am -6pm. Weekends 9am-5pm After business hours: Bozeman Deaconess Hospital Emergency Room 915 Highland Blvd |

| VIABILITY | |
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| Disinfection | Susceptible to 1:10 bleach:water, 70 % ethanol, and glutaraldehyde, accelerated hydrogen peroxide |
| Inactivation | Inactivated moist heat (121°C for 30 min) and dry heat (1 hour at 160-170 C). |
| Survival Outside Host | Can survive for 1.5 hours to 16 months on dry inanimate surfaces |

| PERSONAL PROTECTIVE EQUIPMENT (PPE) | |
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| 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. |