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| **CHARACTERISTICS** | |
| Morphology | Gram-positive, slightly club shaped, small, pleomorphic, aerobic, non-spore forming bacilli. Nonmotile and catalase positive. |
| Disease | Diphtheria, upper respiratory tract illness. |
| Zoonosis | None. |

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| **HEALTH HAZARDS** | |
| Host Range | Humans. C. ulcerans and C. pseudotuberculosis are derived from animals but also cause disease in  humans. |
| Modes of Transmission | Exposure to wounds, exposure to contaminated fomites, inhalation, accidental parenteral inoculation,  ingestion. |
| Signs and Symptoms | Lesions on the skin or formation of pseudomembrane, pharyngitis or tonsillitis with sore throat, dysphagia,  lymphadenitis, low grade fever, malaise, and headache; Cutaneous diphtheria is characterized by formation of lesions on the skin. |
| Infectious Dose | Unknown. |
| Incubation Period | 2-4 days. |

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| **MEDICAL PRECAUTIONS/TREATMENT** | |
| Prophylaxis | None. |
| Vaccines | DTaP vaccine of Diphtheria, pertussis, and tetanus toxoid. |
| Treatment | Antibiotic therapy with penicillin, cephalosporins, erythromycin, and tetracycline may be used in conjunction with antitoxin to eliminate the bacteria from the site of infection. Penicillin can be given intramuscularly or orally. |
| Surveillance | Monitor for symptoms. |
| MSU Requirements | Report any exposures. |

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| **LABORATORY HAZARDS** | |
| Laboratory Acquired Infections (LAIs) | Cases have been reported. |
| Sources | Exudates or secretions from nose, throat, nasopharynx, larynx, wounds, blood, skin. 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, accelerated hydrogen peroxide |
| Inactivation | Inactivated by moist heat (1 hour at 121oC). |
| Survival Outside Host | C. diphtheriae can survive on dry inanimate surfaces from 7 days to 6 months. Survival of C. ulcerans and C. pseudotuberculosis is unknown. |

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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> |
| Canada PSDS | <https://www.canada.ca/en/public-health/services/laboratory-biosafety-biosecurity/pathogen-safety-data-sheets-risk-assessment/corynebacterium-diphtheriae.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. |