PATHOGEN SAFETY DATA SHEET
Pseudomonas aeruginosa

CHARACTERISTICS

Morphology
Motile gram-negative aerobic bacteria, plump-shaped rods, with polar flagella which have an important role in pathogenicity, non-spore forming

Disease
Pneumonia, bacteremia, wound infections, urinary tract infections, swimmer’s ear, eye infections related to use of contact lenses.

Zoonosis
none

HEALTH HAZARDS

Host Range
Humans, Animals, Plants

Modes of Transmission
Direct contact by inhalation of aerosols. Direct contact by aspiration of contaminated water (tap or distilled). Direct contact by exposure of wounds to contaminated materials. Indirectly by contact of mucous membranes with discharges from infected conjunctivae or infected respiratory secretions.

Signs and Symptoms
Conjunctivitis, Upper Respiratory Infections, Pneumonia, Urinary Tract Infections, Wound Infection.

Infectious Dose
unknown

Incubation Period
Variable depending on infection. Eye infection is 24 to 72 hours.

MEDICAL PRECAUTIONS/TREATMENT

Prophylaxis
Antibiotic Prophylaxis

Vaccines
None available

Treatment
Aggressive antibiotic therapy for severe infections; Local application of antibiotic ointment or drops for skin or eye infections. Pseudomonas aeruginosa is intrinsically resistant to many common antibiotics.

Surveillance
Bacteriological identification of infection.

MSU Requirements
Report any exposures

LABORATORY HAZARDS

Laboratory Acquired Infections (Labs)
None reported to date. However, this is an opportunistic pathogen and there is the possibility of severe to fatal infection in the immunocompromised.

Sources
Clinical Specimen: Respiratory secretions, wound exudates, blood, urine. Environmental Reservoir: Water, infected solutions (IV, disinfectants, soap). Cultures, frozen stocks, other samples described in IBC protocol.

RISK GROUP & CONTAINMENT REQUIREMENTS

Risk Group
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

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).

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 form, and submit to Safety and Risk Management.

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

Disinfection
Susceptible to 1:10 bleach:water, 70 % ethanol and 2 % gluteraldehyde, 2 % formaldehyde. Alcohol contained disinfectants recommended for resistant strains.

Inactivation
Inactivated by moist heat (15 minutes at 121° C) and dry heat (1 hour at 160-170° C).

Survival Outside Host
Survives for several months in water with minimal nutrients.

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.

SUPPLEMENTAL REFERENCES

Canadian MSDS:

BMBL
https://www.cdc.gov/labs/BMBL.html

CDC
https://www.cdc.gov/hai/organisms/pseudomonas.html

NIH Guidelines

Office of Research Compliance