**PATHOGEN SAFETY DATA SHEET**

*Streptococcus pneumoniae*

### CHARACTERISTICS

**Morphology**
Aerotolerant (oxygen-tolerant), anaerobic, gram positive diplococci, lancet-shaped, occur in pairs, or short, tight chains.

**Growth Conditions**
Can be placed in various growth media and incubated at 37°C.

### HEALTH HAZARDS

**Host Range**
Humans and Animals.

**Modes of Transmission**
Direct contact with aerosol droplets. Direct oral and mucous membrane contact. Indirectly through articles freshly soiled with respiratory discharges.

**Signs and Symptoms**
Shaking chills, chest pain, dyspnea, fever, productive cough, and sinusitis. Can cause middle ear infections. Can progress to pneumonia, bacteremia, meningitis.

**Infectious Dose**
Unknown

**Toxicity Dose Data**
Generally 1-3 days

### MEDICAL PRECAUTIONS/TREATMENT

**Prophylaxis**
Penicillin

**Vaccines**
Pneumococcal conjugate vaccine (PCV13) and pneumococcal polysaccharide vaccine (PPV23). Vaccination is recommended for all children under 5 years of age, all adults over 65 years of age, and high risk individuals of any age, including individuals with underlying medical conditions such as HIV or sickle-cell disease.

**Treatment**
Variable susceptibility to: penicillin, tetracycline, cefotaxime, levofloxacin, erythromycin, and fluoroquinolines, moxifloxacin and gatifloxacin, telithromycin, vancomycin, linezolid.

**Surveillance**
Monitor for symptoms of infection

**MSU Requirements**
Report any exposures

### LABORATORY HAZARDS

**Laboratory Acquired Infections (LAIs)**
78 documented cases since 1999

**Sources**
Sputum, blood, respiratory secretions, throat swabs, parenteral inoculation.

### VIABILITY

**Disinfection**
Susceptible to 10 % Bleach, 70 % ethanol, and 2 % gluteraldehyde.

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

**Survival Outside Host**
Mouse carcasses – 180 to 270 days, sputum at room temperature survives 7 days, and guaze survives 2 to 15 days.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

**Minimum PPE Requirements**
At minimum, gloves, closed toed shoes, lab coat, and appropriate face and eye protection prior to working with *S. pneumoniae*. Additional PPE may be required depending on lab specific SOPs.

**Additional Precautions**
All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).

### CONTAINMENT REQUIREMENTS

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSL2</td>
<td>For all procedures involving known or potentially infected cultures.</td>
</tr>
<tr>
<td>ABSL2</td>
<td>For all procedures utilizing infected animals</td>
</tr>
</tbody>
</table>

### SPILL PROCEDURES

**Small**
Notify others working in the lab. Remove and don new PPE. Cover area of the spill with absorbent material and add 10 % Bleach. Allow 30 minutes hour of contact time. After 30 minutes and then cleanup and dispose of materials.

**Large**
For assistance, contact MSU’s Biosafety Officer (406-994-6998) 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 report, and submit to Safety and Risk Management.

**During business hours:**
Montana Occupational Health 2075 Charlotte St. Suite 3 Bozeman, MT

**After business hours:**
Bozeman Deaconess Hospital Emergency Room 915 Highland Blvd Bozeman, MT

**Medical Follow-up**
During business hours:
Montana Occupational Health 2075 Charlotte St. Suite 3 Bozeman, MT

**Laboratory Hazards**
Sputum, blood, respiratory secretions, throat swabs, parenteral inoculation.

### SUPPLEMENTAL REFERENCES

- CDC: [http://www.cdc.gov/pneumococcal/clinicians/streptococcus-pneumoniae.html](http://www.cdc.gov/pneumococcal/clinicians/streptococcus-pneumoniae.html)