

## **Biological Agent Reference Sheet (BARS)**

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## BIOLOGICAL AGENT REFERENCE SHEET

### *Streptococcus pneumoniae*

CHARACTERISTICS	
<i>Morphology</i>	Aerotolerant (oxygen-tolerant), anaerobic, Gram positive diplococci, lancet-shaped, occur in pairs, or short, tight chains
<i>Growth Conditions</i>	Can be placed in various growth media and incubated at 37°C. Ex: TSA supplemented with 5% sheep's blood

HEALTH HAZARDS	
<i>Host Range</i>	Humans, mice, rats guinea pigs, chimpanzees, rhesus monkeys, mammals that live in association with humans
<i>Modes of Transmission</i>	Direct contact with aerosol droplets. Direct oral and mucous membrane contact. Indirectly through articles freshly soiled with respiratory discharges.
<i>Signs and Symptoms</i>	Shaking chills, chest pain, dyspnea, fever, productive cough, and sinusitis; Can cause middle ear infections. Can progress to pneumonia, bacteremia, meningitis
<i>Infectious Dose</i>	Unknown for humans;
<i>Incubation Period</i>	Generally 1-3 days

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	Penicillin
<i>Vaccines</i>	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.
<i>Treatment</i>	Variable susceptibility to: penicillin, tetracycline, cefotaxime, levofloxacin, erythromycin, and fluoroquinolones, moxifloxacin and gatifloxacin, telithromycin, vancomycin, linezolid
<i>Surveillance</i>	Monitor for symptoms of infection
<i>Emory Requirements</i>	Report all exposures

LABORATORY HAZARDS	
<i>Laboratory Acquired Infections (LAIs)</i>	78 documented cases since 1999.
<i>Sources</i>	Sputum, blood, respiratory secretions, throat swabs, parenteral inoculation

SUPPLEMENTAL REFERENCES	
<i>Canadian MSDS</i>	<a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/streptococcus-pneumoniae-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/streptococcus-pneumoniae-eng.php</a>
<i>BMBL: 5<sup>th</sup> Edition</i>	<a href="http://www.cdc.gov/biosafety/publications/bmb15/">http://www.cdc.gov/biosafety/publications/bmb15/</a>
<i>CDC Guidelines</i>	<a href="https://wwwnc.cdc.gov/travel/diseases/pneumococcal-disease-streptococcus-pneumoniae">https://wwwnc.cdc.gov/travel/diseases/pneumococcal-disease-streptococcus-pneumoniae</a>

CONTAINMENT REQUIREMENTS	
<i>BSL-2</i>	For all activities involving known or potentially infected cultures
<i>ABSL-2</i>	For all procedures utilizing infected animals

SPILL PROCEDURES	
<i>Small</i>	Notify others working in the lab. Allow aerosols to settle. Don appropriate PPE. Cover area of the spill with paper towels and apply an EPA registered disinfectant, working from the perimeter towards the center. Allow 30 minutes of contact time before disposal and cleanup of spill materials.
<i>Large</i>	Contact Emory's Biosafety Officer (404-727-8863), the EHSO Office (404-727-5922), or The Spill Response Team (404-727-2888).

EXPOSURE PROCEDURES					
<i>Mucous membrane</i>	Flush eyes, mouth or nose for 15 minutes at eyewash station.				
<i>Other Exposures</i>	Wash area with soap and water for 15 minutes.				
<i>Reporting</i>	Immediately report incident to supervisor, complete an employee incident report in PeopleSoft.				
<i>Medical Follow-up</i>	<table border="0"> <tr> <td><b>7am-4pm (OIM):</b> EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)</td> <td><b>After Hours:</b> OIM NP On Call 404-686-5500 PIC# 50464</td> </tr> <tr> <td><b>Needle Stick (OIM):</b> EUH (404-686-8587) EUHM (404-686-2352)</td> <td><b>Yerkes:</b> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)</td> </tr> </table>	<b>7am-4pm (OIM):</b> EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)	<b>After Hours:</b> OIM NP On Call 404-686-5500 PIC# 50464	<b>Needle Stick (OIM):</b> EUH (404-686-8587) EUHM (404-686-2352)	<b>Yerkes:</b> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)
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VIABILITY	
<i>Disinfection</i>	1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde,
<i>Inactivation</i>	Sensitive to moist and dry heat. Moist Heat (121°C for at least 15 mins). Dry Heat (160-170°C for at least 1 hour).
<i>Survival Outside Host</i>	Mouse carcass – 180 to 270 days; Sputum (Room Temp) - 7 days; Gauze – 2 to 15 days

PERSONAL PROTECTIVE EQUIPMENT (PPE)	
<i>Minimum PPE Requirements</i>	At minimum, personnel are required to don gloves, closed toed shoes, lab coat, and appropriate face and eye protection prior to working with <i>S. pneumoniae</i> . Additional PPE may be required depending on lab specific SOPs.
<i>Additional Precautions</i>	All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).