

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

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## BIOLOGICAL AGENT REFERENCE SHEET

### *Clostridium difficile*

CHARACTERISTICS	
<i>Morphology</i>	A gram positive rod that is anaerobic, motile, capable of producing subterminal spores, and produces a cytotoxin and enterotoxin.
<i>Growth Conditions</i>	Defined amino acid growth medium.

HEALTH HAZARDS	
<i>Host Range</i>	Humans, pigs, calves
<i>Modes of Transmission</i>	Fecal-oral contact; evidence for transmission via fomites and hands exists.
<i>Signs and Symptoms</i>	<ul style="list-style-type: none"> <li>Mild or moderate diarrhea</li> <li>Pseudomembranous colitis (can be fatal)</li> <li>May be associated with the passage of mucus or occult blood in stool</li> <li>Fever, cramping, abdominal discomfort and peripheral leukocytosis are common but found in fewer than half of patients</li> </ul>
<i>Infectious Dose</i>	Unknown
<i>Incubation Period</i>	Unknown

MEDICAL PRECAUTIONS / TREATMENT	
<i>Prophylaxis</i>	None currently available.
<i>Vaccines</i>	None currently available.
<i>Treatment</i>	Oral therapy with metronidazole or vancomycin.
<i>Surveillance</i>	Diagnosed by Polymerase Chain reaction (PCR) and pulse field gel electrophoresis (PFGE). Monitor for symptoms (loose stool). Recover <i>C. difficile</i> organisms and/or toxin from stool samples to confirm.
<i>Emory Requirements</i>	Report all exposures.

LABORATORY HAZARDS	
<i>Laboratory Acquired Infections (LAIs)</i>	One reported case of an LAI from <i>C. difficile</i> .
<i>Sources</i>	Clinical specimens (feces).

SUPPLEMENTAL REFERENCES	
<i>Canadian MSDS</i>	<a href="http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/index-eng.php">http://www.phac-aspc.gc.ca/lab-bio/res/psds-ftss/index-eng.php</a>
<i>Other Publications</i>	<a href="http://mic.sgmjournals.org/content/141/2/371.full.pdf">http://mic.sgmjournals.org/content/141/2/371.full.pdf</a>

CONTAINMENT REQUIREMENTS	
<i>BSL-2</i>	For clinical specimens and cultures.
<i>ABSL-2</i>	For work with <i>C. difficile</i> in 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>	For an area not protected by skin, wash with soap and water for 15 minutes (open wounds, sores, etc.), and a minimum of 20 seconds of soap and water for areas with intact skin.	
<i>Reporting</i>	Immediately report incident to supervisor, complete an employee incident report in PeopleSoft.	
<i>Medical Follow-up</i>	<i>7am-4pm (OIM):</i> EUH (404-686-7941) EUHM (404-686-7106) WW (404-728-6431)	<i>After Hours:</i> OIM NP On Call 404-686-5500 PIC# 50464
	<i>Needle Stick (OIM):</i> EUH (404-686-8587) EUHM (404-686-2352)	<i>Yerkes:</i> Maureen Thompson Office (404-727-8012) Cell (404-275-0963)

VIABILITY	
<i>Disinfection</i>	Spores are fairly resistant; moderate susceptibility to 1% sodium hypochlorite; susceptible to high level disinfectants (>2% glutaraldehyde) with prolonged contact time.
<i>Inactivation</i>	Spores are fairly resistant to heat (spores destroyed by moist heat - 121°C for at least 15 min).
<i>Survival Outside Host</i>	<i>C. difficile</i> is able to survive in soil, meat, and vegetables. Spores can survive for long periods outside of host.

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>C. difficile</i> . Additional PPE may be required depending on lab specific SOPs.
<i>Additional Precautions</i>	Wash hands with soap and water after removing gloves. Alcohol hand cleansers will not effectively eliminate the spores.