

Biological Agents and Associated Biosafety Levels

Agent	Type						Biological Safety Level			
	Bacteria	Fungi	Parasitic	Prion	Rickettsia	Virus	BSL 1	BSL 2	BSL 3	BSL 4
<i>Bacillus anthracis</i>	X							X ∞		
<i>Bordetella pertussis</i>	X							X ∞		
<i>Brucella</i> (<i>B. abortus</i> , <i>B. canis</i> , <i>B. melitensis</i> , <i>B. suis</i>)	X							X β	X χ	
<i>Burkholderia mallei</i> (<i>Pseudomonas mallei</i>)	X							X ∞		
<i>Burkholderia pseudomallei</i> (<i>Pseudomonas pseudomallei</i>)	X							X ∞		
<i>Campylobacter</i> (<i>C. jejuni</i> / <i>C. coli</i> , <i>C. fetus</i> subsp. <i>fetus</i>)	X							X		
<i>Chlamydia psittaci</i> , <i>C. pneumoniae</i> , <i>C. trachomatis</i>)	X							X ∞		
<i>Clostridium botulinum</i>	X							X ∞		
<i>Clostridium tetani</i>	X							X		

<i>Corynebacterium diphtheriae</i>	X							X		
<i>Escherichia coli</i> (Cytotoxin-producing (VTEC/SLT) organisms)	X							X		
<i>Francisella tularensis</i>	X							X χ		
<i>Helicobacter pylori</i>	X							X		
<i>Leptospira interrogans</i> – all serovars	X							X		
<i>Listeria monocytogenes</i>	X							X		
<i>Legionella pneumophila</i> ; other <i>Legionella</i> -like agents	X							X ∞		
<i>Mycobacterium leprae</i>	X							X		
<i>Mycobacterium</i> spp. other than <i>M. tuberculosis</i> , <i>M. bovis</i> or <i>M. leprae</i>	X							X		
<i>Mycobacterium tuberculosis</i> , <i>M. bovis</i>	X							X δ		
<i>Neisseria gonorrhoeae</i>	X							X ∞		

<i>Neisseria meningitidis</i>	X							X ∞		
<i>Salmonella</i> – all serotypes except <i>typhi</i>	X							X		
<i>Salmonella typhi</i>	X							X ∞		
<i>Shigella</i> spp.	X							X		
<i>Treponema pallidum</i>	X							X		
<i>Vibrionic enteritis</i> (<i>Vibrio cholerae</i> , <i>V. parahaemolyticus</i>)	X							X		
<i>Yersinia pestis</i>	X							X ∞		
<i>Blastomyces dermatitidis</i>		X						X		
<i>Coccidioides immitis</i>		X						X ε		
<i>Cryptococcus neoformans</i>		X						X		
<i>Histoplasma capsulatum</i>		X						X δ		

∞ = ↑ BSL category by one if (1) there is a potential to create aerosols, (2) working with antibiotic resistant strains or (3) engaged in large scale production operations.

β = Clinical specimens only.

χ = ↑ BSL category by one for all manipulations of cultures of the pathogenic agent or experimental animal studies.

δ = ↑ BSL category by one if propagating or manipulating cultures or if utilizing nonhuman primates for animal studies.

ε = ↑ BSL category by one if propagating or manipulating sporulating cultures.

φ = ↑ BSL category by one if propagating or manipulating human or primate prions.

γ = \uparrow BSL category by one if (1) inoculating, incubating or harvesting embryonic eggs or cell cultures, (2) conducting necropsy of infected animals or (3) manipulating infected tissue.

η = \uparrow BSL category by one if (1) there is a potential to create aerosols, (2) working with infected animals or tissue or (3) engaged in work with large quantities of virus.

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<i>Sporothrix schenckii</i>		X						X		
Pathogenic Members of the Genera Epidermophyton, Microsporum and Trichophyton		X						X		
Miscellaneous Molds		X						X		
Blood and Tissue Protozoal Parasites of Humans			X					X		
Intestinal Protozoal Parasites of Humans			X					X		
Trematode Parasites of Humans (<i>Schistosoma</i> spp. and <i>Fasciola</i> spp.)			X					X		
Cestode Parasites of Humans – <i>Echinococcus</i>			X					X		

<i>granulosus</i> , <i>Taenia solium</i> (<i>cysticercus</i> <i>cellulosae</i>) and <i>Hymenolepis</i> <i>nana</i>										
Nematode Parasites of Humans			X					X		
Bovine spongiform encephalopathy (BSE) prion				X				X φ		
Chronic wasting disease (CWD) prion				X				X φ		
Creutzfeldt- Jakob disease (CJD) prion				X				X φ		
Exotic ungulate encephalopathy (EUE) prion				X				X φ		
Feline spongiform encephalopathy (FSE) prion				X				X φ		
Gatal familial insomnia (FFI) prion				X				X φ		
Gerstmann- Straussler- Scheinker syndrome (GSS) prion				X				X φ		
Kuru prion				X				X φ		

Scrapie prion				X				X φ		
Transmissible mink encephalopathy (TME) prion				X				X φ		
<i>Coxiella burnettii</i>					X			X γ		
<i>Rickettsia prowazekii</i> , <i>Rickettsia typhi</i> , (<i>R. mooseri</i>) <i>orientia</i> (<i>Rickettsia</i>) <i>tsutsugamushi</i> and Spotted Fever Group agents of human disease, <i>Rickettsia rickettsii</i> , <i>Rickettsia conorii</i> , <i>Rickettsia akari</i> , <i>Rickettsia australis</i> , <i>Rickettsia siberica</i> and <i>Rickettsia japonicum</i>					X			X γ		
Hantaviruses						X		X η	X η	
Hendra and Hendra-like Viruses (includes virus formerly known as Equine Morbillivirus)						X			X η	

Hepatitis A Virus, Hepatitis E Virus						X		X		
Hepatitis B Virus, Hepatitis C Virus (formerly known as nonA nonB Virus), Hepatitis D Virus						X		X γ		
<i>Herpesvirus simiae</i> (<i>Cercopithecine herpesvirus</i> [CHV-1], B-virus)						X		X η		

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<i>Human Herpesviruses</i>						X		X		
Influenza						X		X		

Lymphocytic Choriomeningitis Virus						X		X η		
Poliovirus						X		X η		
Poxviruses						X		X		
Rabies Virus						X		X η		
Retroviruses, including Human and Simian Immunodeficiency Viruses (HIV and SIV)						X		X η		
<i>Transmissible Spongiform Encephalopathies (Creutzfeldt-Jakob, kuru and related agents)</i>						X		X		
Vesicular Stomatitis Virus						X		X η		

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