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Biosafety Risk Assessment: Biological Agent Evaluation Worksheet

This worksheet is intended to be used in conjunction with the “Conducting a Biosafety Risk Assessment” Standard Operating Procedure. This is meant to be used in the “Consideration of Biological and Chemical Hazards” step and will allow for evaluation of procedure-independent considerations for a biological agent or toxin.

Biological Agent/Toxin Being Evaluated:

Date of Evaluation Completion:

Names of Individuals Involved in Conducting the Evaluation

Name:	Role:

Information Sources Used for Evaluation

(“Canadian Pathogen Safety Data Sheets and Risk Assessment,” “HHS/CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition,” etc.):

Definitions

CDC/APHIS Select Agent	As listed at http://www.selectagents.gov/SelectAgentsandToxinsList.html
PAPR	Powered Air Purifying Respirator
PPE	Personal Protective Equipment

Vaccination

Is a vaccine available?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, is it recommended prior to work with this agent/toxin?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Comments:			

Classification

Risk group of agent/toxin:	1: <input type="checkbox"/>	2: <input type="checkbox"/>	3: <input type="checkbox"/>	4: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Is the agent/toxin a CDC/APHIS Select Agent?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>		
Comments:					

Disinfection

Recommended disinfectants:	
Comments:	



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Recommended PPE

Which of the following is recommended for work with this agent/toxin:			
Gloves:			
• Latex:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Nitrile:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Other gloves (specify):			
Number of glove layers:	1: <input type="checkbox"/>	2: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Protective clothing:			
• Laboratory coat:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Sleeve covers:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Back-fastening gown:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Coveralls:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Liquid-impervious apron/gown:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Other protective clothing (specify):			
Eye splash protection:			
• Safety glasses:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Goggles:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Mouth/nose splash protection:			
• Surgical mask:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Whole face splash protection:			
• Face shield:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Respiratory protection:			
• N95 respirator:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• Half mask respirator:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• PAPR:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Foot/shoe protection:			
• Shoe covers:	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Comments:			

Inhalation Risk

Is this agent/toxin known to cause infection via inhalation (to cause infection via droplets or droplet nuclei that have entered the upper or lower respiratory tract):			
• In a laboratory setting?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• In the natural environment?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Is the infectious dose (ID ₅₀) of this agent/toxin for the inhalation route known?			
• Is the inhalation infectious dose known?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, what is the infectious dose (ID ₅₀)?			
↳ If yes, is the infectious dose less than 1000?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Comments:			



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Percutaneous Exposure Risk

Is this agent/toxin known to cause infection via percutaneous exposure (to cause infection through compromised skin or direct injection into the blood stream):			
• In a laboratory setting?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• In the natural environment?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Is the infectious dose (ID ₅₀) of this agent/toxin for the percutaneous exposure route known?			
• Is the percutaneous exposure infectious dose known?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, what is the infectious dose (ID ₅₀)?			
↳ If yes, is the infectious dose less than 1000?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Comments:			

Mucosal Membrane Risk

Is this agent/toxin known to cause infection via direct contact with mucosal membranes:			
• In a laboratory setting?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• In the natural environment?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Is the infectious dose (ID ₅₀) of this agent/toxin for the mucosal membrane route known?			
• Is the mucosal membrane infectious dose known?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, what is the infectious dose (ID ₅₀)?			
↳ If yes, is the infectious dose less than 1000?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Comments:			

Ingestion Risk

Is this agent/toxin known to cause infection via ingestion (to cause infection via contact with the gastrointestinal tract):			
• In a laboratory setting?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• In the natural environment?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Is the infectious dose (ID ₅₀) of this agent/toxin for the ingestion route known?			
• Is the ingestion infectious dose known?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, what is the infectious dose (ID ₅₀)?			
↳ If yes, is the infectious dose less than 1000?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
Comments:			

Post-Exposure Treatments

Do post-exposure treatments (including immunoglobulin, vaccines, and antimicrobials) exist?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, what are they?			
Is this agent/toxin known or suspected to have any drug resistance?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, to what drugs may it be resistant?			
Comments:			



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Stability

Is this agent/toxin stable outside of a host?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, specify this stability:			
Comments:			

Location

Is this agent/toxin endemic:			
• In this state?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
• In this country?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
If only found outside of this country, in what geographic regions is this agent/toxin endemic?			
Comments:			

Non-Human Specimen Sources

Are specimens from non-human sources tested in this institution?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, considering the host range, could this agent/toxin be present in non-human sources tested in this institution?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	Unknown: <input type="checkbox"/>
↳ If yes, in what non-human sources tested in this institution could this agent/toxin be present?			
Comments:			

Sources

1. Biological Risk Assessment in the Laboratory: Report of the Second Biorisk Management Workshop (Stefan Wagener et al., Applied Biosafety: Vol. 13, No. 3, 2008)
 - 1.1. https://my.absa.org/tiki-download_file.php?fileId=3559
2. CDC (Centers for Disease Control and Prevention) Biological Risk Assessment Worksheet
 - 2.1. <http://www.cdc.gov/biosafety/publications/BiologicalRiskAssessmentWorksheet.pdf>
3. Risk Assessment for Working with Infectious Agents in the Biological Laboratory (Richard Knudsen, Applied Biosafety: Vol. 6, No. 1, 2001)
 - 3.1. https://my.absa.org/tiki-download_file.php?fileId=3175
4. Sandia Report SAND2010-6487 Biosafety Risk Assessment Methodology (Susan Caskey et al., printed October 2010)
 - 4.1. <http://biosecurity.sandia.gov/BioRAM/Biosafety%20Risk%20Assessment%20Report.pdf>

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