

Handling BSL2 Agents – Hazard Specific Training Checklist

Biological materials with a moderate potential to hazard to personnel and the environment are typically handled under BSL2 precautions. The CDC BMBL and NIH Guidelines require that personnel handling agents at BSL2 be trained to work safely with the hazardous agents they handle. Given the potential hazardous agents and exposure risks that vary from project to project the Principle Investigator is typically considered the appropriate subject matter expert to provide their personnel with this training.

This checklist is intended to guide Principle Investigators through the necessary information that must be included when training their personnel. This includes providing each researcher with an opportunity to have questions answered about the risks, precautions, and safe work practices for the activities that they will perform.

Identify the biological agents to be handled under BSL2 precautions:	1. <i>Human cells, blood and other potentially infectious materials (OPIM)</i>			
If applicable, identify IBC Protocol numbers with which the researcher is associated.	1.	2.	3.	4.
	5.	6.	7.	8.

Training Element (<i>Supervisor: Provide information for each item below.</i>)	PI Initials	Researcher Initials
<p>1. Health hazards associated with exposure to BSL2 agent.</p> <p><i>Human cells, blood and OPIM may contain and transmit infectious human diseases that include, but is not limited to, Hepatitis B virus, Hepatitis C virus, and HIV. Workers may be exposed through sharps injury or injection, skin contact – particularly if there are open wounds, ingestion of contaminated materials or the inhalation of infectious aerosols.</i></p>		
<p>2. Symptoms of exposure to BSL2 agent.</p> <p><i>Hepatitis B Virus (HBV): The most common form of hepatitis; a liver disease that initially causes inflammation of the liver and frequently leads to more serious conditions, including cirrhosis and liver cancer. HBV is usually transmitted through mucous membranes or breaks in the skin. After exposure, it can take two to six months for HBV to develop. The initial symptoms of HBV infection are like those of a mild case of the flu: fatigue, stomach pain, loss of appetite and nausea. As the disease progresses, jaundice (yellowing of the skin) and darkened urine will occur. Although there is no cure, vaccination directly after contact (well before symptoms appear) can prevent infection. HBV can survive outside of the human body for up to seven days.</i></p>		

<p><i>Human Immunodeficiency Virus (HIV): A bloodborne pathogen that attacks the immune system. Symptoms of HIV can include weakness, fever, sore throat, nausea, headaches, diarrhea and some forms of cancer. Many people can go years before showing any symptoms. HIV eventually may lead to Acquired Immune Deficiency Syndrome (AIDS) and the breakdown of the immune system. Currently, there is no vaccination against HIV and no proven cure. However, there have been some major breakthroughs in recent years in controlling HIV and significantly delaying the onset of AIDS.</i></p> <p><i>Hepatitis C: The incubation period for hepatitis C is 2 weeks to 6 months. Following initial infection, approximately 80% of people do not exhibit any symptoms. Those who are acutely symptomatic may exhibit fever, fatigue, decreased appetite, nausea, vomiting, abdominal pain, dark urine, grey-colored feces, joint pain and jaundice (yellowing of skin and the whites of the eyes).</i></p>		
<p>3. Availability of vaccines or medical surveillance.</p> <p><i>HBV vaccine is available through the Occupational Health department and is recommended for all individuals that handle human cells and OPIM. There are no vaccines available for Hep. C or HIV.</i></p>		
<p>4. Required PPE (e.g. gloves, respirator, face-shield, lab coat, etc.), when it is to be worn, when PPE is to be changed, how PPE is to be maintained, and limitations of its use.</p> <p><i>Gloves (nitrile exam gloves are acceptable), lab coat, eye and face protection when there is a potential splashed.</i></p>		
<p>5. Engineering controls (e.g. biological safety cabinet) to be used and when.</p> <p><i>Cells and OPIM must be handled in a biological safety cabinet if the procedure presents a potential for aerosol generation (e.g. cell culture and media changes).</i></p>		
<p>6. How to respond in case of a possible exposure and who to report it to.</p> <p><i>Report all exposures to your supervisor and call Corvel at 1-866-245-8588.</i></p>		

<p>7. Review of SOPs and, if applicable IBC protocols in their entirety.</p> <p><i>The SOPs must be reviewed with research personnel. Researchers must review IBC protocols in their entirety. Research staff should sign and date a copy of these resources to document this review of SOPs and IBC protocols.</i></p>		
<p>8. Decontamination methods for surfaces, liquid waste, equipment and lab coats*.</p> <p><i>Decontaminate surfaces where human cells and OPIM immediately after handling these hazardous materials. Decontamination must be performed with bleach solution (1:10) or Spor Klenz.</i></p> <p><i>*lab coats: MUST be autoclaved prior to being taken to any laundry facility (in-house or vendor).</i></p>		
<p>9. Waste handling procedures.</p> <p><i>Contaminated PPE, pipette tips, tubes and other disposable materials that have come in contact with human cells or OPIM must be discarded in a red bag as biohazardous waste/regulated medical waste. Liquids must not be discarded in these bags. All significant volumes of liquids must be treated with bleach (1:10) for at least one hour prior to being discarded down the drain. If disposable, the solids waste collection container may then be discarded as regulated medical waste. Anyone closing a Stericycle box for shipment or signing a Stericycle manifest MUST have completed DOT training that is provided as part of the Introduction to Biosafety class provided by the Office of Research Safety or on the Stericycle website.</i></p>		

By initialing and signing this form the PI and researcher certify that they have respectively provided and received the information listed above and, if applicable, detailed in the SOPs, IBC and IACUC protocols pertinent to this research.

Principle Investigator: _____

Print Name

Signature and Date

Supervisor: _____

Print Name

Signature and Date