



# A Biosafety Checklist: Developing A Culture of Biosafety

## Introduction

### Background

There is an inherent risk in a laboratory handling any infectious agents. Biosafety practices should be adhered to in all laboratories that receive potentially infectious material in order to ensure laboratory personnel, public and environmental safety. Recent incidents involving biosafety lapses highlight the need to enhance the culture of biosafety across the laboratory community in the United States. The Association of Public Health Laboratories (APHL) has developed *A Biosafety Checklist: Developing A Culture of Biosafety* to serve as a starting point for laboratories to assess the biosafety measures that they have in place.

### Intended Use

*Biosafety Checklist* is intended for any laboratory performing testing on infectious agents or clinical specimens that could contain infectious agents in the United States. It is designed to provide laboratories with the broad recommendations for components that should be considered for inclusion in any laboratory's biosafety policy. The checklist consists of six sections: Risk Assessment; Selection of Safety Practices; Biosafety Competencies; Safety Orientation and Training; Audits, Monitoring and Safety Committee; and Administrative Controls.

This checklist is for your laboratory's internal use only. The questions in this checklist are included to guide biosafety discussion within your laboratory and do not address biosecurity practices. Some questions may not be applicable to every laboratory and some laboratories may want to add additional questions to perform their risk assessments. This tool can be modified to meet your laboratory's needs as necessary and information gained from this tool can be used to help laboratories identify areas for improvement in their biosafety practices. This document provides hyperlinks to resources.

**\* General note:** Though the standards used for resources/references (e.g., Bloodborne Pathogens Standard (29 CFR 1910.1030)) may only apply to bloodborne pathogens, the protective measures in the standard (policies, SOPs, engineering and work practice controls, administrative controls, PPE, housekeeping, training, post-exposure medical follow-up, etc.) are the same measures for effectively controlling exposure to other potentially infectious materials.

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## RISK ASSESSMENT

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a written policy and/or a standard operating procedure (SOP) for performing risk assessments?	<p>Biological Risk Assessment Guidelines can be found on pages 7-12 of CDC's Guidelines for Safe Work Practices in Human and Animal Medical Diagnostic Laboratories (<a href="http://www.cdc.gov/MMWR/pdf/other/su6101.pdf">www.cdc.gov/MMWR/pdf/other/su6101.pdf</a>)</p> <p>US Centers for Disease Control &amp; Prevention (CDC) BMBL 6th Edition, pg. 9, Section II, Biological Risk Assessment (<a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a>)</p> <p>Risk Assessment process can be found on page 45 in Salerno and Gaudio, eds., <i>Laboratory Biorisk Management: Biosafety and Biosecurity</i> (CRC Press, 2015—purchase required)</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do risk assessments consider both agent hazards and laboratory procedure hazards?	<p>Risk Assessment information can be found at: Biological Risk Assessment: General Considerations for Laboratories. (<a href="http://www.cdc.gov/safelabs/resources-tools/bio-risk-assessment.html">www.cdc.gov/safelabs/resources-tools/bio-risk-assessment.html</a>)</p> <p>CDC's BMBL 6th Edition, pg. 529, Appendix N—Clinical Laboratories (<a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a>)</p>	<p>It is recommended that at a minimum risk assessments include:</p> <ul style="list-style-type: none"> <li>• An assessment of risks associated with specimen source and likely organisms</li> <li>• Method of transmission, route of exposure, infectivity and infectious dose</li> <li>• Test requested from submitter</li> <li>• Epidemiological information such as symptoms, travel history, and occupation</li> <li>• Risk factors and experience of individual performing the assay</li> <li>• When assays require inactivating bsl-3/4 agents and bringing them out to a bsl-2 for testing</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Have those (IBC review board, safety committee, Biosafety officer, etc.) performing the risk assessment process received training and are they experienced in doing them?		<p>Examples of trainings include:</p> <ul style="list-style-type: none"> <li>• CDC Biosafety Trainings (<a href="http://www.cdc.gov/safelabs/trainings.html">www.cdc.gov/safelabs/trainings.html</a>)</li> <li>• American Biological Safety Association's "ABSA Advanced Biosafety Training Series - ABSA International", Module 1 (<a href="http://absa.org/abts/">absa.org/abts/</a>)</li> </ul>

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Is a risk assessment performed when:</p> <ul style="list-style-type: none"> <li>• new assays are introduced?</li> <li>• new methods are introduced?</li> <li>• equipment is moved?</li> <li>• new equipment is introduced?</li> <li>• the potential for aerosolization is introduced</li> <li>• the potential for needlesticks is introduced?</li> <li>• a laboratory is physically moved?</li> <li>• a new pathogen is detected?</li> <li>• staffing changes?</li> </ul>	<p>CDC's BMBL 6th Edition, pg. 9, Section II, Biological Risk Assessment  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are risk assessments conducted annually for assays performed in the laboratory?</p>		

## SELECTION OF SAFETY PRACTICES

### BIOSAFETY LEVEL

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are biosafety levels chosen based on risk assessments for every assay performed in your laboratory?</p>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are biosafety levels selected based on the BMBL recommendations?</p>	<p>CDC's BMBL 6th Edition, p. 32, Section IV—Laboratory Biosafety Level Criteria  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p>	

### ENGINEERING CONTROLS

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are there controlled access and biosecurity measures in place for biosafety level 2, 3, and 4 laboratories?</p>	<p>CDC's BMBL 6th Edition, pg. 119, Section VI—Principles of Laboratory Biosecurity  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p> <p>OSHA Bloodborne Pathogens Standard; 1910.1030(e)  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a></p>	

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are the following certified at least annually?</p> <ul style="list-style-type: none"> <li>Biosafety Cabinets (BSCs)</li> <li>Autoclaves</li> <li>HVAC</li> <li>HEPA Filters*</li> <li>BSL-3 Suites</li> </ul>	<p>CDC's BMBL 6th Edition, pg. 386, Appendix A (<a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a>)</p> <p>APHL's Mycobacterium tuberculosis: Assessing Your Laboratory, pg. 32-35 (<a href="http://www.aphl.org/AboutAPHL/publications/Documents/ID_2013Aug_Mycobacterium-Tuberculosis-Assessing-Your-Laboratory.pdf">www.aphl.org/AboutAPHL/publications/Documents/ID_2013Aug_Mycobacterium-Tuberculosis-Assessing-Your-Laboratory.pdf</a>)</p>	<p>Biosafety cabinets should be certified annually and when they are moved &gt;18 inches, initially installed, and if they are repaired/serviced.</p> <p>OSHA Laboratory Safety - BSCs (<a href="http://www.osha.gov/sites/default/files/publications/OSHAfactsheet-laboratory-safety-biosafety-cabinets.pdf">www.osha.gov/sites/default/files/publications/OSHAfactsheet-laboratory-safety-biosafety-cabinets.pdf</a>)</p> <p>OSHA Bloodborne Pathogens Standard (<a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a>) 1910.1030(e)(2)(iii)(B)</p> <p>Autoclave validation (<a href="http://consteril.com/wp-content/uploads/2017/06/Consteril_Autoclave_Validation.pdf">consteril.com/wp-content/uploads/2017/06/Consteril_Autoclave_Validation.pdf</a>)</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are BSCs used effectively? For example:</p> <ul style="list-style-type: none"> <li>Are BSCs free of clutter and the front grate kept clear?</li> <li>Are closed centrifuge carriers opened only in the BSC?</li> <li>If there are vacuum lines in BSCs are they protected with liquid trap or an in-line HEPA filter?</li> <li>Are BSCs decontaminated before/after each use?</li> <li>Are all materials discarded inside the BSC (no use of disposal bins outside the BSC while working)?</li> </ul>	<p>CDC Biosafety Checklist (<a href="http://www.cdc.gov/safelabs/docs/BSC-Checklist.pdf">www.cdc.gov/safelabs/docs/BSC-Checklist.pdf</a>)</p>	<p>Training: CDC training course "Fundamentals of Working Safely in a Biological Safety Cabinet." (<a href="http://www.cdc.gov/labtraining">www.cdc.gov/labtraining</a>)</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are the eye wash and shower stations flushed and checked weekly?</p>	<p>Citation for ANSI Z358.1 Safety Shower &amp; Eye Wash Regulations (<a href="http://www.safety-eyewash.co.uk/content/ansi-guide-regulations">www.safety-eyewash.co.uk/content/ansi-guide-regulations</a>)</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are centrifuge rotors sealed with O-rings or safety cups used to prevent aerosolization?</p>	<p>CDC's BMBL 6th Edition (<a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a>)</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>Are autoclaves tested for efficacy using biological or chemical indicators on a regular basis or as required by state medical/infectious waste regulations?</p>	<p>National Shellfish Sanitation Program (NSSP) Checklist, p. 4: 2019 Revision (<a href="http://www.issc.org/Data/Sites/1/media/-19-guide/i-sf-lab-eval-checklist.pdf">www.issc.org/Data/Sites/1/media/-19-guide/i-sf-lab-eval-checklist.pdf</a>)</p> <p>CDC Steam Sterilization Guide (<a href="http://www.cdc.gov/infectioncontrol/guidelines/disinfection/sterilization/steam.html">www.cdc.gov/infectioncontrol/guidelines/disinfection/sterilization/steam.html</a>)</p>	<p>The schedule for autoclave efficacy testing should be based on autoclave usage.</p>

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is basic PPE provided for all personnel working in the laboratory? (basic PPE includes gloves, laboratory coats or gowns, protective eyewear or face protection, etc.)	<p>OSHA General Requirements Standard; 1910.132 Personal Protective Equipment  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132</a></p> <p>OSHA Bloodborne Pathogens Standard; 1910.1030(d)(3)  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132</a></p> <p>CDC's BMBL 6th Edition, pg. 24-69, Sections III-IV  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p>	<p>The National Personal Protective Technology Laboratory  <a href="http://www.cdc.gov/niosh/npptl/topics/protectiveclothing/">www.cdc.gov/niosh/npptl/topics/protectiveclothing/</a></p> <p>Healthcare Respiratory Protection Resources  <a href="http://www.cdc.gov/niosh/npptl/hospres toolkit/default.html">www.cdc.gov/niosh/npptl/hospres toolkit/default.html</a></p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are laboratory coats available for all staff who may enter a laboratory?		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a written policy for when to change gloves?	<p>Indications for glove use in health care - WHO Best Practices for Injections and Related Procedures Toolkit - NCBI Bookshelf  <a href="http://www.ncbi.nlm.nih.gov/books/NBK138494/">www.ncbi.nlm.nih.gov/books/NBK138494/</a></p> <p>OSHA Bloodborne Pathogens Standard; 1910.1030  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a></p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a written procedure for appropriate donning and doffing PPE including laboratory coats, gloves, protective eyewear, face shields, N95 and/or PAPRs?	<p>CDC's Sequence for Putting on and Removing Personal Protective Equipment  <a href="http://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf">www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf</a></p> <p>CDC's Personal Protective Equipment (PPE) videos: Donning and Doffing PPE  <a href="http://www.youtube.com/watch?v=tsRUSdvw_m0">www.youtube.com/watch?v=tsRUSdvw_m0</a></p> <p>Donning PPE Poster Package  <a href="http://www.cdc.gov/hai/pdfs/ppe/PPE-Sequence.pdf">www.cdc.gov/hai/pdfs/ppe/PPE-Sequence.pdf</a></p>	<p>The written plan should include instructions indicating PPE should be removed before exiting the laboratory.</p> <p>OSHA General Requirements Standard; 1910.132 (f) Training  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.132</a></p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	If utilizing re-usable PPE (i.e., lab coats, PAPR), are there procedures in place that detail lab coat collection and labeling, laundering and/or decontamination?	<p>See above for resources.</p> <p>OSHA Bloodborne Pathogens Standard; 1910.1030(d)(3)(iv)  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a></p>	<p>The written procedure should include instructions for laundering or decontamination of re-usable PPE.</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are N95 respirators or PAPRs available to appropriately trained staff to use in BSL-3 laboratories and/or when working with organisms requiring their use?	<p>OSHA Respiratory Protection Standard; 1910.134  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134</a></p> <p>Additional respiratory protection training is available on OSHA's website here.  <a href="http://www.osha.gov/respiratory-protection#video">www.osha.gov/respiratory-protection#video</a></p>	<p>OSHA requires that laboratories have a written respiratory protection plan.</p>

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	For staff wearing respirators, have they been trained on the use and purpose of respiratory protection?	OSHA Respiratory Protection Standard; 1910.134 (k) Training and Information ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there documentation of medical clearance for those staff wearing respiratory protection?	OSHA Respiratory Protection Standard; 1910.134 ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134</a> )	
<b>LABORATORY PRACTICES/POLICIES</b>					
<b>YES</b>	<b>NO</b>	<b>N/A</b>		<b>RESOURCES</b>	<b>COMMENTS</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a policy in place for hand washing?	OSHA Bloodborne Pathogens Standard; 1910.1030(d)(2)(iii and iv) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )  Example Policy ( <a href="http://comagine.org/sites/default/files/resources/Comagine%20Health-Sample%20Hand%20Hygiene%20Policy.pdf">comagine.org/sites/default/files/resources/Comagine%20Health-Sample%20Hand%20Hygiene%20Policy.pdf</a> )  CDC's Hand Hygiene in Healthcare Settings Interactive Trainings ( <a href="http://www.cdc.gov/handhygiene/providers/training/">www.cdc.gov/handhygiene/providers/training/</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a policy in place ensuring procedures that may induce aerosolization be performed in a biosafety cabinet (BSC)?	CDC's BMBL 6th Edition, pg. 32, Section IV—Laboratory Biosafety Level Criteria ( <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a> )  OSHA Bloodborne Pathogens Standard; 1910.1030(e)(2)(ii) (E) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a policy in place for elimination/substitution and when necessary safe handling of sharps?	OSHA Bloodborne Pathogens Standard; 1910.1030 ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )  Bloodborne Pathogens and Needlestick Prevention ( <a href="http://www.osha.gov/bloodborne-pathogens/evaluating-controlling-exposure">www.osha.gov/bloodborne-pathogens/evaluating-controlling-exposure</a> )  CDC's BMBL 6th Edition ( <a href="http://www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2020-P.pdf">www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2020-P.pdf</a> )	

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a policy in place for proper disposal of biomedical waste and sharps?	<p>More information on disposal of biomedical waste can be found in the National Academies Biosafety in the Laboratory: Prudent Practices for Handling and Disposal of Infectious Materials (pages 34-45)  <a href="http://www.ncbi.nlm.nih.gov/books/NBK218639/pdf/Bookshelf_NBK218639.pdf">www.ncbi.nlm.nih.gov/books/NBK218639/pdf/Bookshelf_NBK218639.pdf</a></p> <p>CDC's BMBL 6th Edition  <a href="http://www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2020-P.pdf">www.cdc.gov/labs/pdf/CDC-BiosafetyMicrobiologicalBiomedicalLaboratories-2020-P.pdf</a></p>	<p>Additional information can be found at the US Environmental Protection Agency (EPA) Medical Waste webpage  <a href="http://www.epa.gov/rcra/medical-waste">www.epa.gov/rcra/medical-waste</a></p> <p>Every state has its own requirements for medical/infectious waste disposal/testing of autoclaves/handling of used sharps, etc. This is usually found under the state environmental laws or state public health website. States can be very different from each other—local regs may also cover waste disposal (bleach in CA, etc.)</p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are there policies in place for the transport of infectious materials within the facility (between laboratories) as well as outside the facility (e.g., courier, shipping activities)?	<p>Transporting-Infectious-Substances-Safely.pdf  <a href="http://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/Transporting-Infectious-Substances-Safely.pdf">www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/Transporting-Infectious-Substances-Safely.pdf</a></p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a policy in place for decontaminating surfaces after completion of work?	<p>CDC's BMBL 6th Edition; Appendix B  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p> <p>Selected EPA-Registered Disinfectants  <a href="http://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants">www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants</a></p> <p>OSHA Bloodborne Pathogens Standard; 1910.1030; (d)(4)(i)  <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1919.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1919.1030</a></p>	<p><i>Medical Lab Observer</i> article on decontamination  <a href="http://www.mlo-online.com/diagnostics/pathology/article/13009199/lab-decontamination-tools-and-practices">www.mlo-online.com/diagnostics/pathology/article/13009199/lab-decontamination-tools-and-practices</a></p> <p>NIH Reference  <a href="http://ors.od.nih.gov/sr/dohs/safety/laboratory/BioSafety/Pages/decontamination.aspx">ors.od.nih.gov/sr/dohs/safety/laboratory/BioSafety/Pages/decontamination.aspx</a></p> <p>APHL Disinfection presentation  <a href="http://www.aphl.org/programs/preparedness/Documents/Practical%20Disinfection%20Guidance%20for%20the%20Clinical%20Laboratory.pdf">www.aphl.org/programs/preparedness/Documents/Practical%20Disinfection%20Guidance%20for%20the%20Clinical%20Laboratory.pdf</a></p>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are biological spill kits available in the laboratory that are properly labeled, updated and within reach to all laboratory personnel?	<p>OSHA Bloodborne Pathogens Standard—Blood Spills  <a href="http://oshakits.com/osha-bloodborne-pathogen-standard-blood-spills/">oshakits.com/osha-bloodborne-pathogen-standard-blood-spills/</a></p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an inactivation process policy or procedure in place for inactivating BSL3/4 agents prior to moving them to BSL-2 for testing?	<p>CDC's BMBL 6th Edition; Appendix K  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p> <p>Cornell University reference  <a href="http://ehs.cornell.edu/research-safety/biosafety-biosecurity/biological-safety-manuals-and-other-documents/inactivation-risk-group-3-agents">ehs.cornell.edu/research-safety/biosafety-biosecurity/biological-safety-manuals-and-other-documents/inactivation-risk-group-3-agents</a></p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Has the inactivation process of BSL3/4 agents been validated and is this inactivation process documented for each agent before removal from BSL3/4?	<p>CDC's BMBL 6th Edition; Appendix K  <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a></p> <p>University of Nebraska reference  <a href="http://ehs.unl.edu/sop/s-bio-inactivation_biohaz_mat_future_use.pdf">ehs.unl.edu/sop/s-bio-inactivation_biohaz_mat_future_use.pdf</a></p>	

## BIOSAFETY LABORATORY COMPETENCIES

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do laboratory personnel receive training in the Biosafety Laboratory Competencies as outlined in the CDC's MMWR, Guidelines for Biosafety Laboratory Competency?	CDC MMWR, Guidelines for Biosafety Laboratory Competency <a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/su6401a1.htm?s_cid=su6401a1_e">www.cdc.gov/mmwr/preview/mmwrhtml/su6401a1.htm?s_cid=su6401a1_e</a>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are the Biosafety Laboratory Competencies used for annual staff reviews?	APHL Biosafety Competency Assessments <ul style="list-style-type: none"> <li>• Form 1 <a href="http://www.aphl.org/programs/preparedness/Documents/APHL%20Approved%20Conversation-Based%20Biosafety%20Competency%20Assessment%20Form.pdf">www.aphl.org/programs/preparedness/Documents/APHL%20Approved%20Conversation-Based%20Biosafety%20Competency%20Assessment%20Form.pdf</a></li> <li>• Form 2 <a href="http://www.aphl.org/programs/preparedness/Documents/APHL%20Approved%20Conversation-Based%20Biosafety%20Competency%20Assessment%20Form.pdf">www.aphl.org/programs/preparedness/Documents/APHL%20Approved%20Conversation-Based%20Biosafety%20Competency%20Assessment%20Form.pdf</a></li> </ul>	

## SAFETY ORIENTATION AND TRAINING

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Do all new personnel receive safety training before they begin working in their assigned laboratory?	OSHA Bloodborne Pathogens Standard; 1910.1030(g)(2) <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a>  CDC Biosafety Trainings <a href="http://www.cdc.gov/safelabs/trainings.html">www.cdc.gov/safelabs/trainings.html</a>  CDC's BMBL 6th Edition Section IV—Laboratory Biosafety Level Criteria <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a>	An example training schedule can be found on pages 51-53 of Clinical Laboratory Standard Institute's document GP17-A3:2012 Clinical Laboratory Safety; Approved Guideline—Third Edition. <a href="http://www.clsi.org/">www.clsi.org/</a> - sign in or purchase required
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an annual biosafety training program for all personnel?	Annual biosafety training programs can include: <ul style="list-style-type: none"> <li>• Risk Assessments</li> <li>• Details about organisms in use, mode of transmission/infectious dose, signs and symptoms of infection, how/where to report exposures/symptoms, etc.</li> <li>• Biosafety level</li> <li>• Biosafety Laboratory Competencies</li> <li>• Occupational Health</li> </ul>	



<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there annual training program on appropriate donning and doffing of PPE including laboratory coats, gloves, protective eyewear, face shields, N95 and/or PAPRs based on the risk of a given procedure?	OSHA Bloodborne Pathogens Standard; 1910.1030(g)(2); 1910.1030(g)(2)(vii)(F); 1910.1030(g)(2)(vii)(G) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )  CDC's Sequence for Putting on and Re-moving Personal Protective Equipment ( <a href="http://www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf">www.cdc.gov/hai/pdfs/ppe/ppe-sequence.pdf</a> )	CDC's PPE videos: Donning and Doffing PPE ( <a href="http://www.youtube.com/watch?v=tsRUSdvw_m0">www.youtube.com/watch?v=tsRUSdvw_m0</a> )  Donning PPE Poster Package ( <a href="http://www.cdc.gov/hai/pdfs/ppe/PPE-Sequence.pdf">www.cdc.gov/hai/pdfs/ppe/PPE-Sequence.pdf</a> )
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an annual blood borne pathogen training program for all personnel?	OSHA Bloodborne Pathogens Standard; 1910.1030 ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are personnel offered appropriate vaccinations for working in their assigned laboratory?	CDC Adult Immunization Schedule – Healthcare Providers ( <a href="http://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html">www.cdc.gov/vaccines/schedules/hcp/imz/adult.html</a> )  OSHA Bloodborne Pathogens Standard; 1910.1030(f)(1)(ii) (A-C) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are personnel offered appropriate vaccinations for working in their assigned laboratory?	NIOSH Reproductive Health and the Workplace ( <a href="http://www.cdc.gov/niosh/topics/repro/employers.html">www.cdc.gov/niosh/topics/repro/employers.html</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	During pre-employment physical, is baseline serum collected as necessary to document potential occupational exposures?	CDC's BMBL 6th Edition, Section VII—Occupational Health Support for Biomedical Research, page 133-141. ( <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a> )	Baselines are discussed but not required in CDC's BMBL 6th Edition
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are trained employees required to have an annual N-95 respirator fit test if indicated?	Respiratory fit testing guidance ( <a href="http://www.cdc.gov/niosh/npptl/hospresptoolkit/fittesting.html">www.cdc.gov/niosh/npptl/hospresptoolkit/fittesting.html</a> )  CDC N95 Fit Test Infographic ( <a href="http://www.cdc.gov/niosh/npptl/pdfs/Fit-test-10.508_FNL-508.pdf">www.cdc.gov/niosh/npptl/pdfs/Fit-test-10.508_FNL-508.pdf</a> )	

## AUDITS, MONITORING AND SAFETY COMMITTEE

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an institutional biosafety plan?	Example: UCLA Institutional Biosafety Plan ( <a href="http://ucla.app.box.com/v/UCLA-Biosafety-Plan">ucla.app.box.com/v/UCLA-Biosafety-Plan</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a designated Laboratory Biosafety Officer?		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an institutional biosafety committee (IBC) or similar group?	NIEHS IBC information ( <a href="http://www.niehs.nih.gov/about/boards/ibc/index.cfm">www.niehs.nih.gov/about/boards/ibc/index.cfm</a> )	An IBC provides recommendations to the organization in matters pertaining to the control of hazards associated with the use of microbiological agents, their vectors, and recombinant DNA, and the performance and review of risk assessments.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Does the institutional biosafety committee or similar group meet at established time intervals?	Meeting times should be discussed and decided by the IBC members and senior management based on the work and activities performed.	Discussion items include, but are not limited to breaches in biosafety, corrective actions, maintenance issues related to biosafety and pending certifications of equipment.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are internal safety audits performed at least annually and after significant safety breaches?	Example safety audit form ( <a href="http://www.evergladesplan.org/pm/recover/recover_docs/wqt/qasr_app_g.pdf">www.evergladesplan.org/pm/recover/recover_docs/wqt/qasr_app_g.pdf</a> )	The College of American Pathologists (CAP) recommends under GEN.73400 that a review of safety practices occur at least annually.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are biosafety drills and exercises performed at predetermined intervals?	Information on drills and exercises can be found in the CDC's BMBL 6th Edition on pages 124, 128, 535, 536. ( <a href="http://www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf">www.cdc.gov/labs/pdf/SF_19_308133-A_BMBL6_00-BOOK-WEB-final-3.pdf</a> )  Federal Experts Security Advisory Panel ( <a href="http://www.phe.gov/Preparedness/legal/boards/fesap/Pages/default.aspx">www.phe.gov/Preparedness/legal/boards/fesap/Pages/default.aspx</a> )  CDC/USDA Drills/Exercises guidance ( <a href="http://www.hhs.gov/guidance/sites/default/files/hhs-guidance-documents/Drills_Exercises_Guidance.pdf">www.hhs.gov/guidance/sites/default/files/hhs-guidance-documents/Drills_Exercises_Guidance.pdf</a> )	Drills and exercises can include: <ul style="list-style-type: none"> <li>• Loss or theft of materials</li> <li>• Emergency response to accidents and injuries</li> <li>• Incident reporting and identification of and response to security breaches</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are there procedures in place to detect safety breaches when they occur?	Examples: audits, built in alarm systems, reporting protocols  Steps for Evaluating an Infection Control Breach ( <a href="http://www.cdc.gov/hai/outbreaks/steps_for_eval_ic_breach.html">www.cdc.gov/hai/outbreaks/steps_for_eval_ic_breach.html</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a system to report safety breaches to laboratory leadership?		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a procedure specifying how biosafety breaches will be addressed and which staff are responsible for addressing them?	OSHA Bloodborne Pathogens Standard; 1910.1030(g)(2)(vii) (J-L) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a system in place for performing root cause analysis of safety breaches?	Information on root cause analysis ( <a href="http://asq.org/quality-resources/root-cause-analysis">asq.org/quality-resources/root-cause-analysis</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are corrective actions implemented when breaches in biosafety are identified?	Information on corrective actions ( <a href="http://safetyculture.com/topics/corrective-action/">safetyculture.com/topics/corrective-action/</a> )	

## ADMINISTRATIVE CONTROLS

YES	NO	N/A		RESOURCES	COMMENTS
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Are biohazard signs posted by the entrance of laboratories where infectious agents are processed and tested and in other areas where biological materials are used and stored?	OSHA Bloodborne Pathogens Standard; 1910.1030(e)(2)(ii)(D); (g)(1)(ii)(A-B) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )	Biohazardous materials should be labeled as such on the signs. Instruments, refrigerators, incubators, etc., should have a biohazard sign attached if biological agents are used or stored in them.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a policy restricting eating, drinking, storing food, applying cosmetics and handling contact lenses to areas outside of the laboratory?	OSHA Bloodborne Pathogens Standard; 1910.1030(d)(2) (ix - x) ( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030</a> )  OSHA Sanitation Standard; 1910.141; (g)(2)( <a href="http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.141">www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.141</a> )	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there an occupational health program available for all employees of the laboratory?	OSHA Develop Your Safety + Health Program ( <a href="http://www.osha.gov/safeandsound/safety-and-health-programs">www.osha.gov/safeandsound/safety-and-health-programs</a> )  Examples and minimum requirements can be found on pages 49-51 of CLSI GP17-A3:2012 Clinical Laboratory Safety, 3rd Edition ( <a href="http://www.clsi.org/">www.clsi.org/</a> - sign in required, purchase may be necessary)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Is there a medical surveillance program in place in the event of exposure to an infectious agent?	Medical Screening and Surveillance ( <a href="http://www.osha.gov/medical-surveillance">www.osha.gov/medical-surveillance</a> )	Note: Some occupational health services only perform preventive programs and do not cover post exposure programs as Workers' Compensation may be involved.

**Notes**

## Association of Public Health Laboratories

The Association of Public Health Laboratories (APHL) is a national nonprofit dedicated to working with members to strengthen laboratories with a public health mandate. By promoting effective programs and public policy, APHL strives to provide public health laboratories with the resources and infrastructure needed to protect the health of US residents and to prevent and control disease globally.

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