

Biosafety level one and two inspection checklist

ASU's research and teaching laboratories that work with biohazards are required to have annual inspections by Environmental Health and Safety biosafety and biosecurity professionals. This checklist will be used during the annual inspections. Laboratory personnel should use this checklist to identify safety and regulatory deficiencies and address them before their annual inspection occurs.

This inspection checklist is designed to help reduce potential exposures to biohazards. Biohazards may include:

- Agents that can infect or cause disease in humans, animals or plants.
- Archaeological samples (e.g., bones, clothing fragments and pottery).
- Biohazardous waste.
- Environmental/field samples (e.g., water, wastewater, soil, and air samples).
- Experimentally-infected animals and animals naturally harboring zoonotic infectious agents.
- Genetically-modified organisms, plants, animals, etc.
- Human blood, tissue, organs, cell lines or other materials of human origin.
- Recombinant and synthetic nucleic acid molecules.
- Select agents and toxins.

Date	e: Lab locat	Lab location(s):							
Investigator: Inspector(s):									
St	andard practices								
Qı	uestions:	Yes	No	N/A	Reference(s)				
1.	Does the laboratory supervisor enforce the institutional policies that control safety in and access to the laboratory? See Biosafety manual for reference.				BMBL: BSL-1, A1, p. 32; BSL-2, A1, p. 37; NIH G-II-A-1-a; NIH G- II-B-1-a				
2.	Do personnel wash their hands after working with potentially hazardous materials and before leaving the laboratory?				BMBL: BSL-1, A9, p. 34; BSL- 2, A9, p. 38; NIH G-II-A-1-f; NIH G-II-B-1-f				
3.	Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption are not permitted in laboratory areas. Food is stored outside the laboratory area.				BMBL: BSL-1, A10, p. 34; BSL- 2, A10, p. 38; NIH G-II-A-1-e; NIH G- II-B-1-e				
4.	Is mouth pipetting prohibited and are mechanical pipetting devices are used?				BMBL: BSL-1, A11, p. 34; BSL- 2, A11, p. 38; NIH G-II-A-1-d; NIH G- II-B-1-d				
5.	Are written policies for the safe handling of sharps, such as needles, scalpels, pipettes, and broken glassware are developed, implemented, and followed; policies are consistent with applicable state, federal, and local requirements? Whenever practical, laboratory supervisors adopt improved engineering and work practice controls that reduce risk of sharps injuries? See Sharpsfact sheet for reference.				BMBL: BSL-1, A12, p. 34; BSL-2, A12, p. 39.				
6.	Are active or passive needle-based safety devices used whenever possible? E.g., needle-locking syringes or safety hypodermic needles.				BMBL: BSL-1, A12b, p. 30; BSL-2, A12b, p. 39; NIH G-II-B- 2-j				

Please use this checklist to perform a self-inspection of your own laboratory. If you check **no** to any of these questions, please correct this finding. In doing so, your laboratory will comply with regulations and make a safer working environment

for everyone who works or enters your laboratory. If you have any questions, please contact askehs@asu.edu

Sta	andard practices				
Qu	estions:	Yes	No	N/A	Reference(s)
7.	Do personnel understand that used, disposable needles and syringes are carefully placed in puncture-resistant containers used for sharps disposal immediately after use? The sharps disposal container is located as close to the point of use as possible.				BMBL: BSL-1, A12b-iv, p. 35; BSL-2, A12b-iv, p. 39.
8.	Are all syringes, needles and sharps disposed of in rigid, puncture-resistant, leak-proof containers?				BMBL: BSL-1, A5b, p. 35;BSL-2, A5b, p. 34; 1910.1030(d)(2)(viii)(A-D)
9.	Are non-disposable sharps placed in a hard-walled container for transport to a processing area for decontamination, preferably by autoclaving?				BMBL: BSL-1, A12c, p. 35; BSL-2, A12c, p. 39; 1910.1030(d)(2)(xiii)
10.	Do lab personnel use mechanical means, such as a brush and dustpan, tongs or forceps to clean up broken glassware? Broken glassware is not handled directly.				BMBL: BSL-1, A12d, p. 35; BSL-2, A12d, p. 39.
11.	Are all procedures performed to minimize the creation of splashes or aerosols?				BMBL: BSL-1, A13, p. 35; BSL- 2, A13, p. 39; NIH G-II-A-1-g; NIH G- II-B-1-g
12.	Are work surfaces decontaminated work after completion of work and after any spill or splash of potentially infectious material with appropriate disinfectant?				BMBL: BSL-1, A14, p. 35; BSL-2, A14, p. 40; NIH G-II-A-1-b; NIH G- II-B-1-b
	Are all cultures, stocks, and other potentially infectious materials decontaminated before disposal using an effective method, consistent with applicable institutional, local, and state requirements before they are scheduled for pick-up? See Proper Use of Autoclave for reference.				BMBL: BSL-1, A15, p. 35; BSL-2, A15 p. 40; NIH G-II-A-1-c; NIH G-II-B-2-i;
	Does the laboratory supervisor ensure that laboratory personnel receive appropriate training regarding their duties, potential hazards, manipulations of infectious agents, necessary precautions to minimize exposures, and hazard/exposure evaluation procedures and entry requirements? Personnel receive annual updates and additional training when equipment, procedures, or policies change? See Laboratory-Specific Biosafety Training Checklist for reference.				BMBL: BSL-1, A2, pg.32-33; BSL-2, A2, p. 37; 1910.1030(g)(2)
15.	Have all personnel been informed that personal health status may affect an individual's susceptibility to infection and ability to receive available immunizations or prophylactic interventions. Therefore, all personnel, and particularly those of reproductive age and/or those having conditions that may predispose them to increased risk for infection (e.g., organ transplant, medical immunosuppressive agents), are provided information regarding immune competence and susceptibility to infectious agents. Individuals having such conditions are encouraged to self-identify to ASU Employee Health for appropriate counseling and guidance.				BMBL: BSL-1, A3, pg.33 BSL-2, A3, p. 37.
16.	Has everyone working in the laboratory completed a Lab-Specific Biosafety Training Checklist? See Laboratory-Specific Biosafety Training Checklist for reference.				ASU Biosafety Manual
	Are laboratory personnel provided medical surveillance, as appropriate, and offered available immunizations for agents handled or potentially present in the laboratory?				BMBL: BSL-2, B3, p. 40
18.	Has the PI or supervisor developed lab-specific safety manual that contains sufficient information to describe the biosafety and containment procedures for the organisms and biological materials in use, appropriate agent-specific decontamination methods, and the work performed. The safety manual contains or references protocols for emergency situations, including exposures, medical emergencies, facility malfunctions, and other potential emergencies. The safety manual is available, accessible, and periodically reviewed and updated, as necessary.				BMBL: BSL1, A4, p. 33; BSL-2, A4, p. 37-38.
19.	Does the laboratory supervisor ensure that laboratory personnel demonstrate proficiency in standard microbiological practices and techniques for working with agents requiring BSL-2 containment?				BMBL: BSL-2, B2, p. 40

Standard practices				
Questions:	Yes	No	N/A	Reference(s)
20. Are cultures, stocks and other potentially infectious materials, to be decontaminated outside of the immediate laboratory placed in a durable, leak-proof container and secured for transport? For infectious materials, the outer surface of the container is disinfected prior to moving materials and the transport container has a universal biohazard label. Are materials to be removed from the facility for decontamination are packed in accordance with applicable local, state, and federal regulations?				BMBL: BSL-1, A15 a-b, p.35; BSL-2, A15 a-b, p. 40; NIH G-II- A-2-a; G-II-B-2-a
21. Is laboratory equipment decontaminated routinely; after spills, splashes, or other potential contamination; and before repair, maintenance, o removal from the laboratory?				BMBL: BSL-2, B5, p. 41; 29 CFR 1910.1030(d)(2)(xiv)
22. Are spills involving biohazardous materials contained, decontaminated, and cleaned up by staff who are properly trained and equipped to work with them? A spill procedure is developed and posted within the laboratory.				BMBL: BSL-1, A14, p.35; BSL-2, A14, p. 40.
23. Are personnel aware of the procedures for reporting incidents? All incidents are reported to the laboratory supervisor and any other personnel designated by the institution.				BSL-2, B7, p. 41
24. Is the PI or supervisor immediately notified if there are spills and accidents that result in exposure to biohazardous materials?				BSL-2, B7, p. 41; ASU Biosafety Manual
25. Are animals and plants not associated with the work being performed not permitted in the laboratory?			BSL-1, A17, p. 35; BSL-2, A17, p. 40.	
26. If there is a biological safety cabinet in the lab, has it been certified within the past year? Is the BSC free of equipment and supplies that can block the air grills and disrupt proper airflow? See <u>Biological Safety Cabinets SOP</u> for reference.				Appendix A p. 367; NSF 49
27. Is a biological safety cabinet or other physical containment devices are used when possible, whenever:				BMBL, BSL-2, B4a-c. p. 40-41
a. Procedures with a potential for creating infectious aerosols or splashes are conducted. These include pipetting, centrifuging, grinding, blending, shaking, mixing, sonicating, opening containers of infectious materials, inoculating animals intranasally, and harvesting infected tissues from animals or eggs.				
b. High concentrations or large volumes of infectious agents are used. Such materials may be centrifuged in the open laboratory using sealed rotors or centrifuge safety cups with loading and unloading of the rotors and centrifuge safety cups in the BSC or another containment device.				
c. If it is not possible to perform a procedure within a BSC or other physical containment device, a combination of appropriate personal protective equipment and administrative controls are used, based on a risk assessment.				
28. Is equipment such as refrigerators or freezers for use or storage of biohazardous materials labeled with a biohazard symbol?				29 CFR 1910.1030(g)(1)(i)(A-D)
29. If centrifuges are used, are sealed rotor heads or safety cups used and only opened in an approved biological safety cabinet or other containment device?				ASU Biosafety Manual
30. If an autoclave is used, are procedures posted? See Proper Use of Autoclave for reference.				ASU Biosafety Manual; 29CFR 1910.1030(e)(3)(ii), 1910.1030(e)(4)(v)
31. Do personnel know that long hair must be restrained so that it cannot contact hands, specimens, containers, or equipment?				BMBL: BSL-1, A6, p. 33; BSL-2, A6, p.38.
32. Do personnel wear protective laboratory coats, gowns, or uniforms designated for laboratory while working with hazardous materials and removed before leaving for non-laboratory areas (e.g., cafeteria, library, and administrative offices). See Biosafety PPE for reference.				BMBL: BSL-1, C1, p. 36; BSL-2, C1, p. 41; 29 CFR 1910.1030(e)(2)(ii)(F); NIH G-II-A- 1-h; NIH G-II- B-2-f

Standard practices				
Questions:	Yes	No	N/A	Reference(s)
33. Do personnel dispose of PPE appropriately or deposit it for laundering by the institution and know that laboratory clothing is not taken home.				BMBL: BSL-2, C1, p. 41; NIH G-II-B-2-f; ASU Biosafety Manual
34. Do personnel remove gloves in a manner that minimizes personal contamination and transfer of infectious materials outside of the areas where infectious materials and/or animals are housed or manipulated?				BMBL: BSL-1, A8, p.34; BSL-2, A8, p. 38; ASU Biosafety Manual
35. Do personnel wear protective eyewear when working in the laboratory?.				BMBL: BSL-1, C3, p. 36; BSL- 2, C2, p. 41; ASU Biosafety Manual.
36. When biohazardous materials must be manipulated outside a biological safety cabinet, do personnel use eye and face protection ?				BMBL: BSL-1, A7, p.34; BSL-2, C3, p. 36; ASU Biosafety Manual
37. Do personnel wear gloves to protect hands from exposure to hazardous materials?				BMBL: BSL-1, A7, p. 34; BSL-2, A7, p. 38; NIH G-2-B-2-h; 29 CFR 1910.1030(d)(3)
38. Are alternatives to latex gloves available for personnel with latex sensitivity?				BMBL: BSL-1, C4, p. 32; BSL-2, C4, p. 37; 29 CFR 1910.1030(d)(3)(iii)
39. Are gloves changed when contaminated, when glove integrity is compromised, or when otherwise necessary?				BMBL: BSL-1, A7c, p. 34; BSL- 2, A7c, p. 38. 29 CFR 1910.1030(d)(3)(ix)(A)
40. Do personnel wash their hands after working with potentially hazardous materials and before leaving the laboratory?				BMBL: BSL-1, A9, p. 34; BSL-2, A9, p. 38; 29 CFR 1910.1030(d)(2)(vi)
41. Are disposable gloves prohibited from being washed or reused?				BMBL: BSL-1, A7d, p. 34; BSL- 2, A7d, p. 38; 29 CFR 1910.1030(d)(3)(ix)(B)
42. Are used gloves disposed with other contaminated laboratory waste?				BMBL: BSL-1, A7d, p. 34; BSL- 2, A7d p. 38; 29 CFR 1910.1030(d)(3)(viii)
43. In circumstances where research animals are present in the laboratory, does the risk assessment considers appropriate eye, face, and respiratory protection, as well as potential animal allergens?				BMBL: BSL-2, C4, p. 36

Laboratory facilities							
Questions:	Yes	No	N/A	Reference(s)			
44. Is a sign is posted at the entrance to the laboratory when infectious materials are present? Posted information includes: the laboratory's Biosafety Level, the supervisor's or other responsible personnel's name and telephone number, PPE requirements, general occupational health requirements (e.g., immunizations, respiratory protection), and required procedures for entering and exiting the laboratory. Agent information is posted in accordance with the institutional policy.				BMBL: BSL-1, A5 p. 33; BSL-2, A5, p. 38; NIH G-II-B-2-d; ASU Biosafety Manual			
45. Does the lab have a current registration in EHS?				ASU Biosafety Manual			
46. Does the laboratory supervisor enforces the institutional policies that control safety in and access to the laboratory?				BMBL: BSL-1, A1, p. 32; BSL-2, A1, p. 37.			
47. Do laboratories have doors that are self-closing and have locks in accordance with the institutional policies?				BMBL: BSL2, D1, p. 42			
48. Does the lab have a sink for handwashing?				BMBL: BSL-1, D2, p. 36; BSL-2, D2, p. 42; NIH G-II-A-4-d; NIH G-II-B-4-d			
49. Are carpets and rugs present? Carpets and rugs in laboratories are not appropriate.				BMBL: BSL-1, D4a, p. 36; BSL-2, D4a, p. 42.			
50. Is furniture in the laboratory capable of supporting anticipated loads and uses?				BMBL: BSL-1, D5, p. 36; BSL-2, D5, p. 42; NIH G-II-A-4-c			
52. Are bench tops impervious to water and resistant to heat, organic solvents, acids, alkalis, and other chemicals?				BMBL: BSL-1, D5a, p. 36; BSL-2, D5a, p. 42; NIH G-II-A-4-b;NIH G-II-B-4-b			
53. Are chairs used in laboratory work covered with a non-porous material that can be easily cleaned and decontaminated with appropriate disinfectant?				BMBL: BSL-1, D5b, p. 33; BSL-2, D5b, p. 42.			
54. Laboratory windows that open to the exterior are not recommended. However, if a laboratory does have windows that open to the exterior, are they fitted with screens?				BMBL: BSL-1, D6, p. 36; BSL-2, D6, p. 42; NIH G-II-A-4-e; NIH G- II-B-4-e			
55. Are biological safety cabinets located away from doors, windows that can be opened, heavily traveled lab areas and other potentially disruptive equipment?				BMBL: BSL-2, D6, p. 38			
56. If vacuum lines are used, are they protected with liquid disinfectant traps in-line HEPA filters or their equivalent. Filters are replaced, as needed, or are on a replacement schedule determined by a risk assessment.				BMBL: BSL-2, D8, p. 42; ASU Biosafety Manual			
57. Is there an eyewash station readily available in the laboratory?				BMBL: BSL-1, D3, p. 36; BSL-2, D3, p. 42; ASU Biosafety Manual			
58. Does the room provide an inward flow of air without recirculation to spaces outside the room?				BMBL: BSL-2, D9, p. 38; ASU Biosafety Manual			
59. Is a method for decontaminating all waste available in (e.g., autoclave, chemical disinfection, incineration or othe validated decontamination method)?				BMBL: BSL-2, B6, p. 41; NIH G-II-B-4-f; ASU Biosafety Manual			
Additional requirements for OSHA bloodborne pathogens							
Questions:	Yes	No	N/A	Reference(s)			
60. Have personnel been offered and received appropriate immunizations for the agents potentially present in the lab (e.g., hepatitis B)? Or declined in writing? (Bloodborne Pathogen Exposure Control Plan) (Hepatitis B Virus Consent Declination Form)				29 CFR 1910.1030(f)(1)(i)			
61. Do personnel have access to the ASU Bloodborne Pathogens Exposure Control Plan? (Bloodborne Pathogen Exposure Control Plan)				29 CFR 1910.1030(g)(2)(vii)(D)			
62. Have personnel with the potential for exposure to bloodborne pathogens or other potentially infectious materials completed ASU's Bloodborne Pathogens Training? (<u>Lab Specific Biosafety Training</u>)				29 CFR 1910.1030(g)(2)(i)			

Additional requirements for recombinant and synthetic nucleic acid molecules							
Questions:	Yes	No	N/A	Reference(s)			
63. Has the PI's recombinant/synthetic nucleic acid research been reviewed and approved by the Institutional Biosafety Committee?				NIH Section III			
64. Does the laboratory have 10 or more liters of culture present?(<u>Large Scale Research Fact Sheet</u>)				NIH III-D-6			
65. Is the PI familiar with which section of the NIH Guidelines their research falls under?				NIH IV-B-7			
66. Does the laboratory have an emergency response plan for dealing with accidents, spills, or other incidents involving recombinant/synthetic nucleic acid molecules?				NIH IV-B-2-b-(6)			
67. Are personnel familiar with the emergency response procedures for spills or exposures involving recombinant/synthetic nucleic acid molecules?				NIH IV-B-2-b-(6)			
68. Do lab personnel have access to the NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules? (NIH Guidelines)				NIH, G-I			
69. Do personnel have access to copies of procedures (e.g., SOPs) for recombinant/synthetic nucleic acid molecules?				NIH, G-I			
70. Are animals not involved in the research prohibited in the room?				NIH G-II-B-2-g			
71. Are hypodermic needles and syringes used only for parenteral injection and aspiration of fluids from laboratory animals and diaphragm bottles?				NIH G-II-B-2-j			
72. Are only needle-locking syringes or disposable syringe-needle units (i.e., needle is integral to the syringe) used for the injection or aspiration of fluids containing organisms that contain recombinant or synthetic nucleic acid molecules?				NIH G-II-B-2-j			
73. Is extreme caution used when handling needles and syringes to avoid autoinoculation and the generation of aerosols during use and disposal?				NIH G-II-B-2-j			
74. Are spills and accidents, which result in overt exposures to organisms containing recombinant or synthetic nucleic acid molecules immediately, reported to the Biological Safety Officer and Institutional Biosafety Committee?				NIH G-II-B-2-k			
75. Is an insect and rodent control program in effect?				NIH G-II-A-2-b; NIH G-II-B-2-e			
76. Has a laboratory-specific biosafety manual been adopted? (Lab-Specific Manual)				NIH G-II-B-2-m			
77. Are personnel required to read and follow the laboratory-specific biosafety manual? (<u>Lab-Specific Manual</u>)				NIH G-II-B-2-m			
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Additional requirements for toxins							
Questions:	Yes	No	N/A	Reference(s)			
78. Does the research involving working with or generating any toxins of biological origin? If yes, which toxin(s) and how many milligrams?				ASU Biosafety Manual			
79. Does the laboratory have any toxins listed on the Select Agent and Toxin list? (Select Agents and Toxins)				42 CFR 73			
80. Is an inventory control system in place for the toxins?				BMBL, Appendix F			
81. Is all work with toxins conducted within a certified chemical fume hood or Biological Safety Cabinet?				BMBL, Appendix A, ASU Biosafety Manual			

Equipment inventory

Is there an autoclave present? (Yes □, No □)										
If yes, please include the following information for each:										
	Model Number	Serial Number	Location	Last Certification Date	Certification Due Date					
Autoclave (1)										
Autoclave (2)										
Autoclave (3)										

If you need additional space for more than (3) pieces of equipment, please use extra blank sheets of paper

Is there a biological safety cabinet (BSC) present? (Yes \square , No \square) If yes, please include the following information for each:									
	Model Number	Serial Number	Location	Last Certification Date	Certification Due Date				
BSC (1)									
BSC (2)									
BSC (3)									

If you need additional space for more than (3) pieces of equipment, please use extra blank sheets of paper

Is there a centrifuge present? (Yes □, No □) If yes, please include the following information for each:									
Model Number	Serial Number	Location	Last Certification Date	Certification Due Date					
	the following inform Model Number	the following information for each: Model Number Serial Number	the following information for each: Model Number Serial Number Location	the following information for each: Model Number Serial Number Location Last Certification					

If you need additional space for more than (3) pieces of equipment, please use extra blank sheets of paper.
☐ Is there a flow cytometer present? **(Yes □, No □)**

If yes, please include the following information for each:

	Model Number	Serial Number	Location	Last Certification Date	Certification Due Date
Flow Cytometer (1)					
Flow Cytometer (2)					
Flow Cytometer (3)					

If you need additional space for more than three pieces of equipment, please use extra blank sheets of paper.

Questions? Contact ASU Environmental Health and Safety at 480-965-1823 or email biosafety@asu.edu. Revision date 07/01/2024