Competency-Based Position Description Template:

Biosafety Professional

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Introduction: Recruiting Biosafety Professionals

The Association of Public Health Laboratories (APHL) developed the competency-based Biosafety Professional Position Description (PD) Template to assist state and local public laboratories with their recruitment efforts, with the ultimate goal of improving safety across the jurisdiction. While the term biosafety professional (also referred to as a biosafety officer) is frequently used in the position description, APHL envisions that the biosafety professional will work in concert with other personnel to address safety across the public health laboratory and in public and private clinical laboratories.

The majority of the competency statements used in the Biosafety Professional PD Template are from the Safety, Workforce Training, Security and Communications domains found in the Competency Guidelines for Public Health Laboratory Professionals.[1] To complete the expected duties and responsibilities of this unique position, additional competencies from the Microbiology, Communication, Emergency Management and Response, Quality Management Systems and General Laboratory Practice domains were also included. The competency tier levels selected from these eight domains are marked at the end of each competency statement (i.e., C = Competent, P = Proficient, E = Expert). Users may interchange tier levels to better fit the position responsibilities in their respective agencies. **APHL recommends reviewing the competency guidelines referenced above for additional tier levels along with additional competency guidelines around biosafety.[2],[3]**

Please note that in most instances, the competencies listed here are verbatim from the Competency Guidelines for Public Health Laboratory Professionals. **Users of the APHL Biosafety Professional PD Template may want to condense and/or combine competencies to meet their requirements and needs.**

For the biosafety professional to be successful in their position, it is imperative for the entire organization to support their position.

Recommended Institutional Roles in Supporting a Biosafety Professional

Leadership Support

- Establish a permanent biosafety professional position with a salary commensurate with the experience and breadth of work necessary to be an effective biosafety professional and to retain such a person.
- Set the tone and expectation that the biosafety professional is consultant, trainer and resource to enhance safety and quality as a core principle of the institution, not an obstacle or burden.
- Leadership interacts with the biosafety professional on a regular basis such that the biosafety professional may maintain a general knowledge of the scientific work, related regulations and policies; procedures and instruments used in the institution as it relates to the handling of biological materials.

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[1]Centers for Disease Control and Prevention, Association of Public Health Laboratories. (2015). *Competency Guidelines for Public Health Laboratory Professionals*: CDC and the Association of Public Health Laboratories [Supplements]. MMWR, 64(01), 1-81. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/su6401a1.htm

[2] Centers for Disease Control and Prevention, Association of Public Health Laboratories. (2011). *Guidelines for Biosafety Laboratory Competency*: CDC and the Association of Public Health Laboratories [Supplements]. MMWR, 60(01), 1-81. Retrieved from https://www.cdc.gov/mmwr/preview/mmwrhtml/su6002a1.htm

[3] Internation Organization for Standardization. (2024) *Competence requirements for biorisk management advisors*. Retrieved from https://www.iso.org/standard/81240.html

Culture of Safety

- Promote an open, non-punitive and safety-first culture that embraces the sharing of biorisk, which encompasses biosafety and biosecurity, questions, concerns and ideas.
- Publicly embrace the biosafety professional's consultation and guidance on biorisk management topics, using it to enhance plans, policies, procedures, training and biological risk assessments.
- Include the biosafety professional as a vital member of quality, safety and management committees and meetings.

Professional Development

- Provide paid work time and funding to enable the biosafety professional to continuously enhance their knowledge of biorisk management regulations, standards, best practices and principles by researching relevant topics, gathering and reviewing resources; and attending virtual and in-person biorisk-related trainings, conferences, webinars and other educational activities.
- Encourage and provide paid work time to the biosafety professional to network and correspond with other biosafety professionals and relevant subject matter experts (SMEs) outside the institution.

Allocation of Resources

- Provide paid work time and funding for the biosafety professional to provide consultation and training to clinical laboratories in the institution's jurisdiction on biorisk management topics.
- Provide funding for mitigation controls to be purchased and implemented as dictated by biological risk assessments.
- Provide funding for the biosafety professional to acquire and use tools, such as videos, online trainings, Glo-germ, smoke machines, fake glass and food coloring and other appropriate tools so the biosafety professional may provide hands-on training to staff in spill cleanup, biological safety cabinet (BSC) usage, handwashing and personal protective equipment (PPE) donning and doffing.
- Allocate time for dedicated biosafety trainings and require all staff to complete such training/s.

Policies and Procedures

- Follow through on policies and clarify enforcement of these policies if staff are not in compliance; provide written and verbal confirmation of these responsibilities in position descriptions and at trainings and meetings.
- Establish written policy that all work with biological materials in the institution will be preceded by a documented biological risk assessment that is performed in coordination with the biosafety professional.

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Biosafety Professional Competency-Based Position Description Template

Program/Department: Public Health Laboratory

Position Title: Biosafety Professional/Biosafety Officer (BSO)

Reports to: Laboratory Director/Operations Director/Division Director

Previous Incumbent: None (New position)

Download an editable version of the position description template.

Job Position Summary:

The biosafety professional within the public health laboratory will ensure adequate biosafety training and practices to avoid exposure to potential hazards associated with the handling of biological materials, the spread of multi-drug-resistant pathogens and threats of emerging pathogens; and acts of biological terrorism. The person in this position develops and monitors adherence to laboratory biosafety programs, provides related workforce biosafety training for the institution and clinical laboratories, assists public health and clinical laboratories with biological risk assessments and risk mitigation plans, and works cohesively with key system partners and public health officials to improve communications and emergency management and response practices. Efficient communication skills, knowledge of microbiology and general laboratory practices, and experience in laboratory safety, training and outreach; and quality management systems are necessary for this position.

Essential Job Duties of the Biosafety Professional in Public Health Laboratory and Clinical Facilities

- Educates, trains and provides guidance to in-house staff on performing biological risk assessments, using PPE, implementing decontamination procedures, packaging and shipping of infectious agents, and reviewing waste management plans, including methods for recycling and disposal of biological hazards.
- Encourages a culture of safety and promotes the reporting of actual and potential safety issues, which may place staff and others at risk; assesses those risks; and implements redundant systems to minimize risks as much as possible, ensuring the residual risk remains within the institution's risk tolerance.
- Guides the development of policies and procedures that help to ensure the safety of laboratory staff and the provision of a safe physical environment to meet institutional biosafety and broader safety requirements.
- Develops and oversees site-specific workplace safety policies and procedures (including review) and maintains a safety plan that meets the institution's requirements.
- Provides input on emergency management and response policies and assists in implementing the processes and procedures in coordination with institution management and systems partners.
- Collaborates with the safety committee, occupational health and other partners to build an effective comprehensive biosafety program which includes chemical, radiological and other safety areas.
- Continuously enhances one's knowledge of biorisk management policies, best practices and principles by exploring relevant topics and resources; and attending virtual and in-person biorisk-related trainings, conferences, webinars and other educational activities.
- Coordinates with in-house staff to conduct outreach to public and private clinical laboratories in the jurisdiction to assist with biorisk management topics, with both consultation and training based on and citing relevant laws, rules, standards, best practices and peer-reviewed research.

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- Training should include, but is not limited to, the areas outlined in the *Biosafety in Microbiological and Biomedical Laboratories*, 6th Edition, Appendix N—Clinical Laboratories.

Additional Job Duties:

- Administers the site's select agent program as a Responsible Official (RO) or an Alternate Responsible Official (ARO) and completes duties as required of those roles.
- Maintains and updates plans, inventories and records and provides initial and annual training to institutional staff as required by the federal Occupational Safety and Health Administration (OSHA), the Federal Select Agent Program (FSAP), and other state/local laws and rules as applicable, including bloodborne pathogens/exposure control, chemical hygiene/hazard communication, respiratory protection, security and biological safety level-2 (BSL-2)/BSL-3 safety manuals.
- Facilitates and administers drills and exercises, such as man down, select agent release and security.
- Provides initial, annual and as-needed respirator fit testing to institutional users of tight-fitting respirators.
- Facilitates institutional respirator users getting initial and as-needed respiratory medical evaluations.

Job Position Competencies

Competency Tier Levels: C = Competent, **P** = Proficient, **E** = Expert

The following may vary with the institution electing to use the Biosafety Professional PD template: position title; recommended education and experience; institution organizational structure and reporting requirements; and weights (%) for each domain/topic area.

Safety (25%)

- Biological materials: works safely with biological materials in the laboratory
- Performs risk assessments to determine biohazardous materials from non-biohazardous materials in the laboratory (**C**)
- Recognizes hazards associated with new biological materials used in laboratory procedures (**C**)
- Trains staff in the hazards associated with the laboratory procedures employed (**C**)
- Demonstrates knowledge to distinguish organisms and testing BSL-2 physical containment and safety work practices from organisms and testing requiring BSL-3 physical containment and safety work practices (**C**)
- Demonstrates knowledge of application of biohazard risk assessments to the management of workplace biosafety programs (**C**)

1. Engineering controls: implements intervention strategies to control hazards by systematically minimizing, isolating, or removing hazards from the workplace
    a. Advises and supports development of standard operating procedures (SOPs) and work instructions that incorporate engineering controls (**P**)
    b. Develops required training for engineering controls (**P**)
    c. Demonstrates knowledge and application of physical containment requirements in the safe work with biohazardous materials (**C**)
2. Safe work practices: designs work practices and procedures to minimize exposure to hazards and to adhere to regulatory requirements

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a. Develops processes and procedures related to the establishment and maintenance of good housekeeping (**P**)

b. Maintains a general knowledge of laboratory operations and related policies, procedures, and instruments as it relates to handling of biological materials (**P**)

3. Personal Protective Equipment (PPE): employs the selection, use, and care of personal protective equipment while being continually mindful of its limitations

    a. Advises and supports the appropriate selection of PPE (**P**)

    b. Determines procedures for use of specific PPE (**P**)

4. Systems to track hazards: establishes a system to detect and to control or eliminate the underlying causes of hazards or exposures

    a. Develops procedures to report, track and investigate hazards in their workspace (**P**)

5. Decontamination and laboratory waste management; provides guidance on decontamination and establishes a laboratory waste management plan that adheres to federal, state, and local regulations

    a. Guides the development of policies, processes, and procedures for spill cleanup and decontamination of laboratory surfaces and instruments (**E**)

    b. Implements procedures for disposal and treatment of laboratory waste (**C**)

    c. Implements procedures for reporting and responding to issues or problems regarding laboratory waste management (**C**)

    d. Demonstrates knowledge of technical and regulatory requirements applicable to products used for routine work surface disinfection (**C**)

6. Guideline and regulation compliance; ensures staff compliance with guidelines and regulations

    a. Instructs staff on current regulatory requirements and guidelines governing the safe performance of laboratory procedures (**P**)

    b. Complies with institutional safety committee requirements (**C**)

7. Risk management; manages risks through systematic practices to evaluate, minimize, or eliminate them

    a. Oversees the policies, processes, and procedures related to risk assessment to ensure controls are appropriate for activities, agents and materials used in laboratory (**E**)

    b. Designs policies, processes, and procedures for reporting and performing root-cause analyses of incidents (**E**)

8. Hazard communication; promotes safety through effective hazard communication

    a. Implements a variety of communication tools and techniques for the promotion of safe work practices (**P**)

9. Safety training: ensures that safety training needs are identified and that training solutions are implemented to meet performance and productivity goals

    a. Provides training on the work practices and techniques required for staff to safely perform their job duties (**C**)

    b. Adheres to procedures for recording safety training of staff (**C**)

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Workforce Training (15%)

Provides training, consultation, and guidance to institutional scientists and management on biorisk management topics, based on and citing relevant laws, rules, standards, best practices, and peer-reviewed research.

- Content; gathers training content
    - Develops needs assessment tools (**P**)
    - Integrates principles of adult learning for use in designing training (**P**)
    - Implements established science and technology content (**C**)
    - Implements training for emerging training topics (**C**)
    - Collaborates with subject matter experts to gather content (**C**)
- Training design: designs training
    - Develops training activities around existing learning objectives and integrates biosafety laboratory competencies4 into course content (**C**)
    - Implements the modality for training (**C**)
    - Develops instructional materials for new programs that are aligned with the type of training activity and modality (**P**)
    - Integrates multiple types of training materials into training design (**C**)
    - Integrates individual training lessons, including experiential exercises (**C**)
- Creates formative assessments (**P**)
    - Follows continuing education provider requirements when conducting training (**C**)
- Delivery set-up; manages the logistics of set-up for training delivery
    - Ensures that equipment capability aligns with the training requirements (**P**)
    - Manages processes of the learning environment (**C**)
- Training delivery; applies principles of learning to training implementation and delivery
    - Develops presentation materials to address learning preferences and styles (**P**)
    - Uses the most effective presentation tools and techniques (**C**)
- Training evaluation; evaluates learner knowledge and skill development
    - Develops training evaluation tools for a new activity (**P**)
    - Implements the training assessment rubric to ensure training outcomes are met (**C**)
    - Compiles tracking data into summative training reports (**C**)
    - Assesses participants' achievement of training objectives, such as the ability to don, doff and properly dispose of PPE (**C**)
- Marketing; markets training opportunities
    - Composes content for marketing materials (**C**)

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Security (15%)

- Risk mitigation; ensures the laboratory's risk mitigation plan meets organizational goals, regulatory requirements, and established standards
    - Interprets security concepts to adapt policies and procedures to support organizational goals (**P**)
- Security plan; ensures the laboratory's security plan meets organizational goals, regulatory requirements and established standards
    - Designs laboratory's security plan in collaboration with subject matter experts (**P**)
    - Creates tools to manage inventory records (**P**)
    - Implements processes and procedures related to security incident response and reporting (**P**)
- Transportation hazardous material security program; implements a transportation hazardous material security plan
    - Creates transport security procedures (**P**)

Microbiology (15%)

- Facilities and safety; works safely with microbiological agents within a laboratory facility
    - Instructs others on laboratory hazards and hazard communication related to microbiological agents (**C**)
    - Instructs others in policies, processes, and procedures regarding safe work practices related to microbiological agents (**C**)
    - Instructs staff in policies, processes, and procedures regarding PPE use for work related to microbiological agents (**C**)
    - Instructs staff in use of biological safety cabinets and other engineering controls (**C**)
    - Instructs staff in waste management policies, processes, and procedures related to microbiological agents (**C**)
    - Instructs staff in the policies, processes, and procedures regarding decontamination for different microorganisms (**C**)
- Pre-examination; assesses microbiological samples during the pre-examination phase
    - Instructs others on packing and shipping of Category A and Category B infectious substances (**C**)
    - Instructs others on microbiological material transport policies, processes, and procedures (**C**)
    - Adheres to policies, processes, and procedures regarding the identification, handling, safety, appropriateness and triage of samples containing agents of concern (**C**)

Communication (10%)

- Communication techniques: deploys formal written and oral communication strategies
    - Applies logical structure to written communications (**C**)
    - Applies language and tone in oral communications tailored to target audience (**C**)
- Communication technology; utilizes technology to communicate information to internal and external partners
    - Selects laboratory's technology options to align with partner's capabilities (**C**)

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    - Uses designated technology for sharing information (**C**)
- Communication professionalism; ensures professionalism in communication with customers and stakeholders
    - Displays professional demeanor in all situations with customers and stakeholders (**C**)
    - Determines information needs through collaboration with customers and stakeholders (**C**)
    - Selects information to share (**C**)
- Professional reports; prepares professional written reports and oral presentations
    - Creates drafts of written reports (**C**)
    - Creates drafts of oral presentations (**C**)
- Public health laboratory value; promotes the value of the public health laboratory
    - Coordinates opportunities for promoting the public health laboratory and system (**C**)
    - Presents communication materials to explain the importance of the public health laboratory (**C**)

Emergency Management and Response (10%)

- Mitigation of emergency events; mitigates emergency events
    - Assesses potential vulnerabilities and risks in the organization (**C**)
- Preparation for emergency events; prepares for emergency events
    - Engages partners to sustain relationships and ensure effective response (**P**)
- Responding to emergency events; responds to emergency events
    - Instructs staff on proper response to hazardous spills or potential exposures (**P**)
    - Instructs staff on policies, processes and procedures for emergency decontamination and exposure prevention (**P**)

Quality Management System (5%)

Some biosafety professionals may serve as the institution's quality officer and implement quality-related plans and policies. Read APHL's Quality Manager Position Description to learn more.

- Organization; ensures that the laboratory's organizational structure is committed to achieving and maintaining quality
    - Advocates for a culture of quality, safety and ethics (**P**)
- Customer focus; ensures that customer needs, expectations and requirements are consistently met
    - Responds to internal and external customer inquiries and feedback (**C**)
- Nonconforming event (NCE) management; ensures that processes are in place for detecting and managing nonconforming events Responds to NCEs (**C**)
    - Participates in NCE investigations and root cause analyses (**B**)
- Continual improvement; ensures mechanisms for continuous quality improvement
    - Follows CQI processes and procedures for troubleshooting and documenting required CQI activities (**C**)

General Laboratory Practice (5%)

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- General technical and laboratory practice knowledge; demonstrates general knowledge and skills related to the scientific and technical components of laboratory testing
    - Discusses scientific and technical advances relevant to own work (**C**)
    - Integrates basic laboratory techniques into standard operating procedures and new laboratory practices (**C**)
    - Instructs others in model laboratory practices (**C**)

Education and Experience Requirements

- At a minimum, a bachelor's degree in Microbiology, Biology, Clinical Laboratory Science, Medical Technology or related health sciences field
- Experience with or understanding of laboratory operations
- Knowledge of BSL-2 and BSL-3 operations and practices
- Strong verbal and written communication skills
- Ability to establish working relationships with a broad range of groups
- Must pass appropriate background checks
- Related certification (safety related) is preferred

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