

Lab Requirement and Safety during a Biological Attack

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Opinion

All Category A and B agents are associated with laboratory-acquired infections. However, most occupationally acquired infections caused by these microorganisms do not make laboratory personnel aware of the risks associated with these infectious pathogens and are normally biosafety level 2 (BSL2) safe. It occurred because of non-compliance with practices, especially aerosol containment practices. To minimize risk, managers assess risks associated with laboratory practices, provide appropriate containment facilities and personal protective equipment (PPE), develop safety procedures, and expose individuals [1]. You need to implement a safety program to help with medical supplies. It is the individual's responsibility to understand the risks associated with handling infectious pathogens, to minimize exposure to other laboratory workers, and to use safe practices to prevent laboratory contamination [2].

Bioterrorist Agent may be screened on a regular basis. These early cultures pose the greatest risk to clinical microbiologists, as the pathogen may not be recognized first. Once an outbreak is identified, Sentinel Laboratories may decide to limit the receipt of samples without the appropriate staff or protective measures to handle the volume of the sample. The most dangerous pathogens are transmitted by aerosols that occur in everyday laboratories such as. Samples must be processed in a Class II Biosafety Cabinet (BSC) [3]. Laboratory personnel should wear safety goggles, a lab coat with closed tops with cuffs, and gloves on the cuffs. Do not touch the mucosal surface with your hands. Before leaving the lab, remove gloves and gowns and wash your hands. Benches should be decontaminated after use, and waste material should be placed in appropriate biohazard containers.

To categorize the risk associated with an infectious agent and define the appropriate safety practices for handling the agent, the CDC and National Institutes of Health have proposed four BSLs. The BSLs imply increased occupational risk from exposure to an agent and need for additional containment for work with that agent. The guidelines for assigning microorganisms to a BSL are as follows: BSL1, well characterized agents that are not known to consistently cause disease in healthy adult humans and are considered a minimal potential hazard to laboratory personnel and the environment; BSL2, agents of moderate potential hazard to personnel and the environment; BSL3, indigenous or exotic agents that cause serious or potentially lethal disease as a result of exposure by the inhalation route; and BSL4, dangerous and exotic agents that pose a high individual risk of aerosol transmitted laboratory infections and life threatening disease [4].

Most clinical microbiology laboratories (Sentinel Laboratories or level A laboratories) function at BSL2 and employ BSL2 laboratory practices. In general, clinical specimens containing these agents can be handled at BSL2 because few organisms are present. The risk of exposure increases if the infectious pathogen grows in the culture or if the culture is manipulated using laboratory practices that can produce aerosols. In this situation, you need to apply BSL3 practices [5]. Whereas BSL2 practice requires that all operations that generate aerosols be performed in Class II BSC, BSL3 practice specifies that all operations must be performed in BSC. Routine manipulation of cultures (eg, preparation of bacterial suspensions in physiological saline) can produce aerosols.

Aerosol production during routine manipulation of *N. Meningitidis* cultures can lead to laboratory-acquired infections and death.

Acknowledgment

The author would like to acknowledge his Department of Infectious Diseases from the University of Texas for their support during this work.

Conflicts of Interest

The author has no known conflicts of interest associated with this paper.

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Received: 02-Mar-2022, Manuscript No: jbtbd-22-57923, Editor assigned: 04-Mar-2022, PreQC No: jbtbd-22-57923 (PQ), Reviewed: 10-Mar-2022, QC No: jbtbd-22-57923, Revised: 15-Mar-2022, Manuscript No: jbtbd-22-57923 (R) Published: 22-Mar-2022, DOI: 10.4172/2157-2526.1000293

Citation: Herzog NK (2022) Lab Requirement and Safety during a Biological Attack. *J Bioterr Biodef*, 13: 293.

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