



Brief Note on Biosafety and Human Health

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Description

Biosafety discusses as the prevention of large-scale organic integrity loss, with importance on both ecosystem and human health. Regular biosafety reviews in laboratory settings, as well as strict guidelines to follow, are among the prevention mechanisms. Biosafety is a term used to describe the process of safeguarding against potentially harmful events. A continuous risk management assessment and enforcement process for biosafety is used by many laboratories that handle biohazards. Failure to follow such protocols can increase the risk of biohazards or pathogens being exposed. Human error and poor technique contribute to unnecessary exposure and jeopardise the best protection measures in place. Many advocacy groups want the international Cartagena Protocol on Biosafety to be expanded to include post-genetic threats, such as new molecules, artificial life forms, and even robots that could compete directly in the natural food chain. In agriculture, chemistry, medicine, exobiology, and other fields, biosafety will almost certainly necessitate the use of the precautionary principle and a new definition that focuses on the biological nature of the threatened organism rather than the nature of the incident.

The Centers for Disease Control and Prevention (CDC) determines the level of bio containment precautions that are required for laboratory work with infectious materials. Biosafety is typically overseen by a committee or board of supervisors at institutions that experiment with or create potentially harmful biological material. They develop and monitor biosafety standards that labs must adhere to in order to avoid the unintentional release of potentially harmful biological material. (Note that several organisations are involved in the United States, and efforts are being made to improve processes for government-run labs, but there is no single regulatory authority for all labs.) Many work activities pose risks

to workers, and biological risk is one of them. This is due to a variety of factors, including different types of exposure, contact with highly dangerous agents, a lack of limit values that can be used to compare all exposures, and the presence of workers with weakened immune systems who are more vulnerable to the risk. At work, bio aerosols and dust are important vehicles for microorganisms, and interaction with other occupational agents is expected. Furthermore, biological risk can be significant in countries where economic development or certain habits are increasing, and some biological agents are classified as human carcinogens.

In medical and health centered care, biosafety refers to the safe operation of biological organs and systems, genetic therapy products, and viruses in relation to the environment, in order to protect health care workers, researchers, lab staff, patients, and the general public. Based on their potential biohazard risk level, laboratories are assigned a biosafety level ranging from 1 to 4. The employing authority, through the laboratory director, is responsible for ensuring that laboratory personnel's health is properly monitored. The goal of this type of surveillance is to keep an eye out for diseases that are acquired on the job. Human error and poor technique are the primary causes of bio hazardous material mishandling, according to the World Health Organization. Biosafety has become a global concern that necessitates multilevel resources and international collaboration to monitor, prevent, and correct unintended and malicious releases of biologics samples. Even people outside of the health sector must be involved, as the Ebola outbreak's impact on businesses and travel necessitated the private sector and international bank pledges totaling more than \$2 billion to combat the epidemic. The International Security and Nonproliferation Bureau (ISNB) is in charge of overseeing a wide range of US nonproliferation policies, programmes, agreements, and initiatives,

including biological weapons. There are risks and benefits to biosafety. All stakeholders must strive to strike a balance between the cost-effectiveness of safety measures and the use of evidence-based safety practices and recommendations, as well as to measure and reevaluate the potential benefits of biosafety for human health on

a regular basis. The design features, construction, containment facilities, equipment, practices, and operational procedures required for working with agents from various risk groups are used to determine the biosafety level.