The Association of Public Health Laboratories (APHL) supports countries in improving laboratory biosafety and biosecurity through performing risk assessments, trainings and mentorships.

Biosafety and biosecurity should be integrated into all areas of laboratory work, rather than an area to focus on only during outbreak responses. Biosafety and biosecurity can be challenging for laboratories even during normal operations; responding to an outbreak or emerging pathogens can put additional stress on the laboratory system and put staff at increased risk, especially when there is uncertainty or changes in safety measures and guidelines, high volumes of samples and limited access to safety equipment.

A comprehensive and well-established biosafety and biosecurity program is critical for the well-being of laboratory staff, the environment and the quality of testing. To establish a strong program, a biological risk assessment should be the foundation of laboratory operations, followed by the development of a risk mitigation plan and process.

The implementation of sound biosafety and biosecurity practices is not the job of one person; instead, it should be implemented and observed across the board by all laboratory staff, facilities and maintenance personnel, biomedical engineers, administrative staff, safety staff and visitors. Determining safety controls based on risk assessments should lead to preventing and minimizing incidents and injuries related to laboratory work. Such safety controls may include safety equipment, facility design and construction, personal protective equipment, and safety practices and procedures.

**BIOLOGICAL SAFETY CABINET CERTIFICATION TRAINING PROGRAM**

Biological Safety Cabinets (BSCs), also known as biosafety cabinets, are specialized laboratory safety equipment designed to protect laboratory staff when working with infectious materials. To be effective, BSCs must be working properly. Scheduled preventive maintenance, service, repairs and standardized certification of BSCs can ensure they work properly to protect laboratory staff when using this specialized equipment.

APHL collaborated with the US Centers for Disease Control and Prevention (CDC), ThermoFisher Scientific, NSF International, and the Muhimbili University of Health and Allied Sciences—Dar es Salaam, Tanzania, to develop a BSC Certification Training Program to train a cadre of accreditation-ready, proficient and professional BSC certification technicians using a sustainable tuition-funded University mode training program. The program is offered once a year and has been successfully delivered twice since its inception in 2022.
APHL'S Biosafety and Biosecurity Capabilities

Subject Matter Experts
APHL counts on in-house expertise to lead program implementation that will strengthen biosafety and biosecurity capacity and capability globally. In collaboration with partners like CDC, APHL member laboratories and external consultants, APHL provides technical assistance to support countries in developing their biosafety and biosecurity programs.

Training and Mentorship
APHL supports countries in improving laboratory biosafety and biosecurity through delivering risk assessment training, biorisk management trainings and mentorship. APHL also supports programs, such as the BSC Certification Training Program, which focuses on developing participant skills in the maintenance and certification of BSCs. APHL has also developed a laboratory design workshop, which covers biosafety topics like risk assessment and laboratory facilities renovation and construction, including high containment laboratory.

Policies and Guidelines Development
A strong biosafety and biosecurity program should be built upon a risk assessment, with a set of policies and guidelines to structure it. There are available guidelines—such as the CDC Biosafety in Microbiological and Biomedical Laboratories (BMBL, 6th Edition) and the World Health Organization Laboratory Safety Manual (4th Edition)—that can serve as a reference framework. However, it is key that each country establishes its own national (and regional and local levels if applicable) policies and guidelines in laboratory biosafety and biosecurity. To strengthen this capacity, APHL can support technical working groups to develop country-specific guidelines, including special topics like specimen retention, storage and management.