

Exercises on Resolving Potential Conflicts Between Laboratory Biosafety and Biosecurity¹

Scenario 1 – Emergency Egress:

Several scientists are working in the BSL-3 laboratory when a fire alarm sounds. After a few seconds, it becomes apparent this is not a false alarm and everyone must exit the containment lab. What are the security and safety considerations for exiting a high containment lab during emergencies?

Scenario 2 – Emergency Alarms and Electronic Locks:

Emergencies accompanied with power outages have the potential to be more problematic should the security door to a containment lab fail to open or relock. What are potential mechanisms to circumvent a failed security door, regarding both entry and exit?

Scenario 3 – Emergency Response:

A person working in a containment laboratory with highly infectious bacterial cultures falls to the floor, apparently having a heart attack. Flasks containing the bacteria shatter, generating an aerosol and contaminating the person and floor. The emergency medical technicians (EMTs) arrive to render aide. What is the process for evacuating a contaminated, ill person (patient) from a containment lab?

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Scenario 4 – Signage:

The BMBL requires a biohazard sign for BSL2 labs or higher, including the agents in use to all pertinent personnel. How is this best achieved to minimize notification of people who do not need to know the location of these agents? Using the attached fictional lab floor plan, identify places for warning signs.

Scenario 5 – Keys in containment labs:

The containment lab requires a key for entry. What are considerations for using a key for entry into a containment laboratory?

Scenario 6 – Material Control and Accountability:

A student's experiment runs into the evening; tired and hungry the student decides to leave for the night. Prior to leaving the containment lab, he inoculated fresh cultures and put them on the shaker in the containment lab. The next morning the student arrived at 0800 to continue the experiments after the requisite 12-hour incubation period. He realized that the lab door was unlocked when he arrived. Upon entry into the lab, the student noticed the freezer door ajar. Before closing the freezer door, he peered in and realized the boxes of bacterial stocks, which are normally in alphabetical order on racks, appear to be in disarray.

What is the first course of action? Should this incident be reported? To whom? Is there an inventory that will help identify if vials are missing? What measures could have been taken to prevent this type of incident?

