

**Small Group Exercises<sup>1</sup>**  
Training Seminar on  
Laboratory Biosecurity and Biosafety

Case A:

**Your laboratory** has been working on the development of a vaccine to protect against the respiratory infection caused by *M. tuberculosis*. Your lab has been working with the attenuated strain H37Ra for the vaccine development but will be using H37Rv for testing. You plan to use non-human primates for this test and will be infecting them via an aerosolization chamber.

Case B:

**Your laboratory** has been working with a clinical laboratory across town to characterize strains of *M. tuberculosis*. They will be providing your lab with numerous samples which have tested positive for TB. These are diagnostic/sputum samples. The clinical samples you receive are transported to you via a variety of couriers and in a variety of containers. You will be performing sensitivity studies on these samples to look for MDR and XDR strains. You identify two strains that appear to be antibiotic resistant; these samples will be shared with another laboratory within your facility for use in a further study.

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<sup>1</sup> SAND No.

Exercise 1:  
Biosafety Risk Assessment:

1. Assign a safety risk group to each organism in your case. Be prepared to justify your choice.
2. How do the proposed activities affect the risk of working with this organism?
3. What other information do you need for your safety risk assessments? Are there other questions that you would ask to better perform a risk assessment?

Risk Management Implementing Laboratory Biosafety:

4. What biosafety level (or animal biosafety level, if applicable) would you recommend for this work?
5. What types of laboratory features, laboratory equipment, and PPE would you recommend to mitigate the safety risk? Consider biological safety cabinets, HVAC systems, finishes, lighting, windows, gloves, laboratory coats, goggles, etc.

Exercise 2:

Biosecurity Risk Assessment:

1. Assign a malicious use risk group to each organism in your case. Be prepared to justify your choice.
2. How do the proposed activities affect the risk of working with this organism?
3. What other information do you need for your safety and security risk assessments? Are there other questions that you would ask to better perform a risk assessment?

Risk Management Implementing Laboratory Biosecurity:

4. What types of biosecurity measures would you recommend to mitigate the security risk? Consider physical security (access controls), personnel security, material control & accountability, and transport issues.