

Tuberculosis Testing in a New Biosafety Level 3 Laboratory

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So why do we care about safety?

- *M. tuberculosis* has a very low infectious dose, less than 10 bacilli
- Airborne droplet nuclei can be spread through normal air currents for long periods of time and spread throughout a room or a building
- TB among laboratory personnel is 3-9 times greater than that in the general population.
- As such, special work practices are required to handle the specimens and culture safely.
- If not.....

Safety Is As Safety Does!



- Biosafety Level-3 is applicable to clinical, diagnostic, teaching, research, or production facilities where work is performed with **indigenous or exotic agents that may cause serious or potentially lethal disease through the inhalation route of exposure.**

Primary Barriers: two levels of protection

- Items for personal protection, such as gloves, coats, gowns, shoe covers, boots, respirators, face shields, safety glasses, or goggles.
- BSCs: The BSC is the principal device used to provide containment of infectious droplets or aerosols generated by many laboratory procedures.

Secondary Barriers: protecting others and the environment

- Barriers necessary to prevent infectious agents from escaping into the environment may include:
 - Special ventilation system that minimizes the release of infectious aerosols from the laboratory.
 - The walls, ceiling, floors and base boards are painted with a special epoxy based paint which is resistant to water and can be easily decontaminated. The bench tops must be resistant to water, acids, alkalis, and organic solvents. If there are any windows, they must be sealed also. Chairs are constructed with vinyl upholstery for easy cleaning.

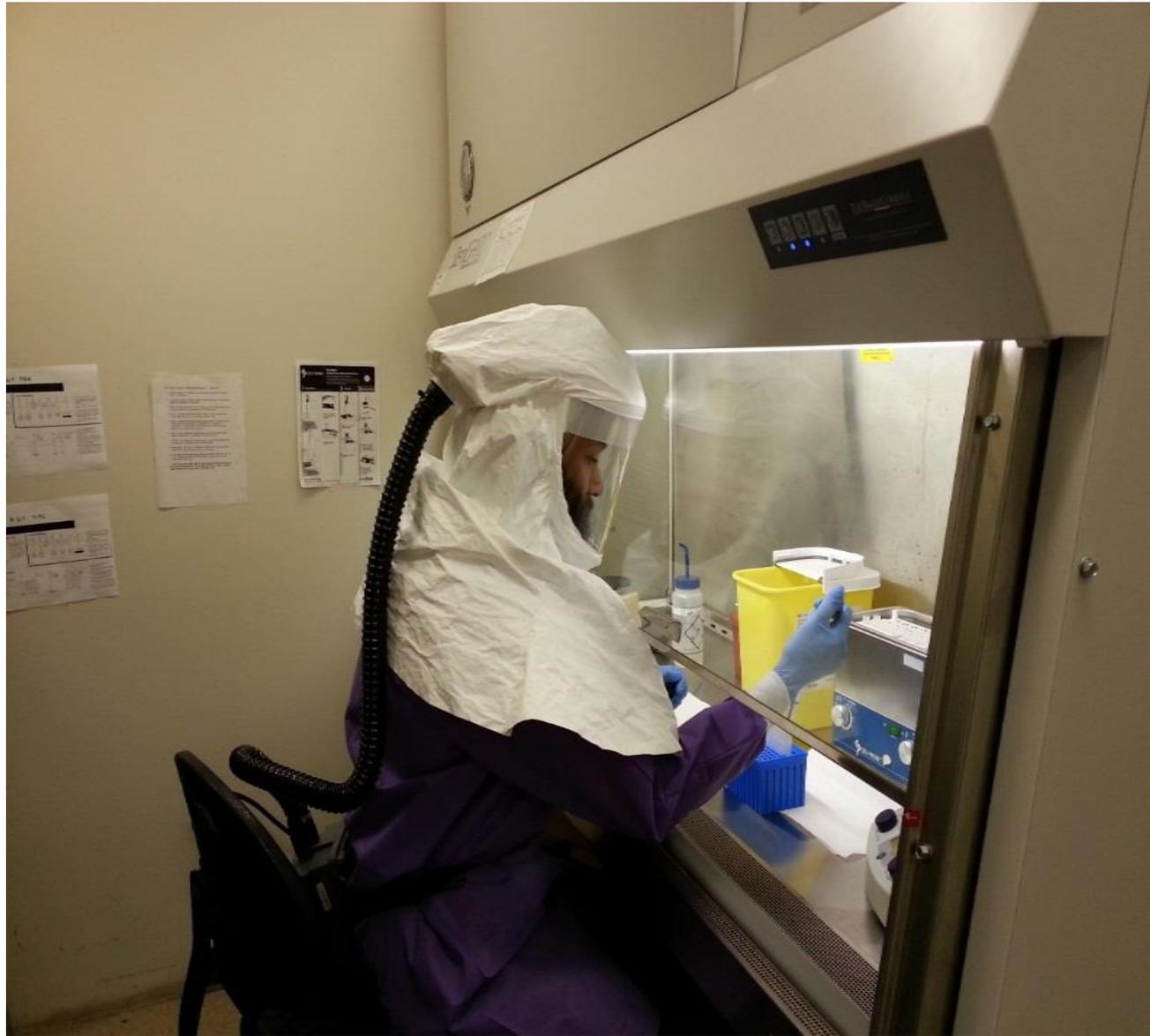
Special Practices within the BSL-3 laboratory

All procedures involving the manipulation of infectious materials must be conducted within a BSC. No work with open vessels is conducted on the bench.

Proper Gowning

- Clothing (complete outfit) in anteroom.
- Inspect for rips or tears before putting on clothing.
- Put on coveralls
- Put on shoe covers
- Put on N95 respirator OR PAPR-Strap on battery pack
- Put on bouffant
- Put on first pair of gloves
- Put on sleeves and apron
- Put on second pair of gloves (if not wearing PAPR)
- Put on safety glasses
- Enter inner chamber and check negative pressure of room.





Thank you!