

**Laboratory Safety Improvement Recommendations
Progress as of March 12, 2015**

CDC, Report on the Potential Exposure to Ebola Virus, February 4, 2015

	Recommendation	Completed	Pending Actions
Ongoing CDC laboratory safety improvement efforts			
1	<i>Leadership should ensure full understanding and implementation of previously recommended laboratory safety improvement actions, including 1) the completion of a Material Transfer Certificate (MTC) for transfer of any material from high containment laboratories to lower biosafety level laboratories and 2) appropriate secondary verification of critical safety control points, including additional installation of camera systems for review and verification of critical steps in a protocol</i>		Implement camera systems in areas where inactivation methods occur as applicable and develop verification SOPs.
Recommendations for the CDC Viral Special Pathogens Branch (VSPB)			
2	<i>Enlist a team to evaluate preparations that have been performed by the laboratory technicians involved in this incident to confirm that similar errors related to processing the wrong tubes for nucleic acids did not occur.</i>		Evaluate preparations.
3	<i>Identify a designated, senior scientist who understands the scientific basis for the procedures used in both the diagnostic and research activities of the Branch, maintains select agent compliance, ensures appropriate competency-based training, and serves as a resource for scientists if they have safety or security questions.</i>		Appointment of selected senior scientist is underway.
4	<i>Ensure mission-critical work is not affected when key leaders are deployed or on detail to support other public health priorities.</i>	✓	
Recommendations for CDC's high containment laboratories (BSL-3 and BSL-4)			
<i>Note: Implementation and timelines provided below reflect plans for VSPB. Planning is underway for broader implementation in other HCLs as relevant. Programs will develop criteria and guidance to be reviewed and approved by the HCL Operations Group as well as the HCL Governance Council.</i>			
5	<i>Work with CDC scientists from high containment laboratories (HCL) to establish a peer-review system of written research plans to foster critical thinking on how to optimize workflows and minimize error.</i>	✓	

	Recommendation	Completed	Pending Actions
6a	<i>Enhance standard operating procedures for materials intended for inactivation and removal from laboratories. Ensure that all materials are in standard, appropriately labeled tubes</i>		Update SOPs to standardize labeling of tubes.
6b	<i>Ensure the use of multiple, redundant visual safeguards (e.g., coloring for liquids, distinctive size and shape specimen handling and storage containers) so that laboratory staff can more easily determine that the correct material is being taken out of a high containment laboratory.</i>		Incorporate blue dye into MagMax lysis inactivation buffer as visual reminder.
6c	<i>Establish a requirement that inactivation procedures for a single protocol be performed or, at a minimum, checked by a single, highly trained individual within that team who understands the scientific reasons for each step of the procedure, unless exceptions are reviewed and cleared by a supervisor.</i>		Implement recommendation and develop step-by-step research plans for all ongoing work within the branch.
6d	<i>When possible and not detrimental for the end use of the materials, samples coming out of the BSL-4 laboratory should undergo gamma irradiation sufficient to inactivate any virus present. Materials not irradiated should require extra attention to verification of the inactivation procedures employed</i>	✓	
7	<i>Enhance safety for individuals working in the BSL-4 laboratory outside of normal work hours by 1) establishing an on-call system to ensure after-hours availability of a BSL-4 supervisor or designee and developing a standard operating procedure to.</i>		Document and implement approved procedures.
8	<i>When possible, scientists should not work in the BSL-4 laboratory unaccompanied.</i>		Evaluate solutions to implement proposed recommendation.