



# Lessons Learned & Success Stories – January to February 2015 Report

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The NBACC Lessons Learned and Success Stories Summary serves to reinforce a strong culture of safety and accountability by promoting consistent reporting of mishaps, establishing strong lines of communication with the safety department, supporting a learning environment by allowing others to learn from reported events, and tangibly demonstrating NBACC Leadership’s commitment to safety, accident prevention, and continuous improvement.

## **SUCCESS STORIES:**

1. A staff member noticed a cart was bowing in the middle due to a heavy printer that had been sitting on the cart for a long period of time. The staff member reported this to the safety department, who in turn had the printer moved to a more appropriate area for storage. The safety department also discovered that the cart did not contain a weight limit rating, which is important to know when using them to move heavy objects. This would also not have been found if the staff member had not reported this to safety.
2. Recently, a staff member suggested an improvement in the procedure for wearing PAPR hoods while working at a BSC. If staff were allowed to work with their lab coats over the top of their PAPR hoods, it would reduce the potential for the hood to be drawn into the BSC by the inward airflow. It would also help to protect the PAPR hood from potential contamination in the event a splash were to occur. After review by the H&S team, this suggestion was authorized as an option for staff.
3. Staff members are constantly being reminded to monitor their work environments for conditions that don’t seem “right” or may impact the overall safety of the work place. In two separate situations, staff identified potential areas of concern and reported them to the responsible team.
  - a. Staff members noticed that the magnehelic gauge for a lab was different than normal and reported the condition to Facility staff. The next day it was noticed that the gauge again had a reading outside of the normal range. They contacted Safety before working in the room, even though the gauge was reading negative values.
  - b. A staff member reported that two tiles in the front lobby are slightly raised on their edges creating a potential trip hazard. A footprint ticket was sent to the Facilities group to have the situation reviewed for potential corrective actions.
4. One of the safety features of BSL-4 operations is that a control room operator is monitoring work activities inside the labs. When multiple staff are working in the same lab, it can be difficult for the control room operator to keep all the activities visible on the camera. One control room operator was able to use the reflection off a window cover to get a panoramic view of the lab allowing for everyone to be viewed at the same time. While the view was not as clear as when the camera is focused directly at a work activity, it provided a better overall view of the work area. This idea is a great example of innovative thinking to improve safety in the work place.
5. A staff member reported that the steps at their residence, made of brick, can get very slippery and icy during inclement weather. Due to landlord restrictions, salt is not allowed to be used on the steps, and natural alternatives have not proven to be useful. In addition, there is no railing on the steps to help people stabilize

themselves when using. People in the household have slipped or fallen on the steps previously, due to these conditions. A coworker knew of the staff member's icy step problems and discovered a product called an anti-slip ice carpet, which you lay down on your steps/entryway after ice builds up. This helps prevent slips by providing a surface with traction. This shows that the NBACC employee was thinking of safety and trying to prevent future injuries.

6. While escorting a subcontractor, a staff member noticed that there were several head hazards in the work space and took near term and long term actions: a) Near term, they requested the subcontractor to wear hard hats in the area, and 2) Long term, they submitted a work request to install foam around the hazard as a way to prevent a head injury in the future.

#### **LESSONS LEARNED:**

1. (External) In December 2014, the CDC reported that a staff member working in their Viral Special Pathogen Branch laboratories was potentially exposed to the Ebola virus when samples were incorrectly transferred from a BSL-4 laboratory to a BSL-2 laboratory. A recently released report on the event highlights the importance of designing work flows that minimize the potential for human error and maximize checks and balances that can catch errors before they become events.

When planning work at NBACC, consideration must be given to how the process can eliminate potential points of confusion and avoid error likely situations. Examples could include use of different size vials so that wrong vials wouldn't fit (i.e. square peg, round hole theory), or use of big, bold, plain English labels that are easy to read (even for tired eyes). Another important area of work planning is to build in verification steps at critical junctures. The larger the potential for harm, the more definitive the verification step required. For process steps where an error would lead to repeating work, a simple "verify vial numbers" may be sufficient, but if an error could lead to a staff injury, an independent verification/approval to proceed could be more appropriate.

Everyone at NBACC must remember that all of us make errors every day. Thankfully, most are minor and of no consequence. Our work planning processes need to account for this and take affirmative steps to minimize the error likely situations in order to eliminate the errors that do have consequences.

2. Access control plays a significant role in both the safety and security of NBACC operations. While the access control process at NBACC may seem complicated, it really boils down to a very simple concept. Every staff member is responsible to understand:
  - a. What accesses they need to perform their job functions?
  - b. What training, qualifications, notifications are required to enter a space?

If you escort anyone else into a space, understand that you are accepting responsibility for ensuring that all entrance requirements are met for the person you are escorting. Staff should remember that this includes simple acts of opening the door for someone, the trusted traveler entrance to Ft. Detrick, or entrance to a laboratory. Many of these are very straight forward and where it is more complicated, we've added process aids (i.e., escorted laboratorian cards).

If you are the one being escorted, you are reminded that you need to know and understand the hazards associated with the space and your personal restrictions. For escorted lab access, it's very important that you check your laminated escort card to understand your restrictions.

3. Although reporting small failures and abnormalities may appear to be minor in nature, they often turn out to provide significant benefit. This was the case with four of the near miss events in the month of December. When staff report an overflowing drain or a dry toilet it allows for a review to determine if there are weaknesses in the design and/or controls of a system. This contributes to a better understanding of our controls that provide defense in depth to the safety of NBACC operations.
4. Finger cuts continue to be the top event occurring at NBACC. While most of these “cuts” would rate little more than a shoulder shrug (and possibly a Band-Aid) at most work locations, as most of you know, NBACC is a little bit different of a place to work. There are high hazards present so we take a very conservative approach to monitoring and managing even the simplest of near misses. Some things to consider, the humidity can be extremely low during the winter months and combined with multiple hand washings each day can lead to very dry skin (i.e. an increased potential for cuts/scraps). Remember to give your hands extra TLC and to lotion frequently.

**EVENT SUMMARIES:**

1. **FIRST AID SUMMARY:** 12/10/2014; A BNBI employee cut their finger on the edge of a chemical spill kit while in BSL-3. The CMA and the RO were notified. The injury required first aid only and no work restrictions resulted from the injury.
2. **FIRST AID SUMMARY:** 12/16/2014; A BNBI employee burned their arm while using a curling iron in a non-containment change room. The CMA was notified, and the injury resulted in no work restrictions.
3. **FIRST AID SUMMARY:** 12/23/2014; A BNBI employee cut their finger while closing the handle of a low voltage cabinet in the BSL-4 Cabinet lab. The CMA and RO were notified and there were no work restrictions that resulted from the injury.
4. **OSHA RECORDABLE SUMMARY:** 12/31/2014; A BNBI employee sustained a burn on their forearm from a soldering touch head. The injury was reported a week later after the wound opened. The CMA was notified and the employee was temporarily restricted from work.
5. **FIRST AID SUMMARY:** 1/12/2015; A BNBI employee noticed that they had cut their hand sometime while stocking supplies in the non-containment change rooms. The CMA was notified. The injury required first aid only and the employee was temporarily restricted from laboratory work.
6. **FIRST AID SUMMARY:** 01/12/2015; A BNBI employee slipped and turned their ankle while walking into the Annex. The CMA evaluated the employee, applied first aid, and the injury resulted in no work restrictions.
7. **FIRST AID SUMMARY:** 01/13/2015; A BNBI employee noticed that they cut their hand sometime while working in BSL-3 containment on various tasks. The CMA and RO were notified. The injury required first aid only and the employee was temporarily restricted from laboratory work.
8. **OSHA RECORDABLE SUMMARY:** 01/19/2015; A BNBI employee cut their finger on the edge of a metal cabinet while working in a BSL-0 laboratory. The CMA and RO were notified. The injury required first aid only and the employee was temporarily restricted from laboratory work.
9. **FIRST AID SUMMARY:** 01/20/2015; A BNBI employee was struck on the head by an automatic door in the Entry Control Point (ECP). The CMA evaluated the injury and applied first aid. The employee was temporarily restricted from laboratory work.

10. **FIRST AID SUMMARY:** 01/28/2015; A BNBI employee reported to the CMA with redness and stinging pain on their arm where they had splashed a cleaning solution. The CMA evaluated the employee, applied first aid, and the injury resulted in no work restrictions.
11. **FIRST AID SUMMARY:** 01/29/2015; A BNBI employee slipped and fell on a newly mopped floor in a BSL-3 containment laboratory. The CMA evaluated the employee, and the injury resulted in no work restrictions.

**NEAR MISS SUMMARIES:**

1. **SECURITY FAILURE SUMMARY:** 12/01/2014; A BNBI employee entered a BSL-2 lab under escort without proper authorization. The employee was unclear about whether or not they had escorted access into the lab.
2. **FACILITY PROCESS FAILURE SUMMARY:** 12/05/2014; A BNBI employee found water on the floor in front of a BSL-3 toilet. After further investigation, FMO attributed the water to a back pressure of air from tests that had been conducted on the effluent decontamination system (EDS).
3. **EQUIPMENT FAILURE SUMMARY:** 12/08/2014; A BNBI employee reported that a 50 mL conical tube of non-BSAT virus developed a hair line crack in the bottom of the tube while it was thawing in a bucket of water. The vial was immediately placed into an airtight container, and bleach was added to the bucket. There was no spill of material from the vial. The RO was notified of the event.
4. **FACILITY PROCESS FAILURE SUMMARY:** 12/09/2014; A BNBI employee reported that a burst of air came out of the BSL-4 cabinet lab shower drain. After further investigation, FMO attributed the air burst to a back pressure of air from tests that had been conducted on the effluent decontamination system (EDS).
5. **LABORATORY PROCESS FAILURE SUMMARY:** 12/10/2014; A BNBI employee opened a BSL-3 airlock from the clean side while there were still 2 minutes left on the timer. The employee immediately noticed the timer and did not physically step inside the airlock. There was added confusion because a cart had been pushed across the boundary of containment prior to an airlock decontamination event.
6. **SECURITY PROCESS FAILURE SUMMARY:** 12/10/2014; During a routine check of the electronic access records, the LSM found that an employee had not properly entered their PIN and had entered the BSL-4 without electronic authorization. The incident was reported to the RO.
7. **FACILITY PROCESS FAILURE SUMMARY:** 12/12/2014; A BNBI employee noticed that a BSL-3 toilet was completely dry. After further investigation, FMO attributed the lack of water to a back pressure of air from tests that had been conducted on the effluent decontamination system (EDS).
8. **FACILITY PROCESS FAILURE SUMMARY:** 12/13/2014; The Building Automation System went into alarm for the bulk CO2 system at dock #2. Upon further investigation, the contents of the tank were at zero (0) and the reserve was at low pressure as well. The subcontractor in charge of the equipment found a leak in the check valves of the CO2 system. The valves are in the process of being replaced and the CO2 system was placed back into service.
9. **FACILITY PROCESS FAILURE SUMMARY:** 12/18/2014; A BNBI employee reported that water had overflowed from the BSL-3 containment shower drains and backed up into the containment change rooms. Several other shower drains also overflowed and backed up water into both the containment and non-containment change rooms as well as the buffer corridors. A plan to stop the flow of water and clean up the standing water was evaluated and executed by FMO, EO, and Health and Safety.

10. **SECURITY FAILURE SUMMARY:** 01/06/2015; A BNBI employee entered a BSL-4 lab without providing the correct PIN number. The incident was found after a check of the records by the BSL-4 Manager. The employee entered with others at the time and did not notice that their PIN had not been accepted. The incident was reported to the RO.
11. **SECURITY FAILURE SUMMARY:** 01/07/2015; A BNBI employee noticed that another employee's escorted access privileges had expired after they had entered a containment lab. The escort immediately reported the incident and secured proper access privileges. The incident was reported to the RO.
12. **PPE FAILURE SUMMARY:** 01/08/2015; A BNBI employee reported a suit breach (Sperian #92) at the face shield. The CMA determined that it was not a potential exposure. The suit was retired from service.
13. **LABORATORY PROCESS FAILURE SUMMARY:** 01/09/2015; A BNBI employee reported that while picking up a plate in an incubator, they unintentionally lifted off the top of a 6 well plate that was underneath. The CMA determined that it was not a potential exposure. The RO was notified.
14. **PPE FAILURE SUMMARY:** 01/15/2015; A BNBI employee reported a suit breach (Sperian #90) on the left shoulder. The CMA determined that it was not a potential exposure. The suit was retired from service.
15. **FACILITY PROCESS FAILURE SUMMARY:** 01/15/2015; A BNBI employee found a CO2 leak during testing of the CO2 lines in the BSL-4. The leak is located in room 2-810. The CO2 line was isolated and locked out of the service until it could be repaired. All clear Tygon® tubing will be replaced with reinforced Tygon® tubing in the future.
16. **PPE FAILURE SUMMARY:** 01/20/2015; A BNBI employee reported a suit breach (Sperian #128) on the left thigh. The CMA determined that it was not a potential exposure. The suit was retired from service.
17. **FACILITY PROCESS FAILURE SUMMARY:** 01/28/2015; A BSL-4 door failed to close properly. The CMA and RO were notified. There was no potential exposure and no loss of containment. The door was repaired by Facility mechanics and placed back into service.
18. **FACILITY PROCESS FAILURE SUMMARY:** 01/28/2015; A BNBI employee found water on the floor and wall near the toilet of a bathroom in the BSL-3. The water was cleaned up and the incident reported to FMO who will continue to monitor the issue with the EDS vent and drain system.