# Lessons Learned & Success Stories – March to May 2016 Report

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. After the big snowstorm, a BNBI employee noticed that several icicles were hanging from the bottom of the NBACC building roof, along the entryway sidewalk. The employee notified the IO Director and warning tape was strung around the area to keep employees safe as they entered the building.
2. An employee suggested to their supervisor that more staff be trained on the use of the Stryker chair in the event of an emergency after finding out that minimal staff in the building have been trained in it use. It is important to have adequate numbers of trained staff in the event of an emergency.
3. A BNBI employee improved upon the level of process safety while performing technical work in biocontainment environments. The employee conceived and fabricated a specimen immobilization device. The use of this device allows the technical staff to increase the distance between their hands/fingers and sharp moving parts of other equipment during very intricate procedures, thus increasing the margin of safety. The device was reviewed and approved for use by the Safety Office prior to being used.
4. An employee noticed that equipment in an airlock that was in preparation to be VHP deconned did not have its batteries removed. The employee contacted Safety, who confirmed that this was correct and asked for the backing and batteries to be removed before the decontamination was allowed to start. If this had not been noticed, the decon may have needed to be repeated.
5. A BNBI employee outside the Facility Maintenance Operations (FMO) group noted that the insulation on a HVAC duct carrying fresh, conditioned air into the BSL-3 suites had worn away and was not present in a consistent manner on one corner of the duct. Bringing this to the attention of the FMO group allowed for new insulation to be applied to the duct resulting in more efficient management of air flow within the building. This observation demonstrates the value of having all employees, regardless of their job title, watching out for the safety of others.
6. A visitor reported seeing a piece of metal sticking out from an electrical outlet near the elevator on 1i. Facilities was notified and they safely removed the piece of metal and tested the plug to ensure it was still working properly.

**LESSONS LEARNED:**

1. Yes, you really can make a difference. Twice this month, staff recognized a hazard and took the time to speak up for the benefit of their coworkers. Getting hit by a piece of ice falling from ~50 feet would definitely not be a pleasant experience and no one wants to even talk about being inside a BSL-4 suit without an airline. Safety professionals have struggled for years with how to measure "non-events". After all, is it really possible to state with any certainty how many accidents didn't happen when someone

stands up to eliminate a hazard? However, we can absolutely state that everyone at NBACC is safer because staff not only recognize hazards, they see that they are addressed.

2. A questioning attitude can be a powerful tool in the work place that can manifest itself in many different ways. A quick review of the success stories demonstrates how on multiple occasions, a staff member used a questioning attitude to improve the NBACC work environment. In the first story, an employee asked their supervisor "Are we adequately covered?" In the second, an employee asked themselves, "Is there a better way?" In the final story, an employee asked the safety team "Was this done correctly?" In each situation, a staff member was striving to have a better understanding of not just the "what" but also the "why" of an activity and didn't just accept the easy path (e.g. "that's someone else's job", "that's the way we've always done it", or "the other person *must* have known what they were doing"). Stopping to ask questions can be tough and uncomfortable, but it undoubtedly leads to a better, safer work environment.
3. In order to safely complete much of the work conducted at NBACC, both biological and non-biological, the use of Personal Protective Equipment (PPE) is required. Several of the near misses this month serve to highlight the importance for staff to conduct pre-use inspections prior to donning PPE. Additionally, staff should fully understand the actions to take in the event that PPE isn't performing properly. The straight forward act of correctly implementing a glove replacement procedure is a very important part of safe operations at NBACC.
4. During May, staff were provided with a "Lessons Learned – Bonus Coverage" opportunity related to a significant event occurring in a university lab. While the event was truly a tragedy for everyone directly involved, there were several lessons that could be learned by other laboratories which can help to prevent similar types of events. If you missed the information on email, the full bonus coverage is posted on the ISC's Lessons Learned site on SharePoint.

**EVENT SUMMARIES:**

1. **FIRST AID SUMMARY:** 02/11/2016; A BNBI employee sustained a puncture wound to the bottom of their foot from a metal shaving that adhered to their sock while they were in the BSL-4 suit room. While moving around in containment, the employee put weight on the foot and the shaving punctured the skin of their heel. They exited the lab, and the CMA evaluated the wound, applied first aid, and the injury resulted in no work restrictions.
2. **OSHA RECORDABLE INJURY SUMMARY:** 02/16/2016; A BNBI employee reported an adverse reaction to an occupationally required immunization.
3. **FIRST AID SUMMARY:** 02/19/2016; A BNBI employee scraped their knuckle with the sharp edge of an aerosol photometer outside containment while working in an office area. The CMA evaluated the scrape and applied first aid. The injury resulted in no work restrictions.
4. **FIRST AID SUMMARY:** 03/02/2016; A BNBI employee scraped their arm on the metal door latch to an office area. The CMA evaluated the wound, applied first aid, and the injury resulted in no work restrictions.
5. **FIRST AID SUMMARY:** 03/09/2016; A BNBI employee reported a paper cut on their finger while in BSL-3 containment. The CMA ruled that it was not a potential exposure. The CMA evaluated the wound, applied first aid, and the injury resulted in no work restrictions.
6. **FIRST AID SUMMARY:** 03/16/2016; A BNBI subcontractor got a splinter in their finger while uncrating a wooden box in a non-containment work area. The CMA evaluated the wound, applied first aid, and the injury resulted in no work restrictions.

7. **FIRST AID SUMMARY:** 03/30/2016; A BNBI employee cut their finger on the edge of a metal shelf while in BSL-3 containment. The CMA ruled that it was not a potential exposure. The CMA also evaluated the wound, applied first aid, and the injury resulted in no work restrictions.
8. **FIRST AID SUMMARY:** 04/04/2016; A BNBI employee scraped their knuckle on the plastic edge of their chair. The CMA evaluated the wound, applied first aid, and the injury resulted in no work restrictions.
9. **FIRST AID SUMMARY:** 04/06/2016; A BNBI employee tripped on the small curb of the road in front of the NBACC and fell while walking to the ECP. The CMA evaluated the wound, applied first aid, and the injury resulted in no work restrictions.
10. **FIRST AID SUMMARY:** 04/06/2016; A BNBI employee tripped and fell onto the carpet of an office area. The employee declined to see the CMA. No injuries were reported.

**NEAR MISS SUMMARIES:**

1. **FACILITY FAILURE SUMMARY:** 02/11/2016; A BNBI employee found a pink residue/stain around the floor drain in a BSL-4 animal room. It appeared that the drain experienced a backflow of pressure. This incident is under investigation by FMO.
2. **PPE FAILURE SUMMARY:** 02/18/2016; A BNBI employee noticed that the yellow plastic covering on another employee's BSL-4 suit air hose was becoming detached from the base of the HEPA filter. The air hose was replaced and the suit was placed back into service.
3. **SECURITY PROCESS FAILURE:** 02/18/2016; A BNBI employee reported that they brought their badge into BSL-3 containment. The badge was surface decontaminated and removed from the suite.
4. **LAB PROCESS FAILURE:** 02/26/2016; A BNBI employee reported that a glass IFA staining dish broke in the BSL-4. The dish was placed on a hot plate stirrer which the employee did not notice was turned on. Although no infectious work was involved, the broken glass was cleaned up using tongs.
5. **LAB PROCESS FAILURE SUMMARY:** 03/7/2016; A BNBI employee received bacteriophage samples from an outside vendor. The vendor had included a sterility certificate with the samples that was incomplete and unclear. In the future, PIs should work with vendors and collaborators to ensure that all sterility certificates are clearly written and reviewed for accuracy prior to sample receipt.
6. **LAB PROCESS FAILURE SUMMARY:** 03/08/2016; A BNBI employee dropped a glass perfume bottle on the floor of a non-containment side change room. Although no one was injured, the glass bottle shattered and had to be cleaned up.
7. **EQUIPMENT FAILURE SUMMARY:** 03/10/2016; A BNBI employee noticed that several vials of repository stocks had an excess of frozen material on their sides. Based on the results of an internal investigation, the NBACC Responsible Official (RO) filed a CDC Form 3 including a plan of action for cleanup.
8. **SECURITY PROCESS FAILURE:** 03/14/2016; A BNBI employee reported that they mistakenly brought two employees into a BSL-2 lab prior to receiving authorization. The escort secured access approval immediately after the incident.
9. **LAB PROCESS FAILURE SUMMARY:** 03/21/2016; A BNBI employee found a sample tube under a biological safety cabinet in ABSL-3. Although it had been processed the day before, the tube was still sealed and undamaged. The CMA ruled that there was no potential exposure.
10. **SECURITY PROCESS FAILURE:** 03/23/2016; A BNBI employee informed the RO that two BSAT tubes were mislabeled in the physical inventory (they were correctly labeled in the LIMS inventory).

11. **LAB PROCESS FAILURE SUMMARY:** 03/24/2016; A BNBI employee reported that an unused zip-top bag that was leaning against the inside wall of the BSC fell into the gap between the side wall and the work surface of the BSC. Airflow inside the unit then pulled the bag completely underneath the work surface. The bag was safely retrieved by following the SOP for BSC floor maintenance.
12. **LAB PROCESS FAILURE SUMMARY:** 03/24/2016; A different BNBI employee reported that two plastic bags were pulled below the floor of a BSC in BSL-3 in the same manner as the previous incident. The bags were safely retrieved later, following the SOP for BSC floor maintenance.
13. **LAB PROCESS FAILURE SUMMARY:** 03/28/2016; A BNBI employee reported that they mistakenly wore their earrings into BSL-3 containment. The earrings were surface decontaminated and removed from containment.
14. **LAB PROCESS FAILURE SUMMARY:** 03/30/2016; A BNBI employee reported that they did not don RPE prior to viewing unsealed slides containing a Risk Group 3 organism on a fluorescent microscope outside of primary containment. The CMA ruled that this was not a potential exposure.
15. **PPE FAILURE SUMMARY:** 04/05/2016; A BNBI employee reported an outer glove tear (MAPA) while moving vials in the BSL-4. The inner glove was intact, and the employee followed glove replacement procedures. The CMA ruled that this was not a potential exposure.
16. **PPE FAILURE SUMMARY:** 04/11/2016; A BNBI employee reported an outer glove tear (latex) while working with a conical tube in the BSL-3. The inner glove was intact, and the employee followed glove replacement procedures. The CMA ruled that this was not a potential exposure.
17. **PPE FAILURE SUMMARY:** 04/12/2016; During a pre-use inspection, a BNBI employee noticed that their PAPR hose had a split in the material. The RPA was notified and the hose was replaced.
18. **LAB PROCESS FAILURE SUMMARY:** 04/12/2016; A BNBI subcontractor reported that three HEPA filters in caissons that serve as exhaust to CFHs were twelve days past their annual certificate dates. The HEPA filters were immediately re-certified and placed back into service.
19. **PPE FAILURE SUMMARY:** 04/13/2016; A BNBI employee reported a glove tear (latex) while unhooking wires in the BSL-3. The employee was only wearing one pair of gloves because the BSC had been disinfected prior to the days use. The CMA ruled that this was not a potential exposure.
20. **LAB PROCESS FAILURE SUMMARY:** 04/13/2016; A BNBI employee reported that they had twice nearly been hit in the head while leaning in to scan their badge in front of a door.
21. **LAB PROCESS FAILURE SUMMARY:** 04/20/2016; A BNBI employee reported that the exit door badge reader would not function for several minutes while they were in a BSL-3 airlock. The recently reprogrammed badge reader had not been programmed correctly. Another employee entered the containment suite in order to open the door for the individual.
22. **EQUIPMENT FAILURE SUMMARY:** 04/20/2016; A BNBI subcontractor reported that an exhaust HEPA filter on a BSC failed its annual certification. The BSC had not been used for infectious material for 8 months. The CMA ruled that this was not a potential exposure for staff that had used the room in the past.
23. **LAB PROCESS FAILURE SUMMARY:** 04/21/2016; A BNBI employee noticed that an instrument service technician was using gloves and a biohazard bag in a BSL-3 buffer corridor (i.e. clean side hallway). The vendor's SOP requiring the use of these items (even though the instrument had been fully decontaminated) was inconsistent with NBACC practices opening the possibility of confusion for staff.

24. **PPE FAILURE SUMMARY:** 04/25/2016; A BNBI employee reported an outer glove tear (latex) while taping gas permeable bags in the BSL-3. The inner glove was intact, and the employee followed glove replacement procedures. The CMA ruled that this was not a potential exposure.
25. **PPE FAILURE SUMMARY:** 04/27/2016; A BNBI employee reported an outer glove tear (nitrile) in the BSL-3. The inner glove was intact, and the employee followed glove replacement procedures. The CMA ruled that this was not a potential exposure.
26. **LAB PROCESS FAILURE SUMMARY:** 04/27/2016; A BNBI employee reported a spill in a BSL-3 lab BSC of a 1:10 solution of bleach and the byproducts from a RG2 agent extraction procedure (contact time of 25 – 30 minutes). Some of the material splashed out of the BSC onto the employee's leg and the floor. All spill procedures were followed. The CMA ruled that this was not a potential exposure.
27. **LAB PROCESS FAILURE SUMMARY:** 04/28/2016; A BNBI employee reported a spill of cell culture media (1 mL) in an incubator in the BSL-3. The CMA ruled that this was not a potential exposure.