



Lessons Learned & Success Stories – March to May 2017 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. A staff member recognized that a subcontractor was not fit for duty and referred their concern to the on-site supervisor for disposition. After evaluation, the subcontractor was subsequently removed from the job site. The staff member noticed an unsafe situation and took action.
2. A staff member noticed that subcontractors conducting work on the roof were not tied to building fall protection anchors when they were less than 6 feet from the edge of the roof, which is required per OSHA law. The staff member reminded the subcontractors that they needed to be tied off with a personal fall arrest system (PFA) when they were that close to the edge. The staff member received some objections from the subcontractors after this reminder was given, so they informed the subcontractors they would need to call a stop work if they did not agree to follow OSHA law. They agreed to use a PFA system and continued their work.
3. During daily facility rounds a staff member discovered a leak coming from the effluent decontamination system (EDS). The staff member realized that the leak could potentially be contaminated and left the area and called the Safety Department. The staff member donned personal protective equipment (PPE) as a precaution to examine the leak, and it was determined that the leak was coming from a section of the EDS that is uncontaminated. The staff member recognized a leak in this area is a potentially serious issue and took appropriate action. This also displays the effectiveness of daily facility rounds performed by the mechanics on duty in preventing accidents.
4. While performing routine work in a decontaminated section of the BSL3 quadrant, a staff member noticed another staff member moving containment racks into the suite for upcoming project work. The containment racks are stainless steel, extremely heavy and only leave about an inch of clearance through the door jams. In addition, due to their design, there is little to no area to grip and maneuver the racks unless holding the outside edges. This could present a pinch or pinned finger hazard when moving through door jams and airlocks. Upon noticing this, the staff member suggested and offered the use of the stainless steel removable handles that they use for the stairwell doors. After affixing the handles to the racks, the user was able to effectively and safely maneuver racks with less effort into and out of the door jams and airlocks.
5. While preparing new caging for use on a study, it was noticed that the feed cup cover added a risk of potentially tearing gloves. The feed cup cover is necessary when housing certain animals so they don't escape through the feed cup. Staff agreed to have these removed since the caging would be used with animals that did not have an escape risk. This represents a safety improvement preventing glove tears.

6. While preparing an animal for surgery, a technician performed the pre-use leak test on the anesthesia machine. Upon testing, a hole was found in the reservoir bag that holds anesthetic gas. The bag was replaced and the machine retested prior to use. By following procedure and performing the proper pre-use testing, a faulty piece of equipment was discovered and replaced prior to use. This ensures the animal's well-being by using a properly functioning machine for sedation of the animal. In addition, staff safety was ensured by preventing a leak of anesthetic gas into the room.
7. A staff member recently hosted a "Nerf Wars" birthday party for their 6 year old son. They provided safety glasses for all the kids to use when playing with the Nerf guns. One little boy in particular had been concerned about getting his eyes hurt, and he was very relieved to see the safety glasses for everyone.

LESSONS LEARNED:

1. As an employee of BNBI, you may be tasked with escorting and/or shadowing a subcontractor/vendor. In doing so, we recognize that you may be placed in a difficult situation, where health and safety or security may be at risk due to a contractor's actions or behaviors. In the event that you find yourself in this situation, you are requested to advise the subcontractor/vendor of their deficiency and/or call a stop work (should you encounter non-compliance or disregard to your instruction). Upon completion of the work and on that same date, we request that you immediately notify, via email, Safety, Security and Legal, describing the events. It is BNBI's policy to record a subcontractor's deficiencies internally, and notify the subcontractor of poor performance and/or safety non-compliance, which may result in termination of our Agreement.
2. Always be aware of your surroundings, even when not working in the laboratory. Places like the parking lot and break room areas contain potential hazards that you can avoid by increasing awareness of your surroundings, and taking proactive steps to keep yourself safe.
3. Ask for assistance if you are unsure how to operate the autoclave, as selection of the right cycle and other parameters are key factors in ensuring a successful autoclave run.
4. After using shared equipment such as centrifuges, incubators, etc. visually check to ensure that the equipment is left clean and there have been no spills of material.
5. This month there was an increase in the number of near misses involving respiratory protection. The MFR dated November, 2016 entitled "*Respiratory Protection Requirements for Work with Low Infectious Dose Agents*" applies to "all work with low dose infectious agents". It was unclear to many staff members that conducting inventory with low dose infectious agents represented "working" with the agent. On February 28th there was a safety flash emailed to all staff which clarified respiratory protection requirements while conducting inventory of low dose infectious agents. The same day, a FAQ was also posted on the SharePoint site that referenced the question of inventory of low dose infectious agents. When new policies are rolled out, consider how it will affect your work and, as always, if there are any questions, please see a member of the Safety Department for clarification prior to the start of work.

EVENT SUMMARIES:

1. **FIRST AID SUMMARY:** 02/02/2017; A staff member scraped their finger on the metal edge of a freezer storage rack while in a BSL-3 laboratory. The Competent Medical Authority (CMA) applied first aid and the staff member returned to work without restriction.
2. **FIRST AID SUMMARY:** 02/07/2017; A staff member got a wooden splinter in their hand while they held a door open for someone else. The CMA removed the splinter and applied first aid.

3. **OSHA RECORDABLE SUMMARY:** 02/22/2017; A staff member was disassembling a micropipette device on the benchtop when a small amount of an unknown liquid leaked out of the internal components of the micropipette device. The CMA ruled that there was a minimal risk of exposure and a minimal risk of disease, and prescribed post exposure prophylaxis. As a precaution, any pipetting devices that need to be disassembled for a VHP decontamination for servicing must be disassembled within a Class II Biosafety Cabinet going forward. A Safety Flash was communicated to all staff regarding this new procedure and this will be updated in the corresponding SOP.
4. **FIRST AID SUMMARY:** 03/03/2017; A staff member cut the skin of their knuckle on a cart in an office area. The CMA applied first aid and the staff member returned to work without restriction.
5. **FIRST AID SUMMARY:** 03/07/2017; A forensic examiner cut their hand on the edge of a black plastic case while working in a BSL-2 lab. The individual was advised to use a waterproof bandage to re-enter BSL-2, but they were restricted from entering BSL-3.
6. **FIRST AID SUMMARY:** 03/28/2017; A staff member scraped the skin of the knuckle of their hand while pushing tubing onto a stainless steel nozzle in the BSL-3. The CMA applied first aid and ruled no potential exposure. No restrictions resulted from the injury.
7. **FIRST AID SUMMARY:** 04/03/2017; A staff member got a splinter from a metal shelf in their finger while moving materials in the BSL-3. The CMA applied first aid and ruled no potential exposure. No restrictions resulted from the injury.
8. **FIRST AID SUMMARY:** 04/21/2017; A staff member cut their thumb on a sharp metal burr located on a piece of piping in an autoclave support area (non-containment). The CMA applied first aid, and no restrictions resulted from the injury.

NEAR MISS SUMMARIES:

1. **LAB PROCESS FAILURE SUMMARY:** 02/02/2017; A staff member mistakenly entered a BSL-3 airlock from the containment side while the airlock was in a VHP decontamination status (waiting for the BIs to pass a 7 day incubation). No sign had been posted on the bladder door of the airlock. Additionally, the staff member also became locked in the airlock and had to have FMO release the maglock to allow them to leave back into the containment suite. The VHP decontamination of the airlock had to be repeated.
2. **FACILITY PROCESS FAILURE SUMMARY:** 02/03/2017; A staff member reported that the shower drain in a BSL-3 change room became clogged and allowed water to overflow into the non-containment side change room. The water was cleaned up, the floor was surface decontaminated with a bleach solution and the clogged drain was repaired.
3. **LAB PROCESS FAILURE SUMMARY:** 02/03/2017; A staff member reported that the cap of a 2mL cryovial fell out of a BSC and onto their lap while working in the BSL-4. The staff member immediately stopped work and surface decontaminated the leg of their BSL-4 suit with Microchem Plus®.
4. **SECURITY FAILURE SUMMARY:** 02/07/2017; During a review of past entry logs, a staff member reported that two other staff members entered a BSL-2 lab without proper access. The two staff members immediately received appropriate approvals for access to the space.
5. **PPE FAILURE SUMMARY:** 02/08/2017; A staff member noticed that an inner nitrile glove tore during Class III BSC operations. The outer gloves remained intact and the CMA ruled no potential exposure.
6. **SECURITY FAILURE SUMMARY:** 02/09/2017; A staff member was escorted into a lab without authorization. The staff member immediately received appropriate approvals for access to the

space, and both staff members were retrained on how to properly check the escorted badge to ensure appropriate access.

7. **FACILITY PROCESS FAILURE SUMMARY:** 02/15/2017; A staff member reported that they were nearly hit with a large piece of roofing insulation that had been blown off the roof in the wind. BNBI sent a letter to the roofing contractor requesting further work controls on windy days. The new guidance was immediately communicated to the workers on the roof.
8. **PPE FAILURE SUMMARY:** 02/17/2017; A staff member noticed that an outer nitrile glove tore during BSC operations in a BSL-3 laboratory. The inner glove remained intact, and the CMA ruled no potential exposure.
9. **LAB PROCESS FAILURE SUMMARY:** 02/18/2017; A staff member reported that a small quantity of a bleach solution splashed on their lips while working at BSL-3. The splash occurred when the staff member unsnapped the snap-latches on a hard sided container that had been sprayed down with the bleach solution. The staff member wiped the bleach off their lips; since the container had previously been in ABSL-3, the CMA ruled no potential exposure.
10. **LAB PROCESS FAILURE SUMMARY:** 02/23/2017; A staff member found several conical tubes of unlabeled liquids in an interstitial space. The Chemical Hygiene Officer identified the liquids based on their physical properties and proximity to similar chemicals and disposed of the liquids.
11. **LAB PROCESS FAILURE SUMMARY:** 02/23/2017; A staff member reported that an autoclave (which only served to sterilize media) was not validated after its preventative maintenance. The mistake was noticed within a week, whereupon the autoclave was validated properly and found to be functioning normally.
12. **LAB PROCESS FAILURE SUMMARY:** 02/24/2017; A staff member entered a BSL-3 airlock prior to 15 minutes elapsing. The new timers will be moved to the containment side wall of the airlock so that the dial is more clearly visible.
13. **FACILITY PROCESS FAILURE SUMMARY:** 02/24/2017; Two staff members noticed a leak from a glass effluent pipe in an interstitial area. The leak was caused by a back-up of water from hay clogs in the system. The clogs were caused by material being rinsed down the drains from an ABSL-3 room that had their drain screen removed. The Comparative Medical staff were retrained on how to clean ABSL-3 rooms.
14. **LAB PROCESS FAILURE SUMMARY:** 03/03/2017; A staff member found pink liquid in the bottom of two centrifuge swing arm buckets while working in the BSL-4. Although the buckets were opened in a BSC, the worker called the Safety Department to report the incident. The liquid was decontaminated with Microchem Plus®, and the CMA ruled no potential exposure.
15. **PPE FAILURE SUMMARY:** 03/08/2017; A staff member reported that their BSL-4 suit (Dover) leaked at the shoulder in the BSL-4 chemical shower. The suit was found to have tear in the back right seam, and the suit was retired. The CMA ruled no potential exposure.
16. **LAB PROCESS FAILURE SUMMARY:** 03/10/2017; A staff member reported a spill of bleach solution (~20 mL) inside a BSC while working in BSL-3. The spill was cleaned up and a process improvement was made to the process of decontaminating micropipette tips.
17. **LAB PROCESS FAILURE SUMMARY:** 03/10/2017; An autoclave timed out its sterilization cycle early due to a temperature interlock. A staff member had mistakenly chosen the wrong cycle. The autoclave printout recorded that the cycle met temperature and time requirements for sterilization and the Safety Department approved the unloading of the autoclave. Staff were retrained on

autoclave cycle selection, and the SOP will be revised to provide more clarity and guidance to autoclave operations.

18. **LAB PROCESS FAILURE SUMMARY:** 03/16/2017; Two staff members cracked two glass microscope slides while working in a BSL-3 laboratory. The slides contained fixed risk group 1 agents. The CMA ruled no potential exposure.
19. **PPE FAILURE SUMMARY:** 03/23/2017; A staff member reported an outer glove tear (latex) while doing chores in the BSL-4. Their inner glove was intact and the CMA ruled no potential exposure.
20. **MISCELLANEOUS EVENT SUMMARY:** 03/28/2017; A staff member was walking across the BNBI parking lot when they were nearly struck by a car that was exceeding the speed limit. The incident was reported to the Fort Detrick Provost Marshall's Office who took down the make and model of the car, and stated that more patrols would take place in the 8300 Research Plaza parking lot.
21. **PPE FAILURE SUMMARY:** 03/29/2017; Two staff members were working in a Class III BSC (glovebox) when one of the integrated gloves tore. Negative pressure and air flow was maintained to the Class III BSC, maintaining primary containment. The staff member's glove remained intact during the integrated glove tear. They exited the room, called the Safety Department, donned respiratory protective equipment (RPE) as a precaution and replaced the torn glove. The CMA ruled no potential exposure.
22. **LAB PROCESS FAILURE SUMMARY:** 03/31/2017; A staff member entered a BSL-3 airlock prior to the 15 minutes elapsed time. The CMA ruled no potential exposure.
23. **EQUIPMENT FAILURE SUMMARY:** 03/31/2017; A staff member nearly burned their hand on the hot plate of a coffee maker in an office area. The hot plate "on" light was found to be malfunctioning. The subcontractor that provides and services these coffee makers was called and the coffee maker was replaced.
24. **LAB PROCESS FAILURE SUMMARY:** 04/06/2017; Several Gram stained slides containing fixed bacterial select agents were found on a shelf in the BSL-3 in conical tubes and then in Ziploc bags (double containment) and were not being tracked on working stock forms. Due to new federal regulations (March 2017), all BSAT that is to be treated as inactivated must now undergo a validation of the procedure with sterility testing to confirm that the inactivation was successful. The slides were disposed of in the laboratory and staff were made aware of the new requirement for inactivation validation.
25. **LAB PROCESS FAILURE SUMMARY:** 04/07/2017; Several staff members did not don Respiratory Protection Equipment (RPE) in order to inventory low infectious dose agents inside a BSC. The CMA ruled no potential exposure.
26. **SECURITY FAILURE SUMMARY:** 04/12/2017; A staff member with universal access entered a locked room without authorization from the LSM. The staff member was retrained on access procedures.
27. **LAB PROCESS FAILURE SUMMARY:** 04/12/2017; A staff member reported a spill of bleach solution inside a BSC in BSL-3. Although no material came out of the BSC, the solution contained discarded samples of a risk group 3 organism. The CMA ruled no potential exposure.

28. **SECURITY FAILURE SUMMARY:** 04/12/2017; A staff member reported that the lid to a key safe was slightly ajar (and not locked) in BSL-3. The issue was reported to the RO who retrained the group on key and code discipline.
29. **LAB PROCESS FAILURE SUMMARY:** 04/14/2017; A staff member reported that reagents were brought from the BSL-3 into the BSL-4 without a sterility test for *Bacillus anthracis* (BA) or proper inactivation. The procedure was immediately stopped and a risk assessment conducted on the potential for BA contamination in the BSL-4. The results of the risk assessment was that no further actions needed to be taken to mitigate BA contamination in the BSL-4. The BSL-4 Manual will be updated to include a written prohibition against bringing materials from the BSL-3 into the BSL-4 without approval from Health and Safety.
30. **LAB PROCESS FAILURE SUMMARY:** 04/17/2017; Two staff members did not don RPE in order to inventory low infectious dose agents inside a BSC. The CMA ruled no potential exposure.
31. **LAB PROCESS FAILURE SUMMARY:** 04/21/2017; An autoclave timed out during the last phase of its cycle. The autoclave reached temperature and time requirements for sterilization and the load was removed. The root cause of the malfunction was a load of paraffin cubes that melted in their container, overturned, and spilled into the main drain and heat exchanger. The paraffin then solidified. Several corrective actions including retraining of lab staff and new restrictions on the use of BSL-3 autoclaves are on-going.
32. **LAB PROCESS FAILURE SUMMARY:** 04/24/2017; A staff member did not don RPE in order to label slides of low infectious dose agents inside a BSC. The CMA ruled no potential exposure.
33. **PPE FAILURE SUMMARY:** 04/27/2017; A staff member tore their inner glove while working in a BSC in a BSL-3 laboratory. The outer glove was intact, and the CMA ruled no potential exposure.
34. **LAB PROCESS FAILURE SUMMARY:** 04/28/2017; A staff member did not don RPE prior to entering an ABSL-3 room that had a "RPE required to enter" sign posted. Although the room had been recently VHP decontaminated, the decon had failed and the "RPE required to enter" sign was still posted. The CMA ruled no potential exposure.
35. **EQUIPMENT FAILURE SUMMARY:** 04/28/2017; A staff member reported that a small amount of liquid (5 mL) leaked out of a waste bag onto the floor in the BSL-4. The spill was cleaned up and the CMA ruled no potential exposure.