

Lessons Learned & Success Stories – July to September 2021



The NBACC Mishaps, 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 STORY

1. A staff member entered the third-floor atrium and noticed an unattended backpack near the elevators. They checked the restroom to see if anyone had left it there, but there was no one else in the vicinity. At the far end of the atrium, they noticed a member of DHS Security and reported the unattended backpack. This is a great example of following our training on recognition and reporting of suspicious packages.

LESSONS LEARNED

1. When staff notice a problem in a lab space and report their findings, it could lead to process changes which might benefit NBACC as a whole. What may be happening in one area, could possibly be happening in other labs, and by bringing the problem to the attention of Health and Safety, it can lead to an overall process improvement that can advance the safety of everyone in the building. If you see something, say something.
2. Things can often move at a fast pace, particularly while performing a routine task. Even if you perform the same task on a daily basis, it is important to take time to evaluate the task at hand each and every time, as there are often confounding variables that may impact your work. Take the time to step back and evaluate what is different, review applicable risk assessments and work instructions and ensure that you have all of the required materials prior to starting your work.
3. As we are quickly learning, there can be real consequences when staff members inadvertently leave coffee pots on burners for extended periods of time. Although we've been lucky thus far, hazardous materials in kitchenettes or unattended coffee pots can quickly catch fire if left on for too long. Please help us to reduce the possibility of an office fire by monitoring the coffee pots, confirming that coffee levels are not too low, and/or shutting the coffee makers off after ~30 minutes.

EVENT SUMMARIES:

FIRST AID SUMMARIES: In all the following incidents, personnel reported to the Competent Medical Authority (CMA), first aid was applied as necessary, and laboratory restrictions were placed, if needed:

- 06/17/2021 – A staff member cut their head on the sharp edge of the door mechanism of an

autoclave cabinet. The sharp edge is unique to a specific model of autoclaves, and the edge will be filed down on those models to prevent reoccurrence.

- 06/23/2021 – A staff member was suturing during a surgery when, upon repositioning the needle, they poked their left fingertip.
- 07/09/2021 – A staff member received a paper cut on their right pinky finger while returning a document to its protective sleeve.
- 07/13/2021 – A staff member was showering out of containment when a bottle of shampoo fell off the shelf, hit the floor, split open and caused shampoo to shoot into their left eye.
- 07/13/2021 – A staff member was completing medical sled training in a BSL-4 practice room when they injured their right thumb attempting to connect to an airline.
- 07/15/2021 – A staff member was welding a pipe when their hand slipped and contacted the hot pipe, leading to a burn on their left arm. The staff member was wearing the appropriate personal protective equipment (PPE) for the work, but the pipe contacted their skin between their welding jacket and gloves. Facilities Maintenance Operations (FMO) and Health and Safety are working together to evaluate the need for longer welding gloves.
- 08/09/2021 – A staff member was moving two microscopes to the atrium for a demonstration when they scraped their left wrist on a table.
- 08/30/2021 – A staff member was taking apart metal fittings when they cut their finger on a hinge.

NEAR MISS SUMMARIES:

1. **PROCEDURAL FAILURE SUMMARY:** 06/08/2021 – A staff member working in a Class III biosafety cabinet (BSC) was completing their third set of testing for the day when they prematurely started a piece of equipment before the other components of the test were set up. After a few seconds, the staff member realized the mistake and turned the equipment off. The cabinet was then set up for the next round of testing, and they proceeded with their project. At the time of the testing, there were two separate projects taking place in the room, as well as, multiple staff members. Staff should try to minimize distractions as much as possible when working in laboratories and be mindful of distracting others.
2. **PROCEDURAL FAILURE SUMMARY:** 06/08/2021 – Two staff members working in a BSL-3 laboratory were asked to destroy a few tubes of forensic samples, a routine process for this group. The staff members had been informed that the samples likely contained TRIzol. Neither staff member had ever worked with TRIzol and were unaware of its hazardous characteristics. The staff members proceeded to destroy the samples in the same manner as they usually destroy them; by adding 10% bleach. Mixing the TRIzol samples with bleach yielded a chemical reaction and an odorous gas, which recirculated into the room, since the staff members were working in a Class II A2 BSC. The staff members immediately held their breath and exited the room to call Health and Safety. A member of Health and Safety donned a chemical scrubbing powered air purifying respirator (PAPR) and entered the room to cap all tubes, pack up waste and place it in the satellite accumulation point. After allowing for a 30-minute air wash, the Safety member cleared the room for re-entry without the need for chemical scrubbing respiratory protection.
3. **PROCEDURAL FAILURE SUMMARY:** 06/10/2021 – Two staff members were finishing up their work in the ABSL-3 and looking for zip lock bags when one staff member noticed an unlabeled, double-bagged biohazard bag on a shelf. As soon as the staff member retrieved the bag, they could tell that it was

not empty. The staff member immediately placed the bagged item inside of the BSC, opened it, and noticed euthanized remains. The staff member then scanned the microchip, confirmed that there was no exposure to agents and contacted Health and Safety. After review, it was confirmed that the contents could be re-bagged and disposed. Further investigation determined that the animal had been euthanized and appropriately stored; however, during transfer between laboratories, a staff member inadvertently placed the euthanized remains on a shelf rather than into the hat box. The CMA ruled no potential exposure.

4. **SPILL SUMMARY:** 06/23/2021 – A staff member working in the BSC of a BSL-4 laboratory was removing a stack of plates containing a Risk Group (RG) 4 agent from the incubator when they tipped slightly, and liquid seeped out from under the lids. The liquid dripped onto the staff member's glove and into the incubator. While connected to air, the staff member closed the incubator, placed their hands in the BSC and sprayed them with Microchem. The staff member then went to the sink, submerged their glove in the Microchem bucket for five minutes, and confirmed that their glove remained intact. While that staff member was decontaminating their glove, the other staff member in the room called the control room operator and requested Health and Safety. The staff member surface decontaminated the plates in the incubator, then moved them to the BSC where they were decontaminated again. The incubator was sprayed with Microchem and allowed to sit while the staff members completed their work. The CMA ruled no potential exposure.
5. **PROCEDURAL FAILURE SUMMARY:** 06/23/2021 – A staff member in a BSL-2 laboratory was working on a project that includes tasks that take place in both BSL-2 and BSL-3 laboratories. The work involved the use of a RG3 agent. The project risk assessment stated that at a certain step, the material must be moved into the BSL-3 containment suite and the work is continued at that biosafety level. The staff member working in the BSL-2 mistakenly initiated an assay that should have taken place in the BSL-3. A second staff member realized that the step was being conducted at the wrong biosafety level, ordered a stop work and exited the laboratory. After speaking with Health and Safety, the staff member returned to the lab, double bagged the tube containing the material and transferred it to the BSL-3. Upon further investigation, it was determined that the original staff member was operating under a protocol published by the external laboratory that developed the system. The detailed protocol was published after the approval of the Risk Assessment and specified that the step could be completed at BSL-2. The Principal Investigator and Biosafety Officer are working together to review the literature and determine if the risk assessment can be updated via Memorandum for Record (MFR) based on the availability of new information. The CMA ruled no potential exposure.
6. **PROCEDURAL FAILURE SUMMARY:** 07/02/2021 – A staff member, in the early stages of their BSL-3 mentorship, was working in the BSC of a BSL-3 laboratory when they removed a sealed tube of a toxin from the BSC without first surface decontaminating the outside of the tube and placing it inside a secondary container. The mentor, upon noticing that the staff member had removed the tube, instructed them to place the tube back inside the BSC. At the time of the incident the staff member was wearing fresh gloves and the tube was only momentarily outside of the BSC. The mentor called the Command Center and reported the incident to Health and Safety.
7. **SPILL SUMMARY:** 07/09/2021 – A staff member working in a BSL-3 laboratory was in the process of moving freezer racks from a -80 freezer into a liquid nitrogen freezer (LN2). Needing to reorganize some contents in a few boxes, the staff member removed the pin of the freezer rack to access a box when another box accidentally fell out of the rack and onto the floor, scattering all of its cryovials in the process. The staff member immediately held their breath and exited the room. After calling the Command Center and speaking to a member of Health and Safety, the staff member was permitted to re-enter the room before the 30-minute air wash concluded after donning an APF 1000 PAPR and

a second pair of shoe covers due to concerns over vials thawing and potentially leaking their contents. Another staff member in the suite looked up the box in an online system and confirmed the number of vials that should have been in the box. The staff member retrieved the exact number of vials from the room, packaged them up, took them to another laboratory and placed them inside a BSC to evaluate them for any cracks or leaks. All of the vials remained intact, so the staff member placed them back in a box and vacuum sealed the box before placing it back into the freezer.

8. **SPILL SUMMARY:** 07/12/2021 – A staff member was working in the pharmacy area of the vivarium when they inadvertently dropped a glass bottle containing a non-controlled sedative. The bottle fell behind a small sharps bin which prevented it from shattering, but still resulted in the contents leaking onto the floor. The two staff members left the room, called the Command Center and requested to speak to Health and Safety. After speaking to a member of Health and Safety and waiting 30 minutes, the staff members were permitted to don chemical-scrubbing PAPRs, re-enter the room, and clean the spill using forceps and absorbent material. All the sharps and paper towels were placed into a sharps bin, which was sealed, labeled, and placed in the satellite accumulation point. The staff members then mopped the room and returned it to service.
9. **PROCEDURAL FAILURE SUMMARY:** 07/16/2021 – Two staff members were working in the BSC of a BSL-3 laboratory with a BSAT toxin when they realized that they needed ice to keep some of their reagents cool during an incubation. One of the staff members called a group member outside of containment and asked them to retrieve ice for them. While waiting for the ice to be placed in the change room they continued their work with the agent. When the staff members received the call that the ice was in the change room, they both left the laboratory to receive it. The staff members recognized that since one of them was being escorted, they needed to stay together but forgot to secure the BSAT before leaving the room. The BSAT was left unattended in the BSC briefly while the staff members retrieved the ice from the change room. Upon returning to the laboratory, they immediately recognized their mistake and called the Responsible Official. As a reminder, staff should take a moment to double check to ensure they have everything they need to conduct their work before accessing BSAT for use in the BSC.

OTHER OCCURENCES:

REPORTED EVENTS: In all the following, personnel reported the events to Health and Safety, and the events were tracked for trending purposes:

- A staff member noticed water puddling in front of a defrosting freezer. The water had oversaturated the absorbent pads that had been placed near the freezer to absorb the water. The staff member added additional absorbent pads to the area.
- A staff member opened an airlock door from the non-containment side before the completion of the 15-minute air wash. The staff member was focused on retrieving items from the airlock and did not look at the timer before opening the door. Once they opened the door they saw the timer, closed the door, and reported the incident to Health and Safety.
- A staff member failed to re-verify and countersign the 'BSL-4 Checklist' when assuming control room coverage after a gap in laboratory usage. The LSM sent a reminder to all Control Room Operators, and the staff member will have refresher training.
- A staff member reported that a ducted BSC in a BSL-3 laboratory went into alarm. Due to fluctuations in air handling, ducted BSCs within the building occasionally go into alarm. After speaking with a member of Health and Safety, the staff member was permitted to enter the lab

and clear the alarm. There was no work taking place in the ducted BSC at the time of the alarm.

- A staff member reported that BSL-4 waste, including a sharps container, had been autoclaved under the 'Utensil' cycle instead of the required 'Liquid' cycle. The error was noticed before any waste was handled or removed from the autoclave. Staff then ran the waste on the appropriate cycle.
- An unvaccinated subcontractor entered a BSL-3 containment suite and continued into a laboratory before their escort realized that they were not wearing gloves, as required by their vaccination waiver. Upon noticing the error, the subcontractor donned gloves and taped them to their scrubs. As a reminder, it is the responsibility of all escorts to ensure that their visitors have donned appropriate PPE prior to escorting them into containment.
- A staff member exiting a BSL-2 laboratory reported that a single glove was lying on the floor of the buffer corridor outside of one of the laboratories. The source of the glove was unknown, but the appearance suggested that the glove had not been used/worn. A Health and Safety member donned PPE, retrieved and discarded the glove, and decontaminated the area of the floor where the glove was sitting.
- An escorted subcontractor was conducting preventative maintenance on a piece of equipment when they tore their glove. The staff member called the Command Center and, after speaking to Health and Safety, checked the individual for any skin breaches, had them wash their hands and then instructed them to don a new pair of gloves.
- A staff member working in a BSL-3 laboratory reported that their PAPR shut off without alarm while they were working in the BSC with a RG3 agent. There were no spills or other malfunctions before or during the incident. The staff member switched out the PAPR battery and continued their work.
- A staff member working in a BSL-3 laboratory, who was on a room-specific vaccination waiver, was typing on a computer when they noticed a tear in one of their gloves. The staff member exited the room, removed their gloves, washed their hands, and donned a new pair of gloves before re-entering the room.
- A staff member working in a BSL-3 laboratory was deconning a plastic tube rack out of the BSC when they noticed a tear in their outer glove. The staff member conducted a leak test of their inner gloves and confirmed that they remained intact.
- A staff member forgot to remove their earrings prior to entering a BSL-3 suite. The jewelry was bleached out of containment.
- A staff member was working in a BSC in a BSL-3 laboratory when they dropped a tube and spilled ~1 ml of a serial dilution of a RG2 agent. The tube and its contents fell directly on the absorbent paper in the BSC. There were no issues with the BSC or the staff member's PAPR at the time of the incident. The staff member soaked the absorbent paper in disinfectant, waited the appropriate contact time, cleaned the surface of the BSC and replaced the absorbent paper.
- A staff member working in an ABSL-3 laboratory reported finding an empty glass bottle in a biohazard waste bag. After speaking to a member of Health and Safety, they were permitted to remove the bottle and place it into a sharps container. Upon further investigation of the incident, it was determined that a member of FMO found the bottle in a space between the sink and cabinetry while repairing the sink earlier in the week. The Facilities member removed the bottle

and placed it in the biohazardous waste container. Given the 2009 expiration date, it is likely that the bottle was in that spot prior to the building being commissioned.

- A sharps container was run on a 'utensil' autoclave cycle instead of the required 'liquid' cycle. Upon seeing the sharps container in the autoclave, Environmental Operations staff contacted the staff member that ran the cycle and had them return to containment and re-run the sharps container on the correct cycle. Neither the autoclave cycle, nor the sharps container involved agent.
- A staff member reported finding a smoking coffee pot. The pot was nearly empty, and the burner was left on, causing the coffee to burn to the bottom of the pot and smoke. The employee turned the burner off. Health and Safety would like to remind staff to turn off the coffee burners two hours after making a pot of coffee or when there is less than one cup remaining in the pot.
- A staff member, who was on a waiver that required them to wear additional PPE while in a laboratory, was working with sterile plates on the benchtop when they noticed a small tear in the thumb of one of their gloves. The employee did not recall tearing their glove during their work. They removed their gloves, washed their hands, and donned new gloves. They confirmed with a member of Health and Safety that there were no skin imperfections to note and that no agent work had taken place.
- A staff member was preparing a benchtop plate washer for VHP decontamination by running bleach through the unit when 10-15 mL of bleach spilled from the washer. All staff members held their breath and left the room. After speaking to a member of Health and Safety, they were permitted to reenter the room and clean up the spill.
- A staff member was taking an inventory of equipment in a BSL-3 laboratory when they reported that their PAPR motor shut off without warning. After speaking to a member of Health and Safety, the staff member marked the battery 'out of service', grabbed a new battery, and continued their work.

Note: It should be assumed that staff are wearing a PAPR (minimum APF 25) in events taking place in the BSL-3 laboratories unless otherwise stated.

Document Definitions:

Event Summaries – Any OSHA recordable mishap, or first aid injury or illness.

Near Miss Summaries – Any mishap that requires a potential exposure ruling from the Competent Medical Authority (CMA) represented a CDC Form 3 submission, or a potentially serious accident or incident that could have resulted in personal injury, illness, death, and damage to property or the environment, but did not occur due to one or more factors.

Other Occurrences – Mishaps that do not fit into the other two categories.

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All research was conducted in compliance with the Animal Welfare Act and other federal statutes and regulations relating to animals and experiments involving animals and adheres to principles stated in the Guide for the Care and Use of Laboratory Animals and is approved by both the NBACC Institutional Animal Care and Use Committee and, when applicable, the DHS Compliance and Assurance Program Office. The facility where this research was conducted is fully accredited by AAALAC International and maintains a Public Health Service (PHS) Humane Care and Use of Laboratory Animals (Policy) assurance.