DEPARTMENT OF ORTHOPAEDIC SURGERY,

NATIONAL UNIVERSITY OF SINGAPORE



DECEMBER 2020: Issue 20

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SAFETY & HEALTIN Newsletter

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Special points of interest:

- DEPARTMENT SAFETY & HEALTH MISSION,
 OBJECTIVES & PROGRAMME
- EDUCATION AND S&H PROGRAMME DURING COVID-19
- EMERGENCY RESPONSE & PREPAREDNESS & INSPECTION PROGRAMME
- SPECIAL WELLNESS FOCUS
- NUS/OSHE SAFETY & HEALTH NEWS

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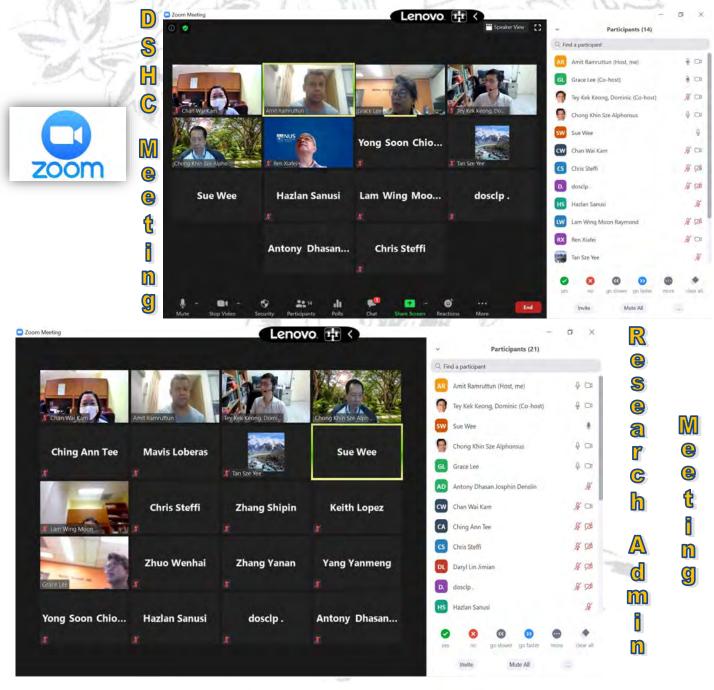
2020 DEPARTMENT SAFETY & HEALTH OBJECTIVES & PROGRAMME

2020 Department Safety & Health Mission						
To achieve zero reportable accident/incident which result in high impact incident such as those: A. Subjected to Committee of Inquiry B. Resulting in punitive measures by regulator C. Resulting in financial loss > \$1 million To achieve zero reportable accident/incident which result in high impact incident such as those: 2 Proactively promote S&H and addressing S&H issues in the department						
2020 Department Safety & Health Objectives						
. Objectives		2nd Quarter	3rd Quarter	4th Quarter	Current Status/ Remarks	
To prioritize, address and close audit findings from the NUSSHA 2020 audit conducted in 2019		✓	✓	✓	Ongoing	
To organize and conduct at least one safety inspection programme to ensure compliance and minimize recurrence of past findings.				✓	Completed	
To streamline and communicate the tracking process of identified DSHMS elements from the audit findings on a quarterly basis		✓	✓	✓	Completed	
To promote safety & health in the department by organizing and participating in at least 1 S&H Completed Completed						
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	2020 Department Safety & Health Programme							
No	Programme	Responsible	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Current Status/ Remarks	
1	Safety Awareness & Participation Programme: Organize at least 1 safety, health & wellness activity to serve as an avenue to raise awareness of safety, training and total health and wellness for staff & students	Department Safety & Health Committee (DSHC)	- DSHC & Research Admin Meeting (12/02) - In-house spill response safety video screening	DSHC & Research Admin Meeting (29/05)	DSHC & Research Admin Meeting (04/09)	DSHC & Research Admin Meeting (23/12)	Completed	
2	Emergency Response & Preparedness Programme: To conduct emergency response exercises to familiarize staff & students with emergency procedures not limited to: a) Internal Fire Evacuation Drill b) Chemical & Biological Spill training	DSHC & Safety Leads	- Spill Response Exercise (13/02) - MD11 Fire Drill (18/02)	-	-	Spill Response Exercise (30/11)	Completed	
3	Safety Inspection Programme: Conduct workplace safety inspections once a year	DSHC	-	-	- Internal safety inspection (14/09-30/10) - NUSMed Safety inspection of NUSTEP labs (28/10)		Completed	
4	Audit Programme: To prioritize, implement the corrective measures and close the NUSSA audit findings DSHC - Audit Findings corrective measures in progres		es in progress	Ongoing				
5	Review workplace safety performance once a year to ensure continual improvement	Head of Department	-	-	-	Mgt review 07/01/2021	Ongoing	
6	Training Programme: Workplace safety lead to conduct safety induction training to new staff and students	Safety lead & Safety Coordinator	Dept Induction & Quiz (16/01 & 03/02)	Dept Induction & Quiz (01/06)		Dept Induction & Quiz (16/11)	Completed	

DEPARTMENT SAFETY MEETINGS DURING THE COVID-19 PANDEMIC

- Zoom is a web conferencing software that facilitates high-performance video and audio conferencing both internally and externally. The safety and privacy can be set by allowing only NUS authenticated users.
- To ensure the continuation of the quarterly Department Safety & Health Committee (DSHC) as well as Research Admin meetings during phase 2, we used the Zoom platform, instead of the traditional physical meeting, to conduct our meetings as well as share and communicate Safety & Health matters,.
- Going forward in Phase 3 (w.e.f. 28 Dec 2020), the future DSHC & Research Admin meetings will follow this "New Normal" online Zoom meeting until it will be safe to resume physical meetings.



TEACHING PROGRAMME DURING THE COVID-19 PANDEMIC

Department Teaching Programme for NUS medical students such as Student Internship Programme (SIP) was a challenge during the COVID-19 period. Our Department's Education Division successfully planned the SIP while ensuring Safe Management Measures were followed in line with NUS guidelines.

Waiting area where the students are segregated and screened according to hospitals prior to entering MD6



A/P Gabriel Liu presenting to the students using Zoom platform **IMPORTANCE** (For students)

- We have limited time for registration for each group of students.

 Please declare temperature and health status via the NUS webpage or the uNivUS mobile app. They can also use the mobile app to register NUSafe. Before arriving on campus, students will need to have completed the first of the two daily declarations.
- Please report to your respective registration area on time
- Temporary holding area will be arrange near MD6 entrance foyer. Temperature measurement will be done
- there. Use the stair to go up to your respective level

- Wear surgical mask all the time
 Please maintain safe social distancing
 Please do not mingle with other group
 Please stay in your designated rooms
 If you would like to go out of your room, please inform our staff
- Please remember the level and room you are assigned Admin staff will be waiting for you at each level.
- If you have fever and respiratory symptoms, please inform us and stay at home

Rules & Regulations & Safe Management Measures communicated to the students in advance



Ensuring that 1.5m safe distancing is maintained



Limiting overcrowding and safe distancing at the plaster station

DEPARTMENT LABORATORY SAFETY INSPECTIONS BY NUSMED (OCT 2020)

On 28th October, NUSMed conducted targeted inspection of our Department laboratories with at least 1 Minor Non-Compliance between 2017 and 2019, with no exemption allowed. Their focus was on regulatory compliance & documentation.

Department	Date & Time*	Building	Laboratory Location	Principal Investigator
Orthopaedic Surgery	28 Oct (Wed), 2pm - 5pm	DSO Kent Ridge	Level 4 NUSTEP Lab 1A	Prof Lee Eng Hin
			Level 4 NUSTEP Lab 1B	Prof James Hui Hoi Po
			Level 4 NUSTEP Lab 2A	Prof Wong Hee Kit
			Level 4 NUSTEP Lab 5	Dept Core Facilities



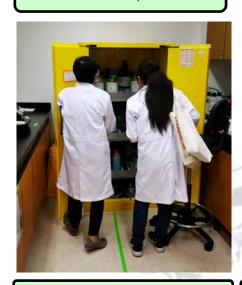




NUSMed Safety Inspectors gearing up to start the inspection

Checking of Biological Spill Kit items

Documentation Review in Progress



Flammable Storage Cabinet Inspection

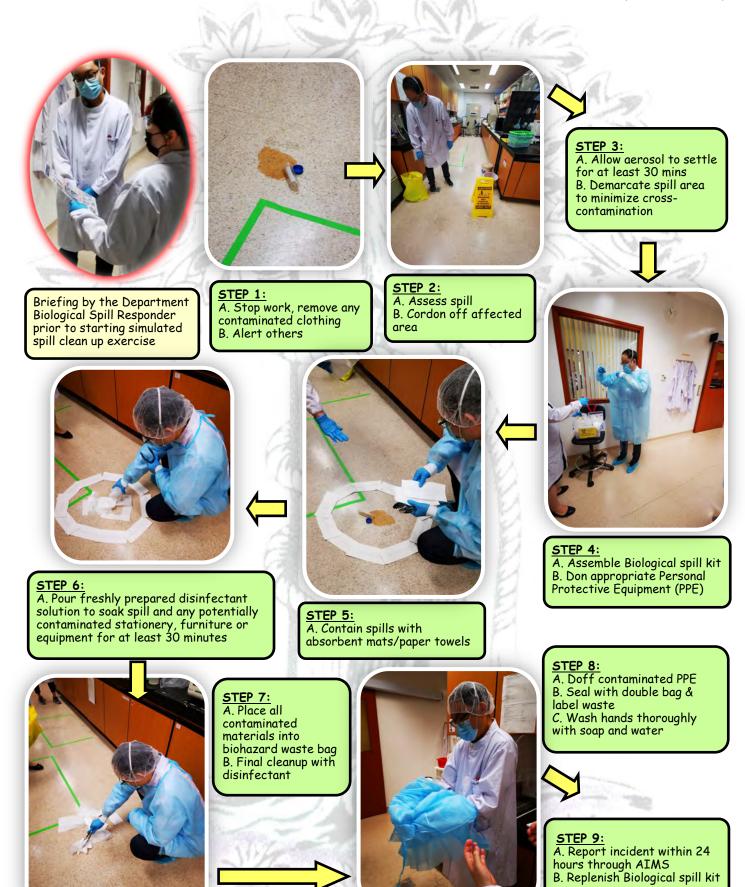


Chemical Waste Disposal Area checking



Cold Room Inspection in Progress

BIOLOGICAL SPILL RESPONSE EXERCISE FOR NEW STAFF (NOV 2020)



CHEMICAL SPILL RESPONSE EXERCISE FOR NEW STAFF (NOV 2020)



Briefing by the Department Chemical Spill Responder prior to starting simulated spill clean up exercise



<u>STEP 1:</u> A. Stop work, remove any contaminated clothing B. Alert others

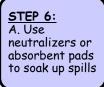


STEP 2:

A. Assess spill B. Cordon off affected area

STEP 3: A. Check Safety Data Sheet (SDS) B. Demarcate spill area

to minimize crosscontamination





A. Contain spills with absorbent mats B. Dispose broken glass into the sharp's bin



STEP 4:

A. Assemble chemical spill kit B. Don appropriate Personal Protective Equipment (PPE)



STEP 7: A. Place all contaminated materials into chemical waste bag



STEP 8: A. Final cleanup with water

B. Doff contaminated PPE

C. Seal with double bag & label waste
D. Wash hands thoroughly with soap and water

A. Report incident within 24 hours through AIMS

B. Replenish chemical spill kit

THE 12 TIPS OF FIRE SAFETY

In view of the long holiday ahead, some basic safety advisories in order to minimize fire hazards in both laboratories and offices.



FIRE SAFETY

SPECIAL WELLNESS FOCUS **WELLBEING During the Season's Celebration**

Twelve TIPS of Holiday Wellness

- **TIP 1:** Accept Imperfection no one is perfect
- TIP 2: Enjoy Quality Time with Loved Ones
- TIP 3: Prioritize "Me Time"
- TIP 4: Re Kind
- TIP 5: Plan Ahead to Avoid Last Minute Stress
- TIP 6: Stay Active and exercise
- TIP 7: Stick to Your Budget
- TIP 8: Resolutions set small achievable goals
- TIP 9: Stay Safe On the Go
- TIP 10: Practice mindful eating

See the Flowers

- TIP 11: Focus on gratitude and Giving
- TIP 12: Connect/Reconnect with People

around you

Update on pre-conditions for moving into Phase 3

As Singapore has made good progress to support a further resumption of activities, the Multi-Ministry Taskforce (MTF) will start Phase 3 of re-opening from 28 Dec 2020.

To move into Phase 3, we needed:

- a) Adherence to safe management measures
- b) Sufficient testing capabilities for early detection and public health action: Singapore ramped up Polymerase Chain Reaction (PCR) test capacity significantly to be able to run over 50,000 tests a day. Antigen rapid tests were also introduced for larger and higher-risk events.
- c) High adoption of TraceTogether (TT) for quick and effective contact tracing: As at 13 Dec 2020, around 65% of Singapore residents are on the TT Programme, and Singapore is on track to reaching the target of around 70% by the end-2020.



Fun Things to Do



Visit the Museums











Reference:

- 1. https://medium.com/thrive-global/twelve-days-ofholiday-wellness-d03c15b4320b
- 2. https://www.traveltowellness.com/holidaywellness-tips-maintain-health-new-year/
- 3. https://www.hopkinsmedicine.org/health/wellness -and-prevention/4-mindful-tips-to-destress-thisholiday-season
- 4. https://www.gov.sg/article/moving-into-phase-3of-re-opening-on-28-dec-2020

Local Attractions References:

- https://www.gardensbythebay.com.sg/
- https://www.wrs.com.sg/en/singapore-zoo.html
- https://www.sentosa.com.sg/
- https://www.nparks.gov.sg/
- https://www.visitsingapore.com/
- https://www.nhb.gov.sg/
- ${\it https://www.rwsentosa.com/en/attractions/universal-studios\text{-}singapore/explore}$
- https://www.orchardroad.org/

SPECIAL WELLNESS FOCUS (CONT) WELLBEING During the Season's Celebration

Holiday Recipes

Mulled Wine

red wine cinnamon cloves nutmeg anise vanilla ginger bay leaves Sugar to taste



- Peel your rinds from your citrus fruits before cutting them and juicing them. Split the Vanilla pod down the cente
- Combine the sugar, citrus juices, citrus peels, the split vanilla pod and spices in a saucepan. Add just enough wine to cover the sugar.
- Heat to just below boiling point and hold this temperature for 10 minutes, stirring occasionally.

MERRY CHRISTMAS

SWEET POTATO POMEGRANATE SALAD

SWEET POTATOES

Preheat oven to 400 degrees. Toss sweet potatoes with olive oil, paprika, salt and pepper. Place on a parchment-lined baking sheet in a single layer, and roast for 45 minutes, stirring after 20 minutes. Allow to cool slightly.

QUINOA

In a large skillet combine quinoa, olive oil, 1/2 cup water, salt and pepper. Cook, stirring occasionally, over medium heat for about 10 to 19 minutes, until crispy. Drain on paper towels and allow to cool.



SALAD

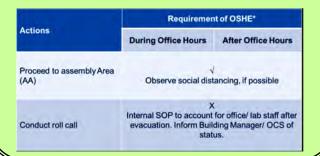
Make the dressing by combining balsamic vinegar, sweetener, Dijon mustard, garlic, sea salt and cayenne pepper in a blender. Add oil in a steady stream and process until emulsified. Toss apple and lemon juice in a small bowl. In a large bowl combine spinach, pomegranate seeds, walnuts and apple. Add roasted sweet potatoes, crispy quinoa and toss with the desired amount of dressing.

for complete recipe, please go to: https://wendypolisi.com/sweet-potato-pomegranate-crispy-quinoa-salad/



HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (JULY - DEC 2020)

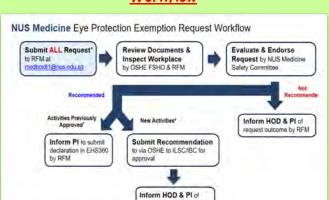
Emergency Evacuation During Phase 2 Post Circuit Breaker



NUS Medicine Laboratory Safety Inspection

- Targeted Inspection of Laboratories with:
 - At least 1 Minor Non-Compliance between 2017 and 2019; or
 - Laboratories conducting COVID-19 research work: or
 - Newly commissioned laboratories (not subjected to inspection in 2019)
- Foci: Regulatory Compliance & Documentation
- No exemption allowed

OSHE Eye Protection Exemption Request Workflow



Update of Regulatory Authority for 7 Substances in Singapore

- SCDF is the only Regulatory Authority for the following 7 substances with effect from 1 July 2020 (Jointly controlled by SCDF and NEA before 1 July 2020)
- 1)2,2 Azobis (2-Methylbutyronitrile
- 2) Azobis (Dimethylvaleronitrile)
- 3)Azobis (Isobutyronitrile)
- 4)Ethyl Isocyanate
- 5)Isopropyl Isocyanate
- 6)Methoxymethyl Isocyanate
- 7)Isobutyl Isocyanate

(Source: https://www.scdf.gov.sg/docs/defaultsource/scdf-library/p-fm/update-on-regulatory-authority-and-control-measures-for-7-substances-insingapore.pdf)

Annual Review of Explosive Precursors in NUS Medicine

- No. of declared EPs* = 58 (24 PIs/ Lab-incharge) with common findings:
 - Biannual inventory check not done or not recorded
 - Usage not updated in LMMS

Improper Disposal of Lab Materials

- Observation:
 - OFM reported a choke due to pipette tips, syringe caps, tubes etc. in sewer connected to NUSMed laboratories
- Reminders:
 - Labs must exercise care on what is disposed through the lab drainage
 - Hazardous chemicals, pipette tips, agarose gels, etc. must be disposed appropriately



OSHE Check on Electrical Plugs in NUS Medicine



HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (CONT) (JULY - DEC 2020)

Update on Control Measures for Chloropicrin by the National Environment Agency (NEA)

- From 1 October 2020, chloropicrin will be included in the Schedule of the Environmental Protection and Management (Hazardous Substances) Regulations:
 - Companies which transport chloropicrin in quantities exceeding 50kg to apply for a HS Transport Approval from NEA;
 - Companies which store, use and/or purchase chloropicrin locally to apply for a HS Permit from NEA.

(Source: https://www-nea-gov-sg-admin.cwp.sg/docs/ default-source/hs/circular-on-chloropicrin.pdf)

Amendments to Fire Safety (Petroleum and Flammable Materials) Regulations

- Amendments to the following:
 - Regulation 2 on insertion of "hazardous material" definition;
 - Regulations 25 & 29E on provision of Company Emergency Response Team;
 - Fourth Schedule on the list of flammable materials.

(Source: https://sso.agc.gov.sg/SL-Supp/S780-2020/ Published/20200911?DocDate=20200911)

Amendment to Workplace Safety and Health (Incident Reporting) Regulations 2020

Source: https://sso.agc.gov.sg/SL/WSHA2006-RG3?DocDate=20140102

dulation 6: Duty to Report Accident Leading to an injury

- Hospitalisation for at least 24 hours
- Certified by registered medical practitioner
- Not later than 10 days after 3rd day of the sick leave / the date of the accident
- MC for more than 3 days (whether Meet with an accident at workplace
 - Require hospitalisation/ certified unfit for work/ placed on light duties
 - Certified by registered medical practitioner or registered dentist
 - Within 10 days after the date the employer first has notice of the accident

 - Employer informed **or** has knowledge by any other means Foreman/ Supervisors or any person designated for the purpose by employer informed

Regulation 7: Duty to Report Occupational Disease (OD)

- Submit a report when received written diagnosis
- Certified by registered medical practitioner
 - diagnosed an OD
- Submit a report after the date the employer first has notice that
- employee is suffering from OD
- Certified by medical practitioner or registered dentist - in his/her opinion contracted an OD

Card Access Data Wipe-Out Exercise

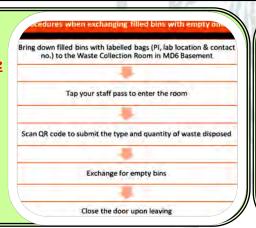
- Purpose: To enhance safety and security in research laboratories
- To be carried out annually
- Only access of authorized users will be reflected in the card access system

NUS Medicine Safety & Health Comic Strip -**Promotional Initiatives**

- Safety-themed comic strips promoting safer practices and conditions
- Enhance awareness on safety and health concerns (e.g. incidents/accidents)
- Shared during NUS Medicine Safety meetings for dissemination
- Feedback & ideas welcomed @ medbox81@nus.edu.sq

Controlled System Self-Service Biohazardous & Cytotoxic Waste Disposal

 Biohazardous & Cytotoxic Waste (Solid and Liquid)



Revised Singapore Biosafety Guidelines for Research on GMOs

- w.e.f. 1 October 2020
- Key highlights: Updated list of GMACapproved model organisms & host/vector system
- Updates & Reminder: New GMAC proposal form & New NUS extension form available and to be submitted for assessments by IBC
- For enquiries, please contact Dr Suzette De Leon at oshdlsn@nus.edu.sg/

HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (CONT) (JULY - DEC 2020)

Mutual Recognition of Biological Safety Training between NUS and SIT

- Harmonised safety training framework under Working Group of Higher Education and Research (WG HER) sector is extended to Singapore Institute of Technology (SIT)
- Persons who have taken biological safety training by approved institutions do not need to take the biological safety training by NUS
- Updated list of approved member organisations for harmonised safety training & more information on the framework are available in OSHE Staff Portal
- For enquiries, please contact Dr Lim Cheh Peng at oshlimcp@nus.edu.sg/ 65167088

List of Approved Member Organisations for Harmonised Biological Safety Training

S/N	Participating Institutions	Institution Logo	Date of Implementation
ľ	Agency of Science, Technology and Research	Aguary for feature in Subscrings and Research	2 Jan 2019
2	National University of Singapore	NUS Selected Unitedly or languages	1 Aug 2018
3	Nanyang Technological University	NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE	1 Jan 2018
4	Nanyang Polytechnic	NANYANG	1 May 2019
5	Singapore Health Services (SingHealth)	SingHealth	1 Sep 2017
6	Singapore Institute of Technology New	SI	11 Sept 2020

(Source: OSHE Circular -OSHE/2020/31 (30 September 2020))

<u>Safety and Health Standard for Collection</u> <u>of Specimen/ Sample from Human Subjects</u>

- w.e.f. 1 October 2020
- Revised to include collection of other types of human samples, e.g. nasal swabs, saliva, etc.
- Updated in NUS Laboratory Biorisk Management Manual, Appendix I.1
- For enquiries, please contact Dr Suzette De Leon at oshdlsn@nus.edu.sg/ 66011703 (Source: OSHE Circular - OSHE/2020/31 (30 September 2020))

<u>Launch of Online Training for Safe</u> <u>Handling of Non-Human Primate Derived</u> <u>Materials</u>

- Online training for Safe Handling of Non-Human Primate (NHP) Derived Materials is available in LumiNUS - course code: OSHBIO09
- Mandatory for all personnel who will be handling NHP-derived materials including those from Macaque origin
- Covers hazards, risk controls, NUS requirements related to working with NHPderived materials & response procedure for exposure to Macaque-derived materials
- For enquiries, please contact Dr Rajkumar Ramamoorthy at oshrr@nus.edu.sg/ 66011169 (Source: OSHE Circular - OSHE/2020/31 (30 September 2020))

Biosafety & Biosecurity Requirements for Handling Clinical Samples from COVID-19 <u>Patients or Environmental Samples</u>

- w.e.f. 19 October 2020
- Inactivation of clinical samples from COVID-19 patients or environmental samples with high potential to contain SAR-CoV-2 shall be done in BSL3 laboratories/ BSL2e research laboratories
- Samples inactivated by a validated virus inactivation protocol for SAR-CoV-2 can be transferred to BSL2 laboratories (subject to risk assessment)
- Recommend to conduct periodic validation of virus inactivation
- For enquiries, please contact Dr Lim Cheh Peng at oshlimcp@nus.edu.sg/ 65167088 (Source: OSHE Circular - OSHE/2020/33 (19 October 2020))

ISO45001:2018 Certification

- Research Facilities Management (RFM) achieved ISO45001 certification
- Valid from 7 September 2020 to 6 September 2023

injury to the right index finger

Student was uncapping a sterile needle that

was already attached to syringe. Student was planning to shear cells using 186 needles for enzyme purification. The needle sheath was

very tight and during uncapping, there was a rebound. This resulted in the needlestick

HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (CONT) (JULY - DEC 2020)

NUS Medicine Accidents/ Incidents Sharing

DESCRIPTION	POSSIBLE CAUSE	LESSONS LEARNT				
Cut by Object - A Research Assistant incurred a cut on his right thumb by the sharp edge of a metal freezer rack when he was shifting it. - He removed the cryo-glove from his right hand prior to the incident as he felt it hinder the movement of his fingers	Violation of safety procedure in SOP and RA - not wearing cryo-gloves (on both hands) when handling racks and boxes inside the ultra-low temperature freezer	- Emphasize in the SOP and inform team members of the importance of cryo-gloves when handling the metal racks in freezers - Include cut/ laceration hazard in the RA of freezer usage - Conduct bi-annual refreshers on all SOPs and RAs as part of the team's safety exercises to see how these can be improved upon				
Animal Bite -A Research Assistant received a mouse bite on her left index finger when she attempted to restrain it for injection with an anaesthetic cocktail -She noticed a drop of blood on the punctured glove -She washed the wound for 5 minutes and sought medical attention at UHC immediately	Mouse was not properly restrained and managed to turn its head back	- Ensure proper restraint to avoid animal bite - Wash the wound for at least 15 minutes and use the scratch bite kit during such incidents				
Chemical Exposure -A Junior Research Assistant had difficulty inserting a comb into the stacking gel between glass plates -She observed it closely and exerted some force to insert the comb, resulting in the splash of some stacking gel solution into her right eye	- A comb of wrong size was used - Researcher's face was too closed to the gel while inserting the comb - No eye protection was worn	-Segregate different sizes of combs -Keep a safe distance between researcher and gel when inserting a comb -Wear appropriate PPE, including safety eyewear in laboratory				
Drop of Rotor -A Research Assistant was hugging a centrifuge rotor with both hands to transfer it into the cold room -While trying to open the door with her right fingers, the rotor fell off her arms -The knob of the rotor hit the ground and chipped off	- Unable to handle the rotor well while trying to open the cold room door	-Open door prior to shifting the rotor -Use a trolley to transport the rotor -Apply buddy system if needed				
Biological Spill -An undergraduate student sprayed a glass bottle of medium with 70% ethanol and wiped with paper towel -When lifting the bottle up, it slipped and dropped onto the floor -The bottle broke and the medium spilled	-The bottle was wet and slippery -Student lost grip of slippery bottle and it dropped onto the floor	-Spray 70% ethanol on paper towel and not directly on glass bottle -Ensure glass surface is completely wiped dry on bench and gloves are not wet before lifting up a bottle -Lift up a bottle by using one hand holding its body and the other hand supporting its base				
Needlestick Incident 1 Student was shearing cancer cell lines using a 21G needle/syringe in a 1.5ml microfuge tube. Student was holding onto the tube while trying to aspirate with needle/syringe when it slipped and the needle pricked the left thumb Needlestick Incident 2	 Consider alternatives when conducting research that involves the use of needles for shearing of nucleic acids/cells activity to prevent potential NSI. Ensure that RAs and SOPs are updated and communicated once an alternative method is selected. If alternative methods are not suitable for your research, please ensure that RAs conducted are robust and safe practices are documented in the SOPs 					

LumiNUS.

documented in the SOPs.

- For uncapping needles, use the twist and turn method instead of pull

method to prevent rebound and recoil of the sheath that may lead to · Researchers are also reminded to complete the Safe Needle Usage in

Research Laboratories (OSHBIO06) online training available in



