

**DEPARTMENT OF ORTHOPAEDIC SURGERY,
NATIONAL UNIVERSITY OF SINGAPORE**



AUGUST 2021 : Issue 21

TREE OF ANDRY



**SAFETY & HEALTH
NEWSLETTER**

Special points of interest:

- DEPARTMENT SAFETY & HEALTH MISSION, OBJECTIVES & PROGRAMME
- UPDATED DEPT. S&H ORGANISATION CHART
- NUSMED LAB SAFETY INSPECTION
- NUS SAFETY & HEALTH AWARD (NUSSHA)
- EMERGENCY RESPONSE & PREPAREDNESS PROGRAMME
- SPECIAL WELLNESS FOCUS
- NUS/OSHE SAFETY & HEALTH NEWS

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The Tree of Andry

2020 DEPARTMENT SAFETY & HEALTH OBJECTIVES & PROGRAMME

2021 Department Safety & Health Mission							
1	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	2	Proactively promote S&H and addressing S&H issues in the department				
2021 Department Safety & Health Objectives							
No.	Objectives	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Current Status/Remarks	
1	Close all the pending AFI findings from the last NUSSHA audit	✓	✓	-	-	Ongoing	
2	Identify the main causes of the recurring minor non-compliances during the dept. internal safety inspections and implement a reasonable practicable action plan to minimize reoccurrence during this year inspection programme			✓		Ongoing	
3	Organize, conduct and improve the efficiency of at least one safety inspection / audit programme to ensure compliance, minimize recurrence of past findings and verify effectiveness			✓		Ongoing	
4	Promote safety, health (wellness) and team bonding in the department by organizing at least 2 S&H activities in 2021 by adhering to NUS guidelines on safe management measures		✓	✓		Ongoing	
2021 Department Safety & Health Programme							
No	Programme	Responsible	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Current Status/Remarks
1	Safety Awareness & TWSH Programme : Organize at least 2 safety, health & wellness activities 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 (09/02)	- DSHC & Research Admin Meeting (02/06) - Workplace Safety course sharing (02/06)	DSHC & Research Admin Meeting (24/08)		Ongoing
2	Emergency Response & Preparedness Programme: Conduct emergency response exercises to familiarize staff & students with emergency procedures not limited to: a) Internal Fire Evacuation Drill b) Chemical & Biological Spill training c) Table top ERP exercise	DSHC & Safety Leads	MD11 Fire Drill (17/02)	Chemical Spill Response Exercise (07/04)	Emergency Table Top Exercise (MD11 & NUSTEP) (24/08)		Ongoing
3	Safety Inspection Programme: a) Conduct workplace safety inspections once a year b) Minimise the recurring findings through root cause analysis & action plan	DSHC	-	-	-		Ongoing
4	Safety Audit Programme: a) To prioritize, implement the corrective measures and close the NUSSA audit findings b) To conduct internal SMS Audit for PI Labs scheduled for surveillance audit by OSHE	DSHC	-	Internal Audit of 3 PIs (June 2021)	OSHE Surveillance Audit of 3 PIs (July 2021)		Completed
5	Review workplace safety performance once a year to ensure continual improvement	Head of Department	-	-	-		Ongoing
6	Training Programme: Workplace safety lead to conduct safety induction training to new staff and students	Safety lead & Safety Coordinator	-	-	-		Ongoing

LABORATORY SAFETY INSPECTIONS FOLLOW-UP BY NUSMED (JAN 2021)

On 28th October 2020, NUSMed conducted targeted inspection of our Department laboratories with at least 1 Minor Non-Compliance between 2017 and 2019, with no exemption allowed.

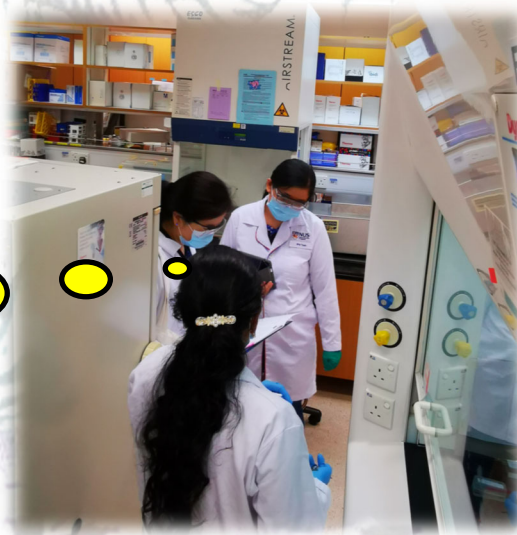
On 22nd January 2021, NUSMed conducted a follow-up of Prof EH Lee NUSTEP laboratory to verify and close the outstanding corrective actions identified during the last laboratory safety inspection in 2020.

I better get ready in case they come to check my lab bench!!



Documentation rectification verification in Progress

I hope all my corrective actions have been successfully closed !!!

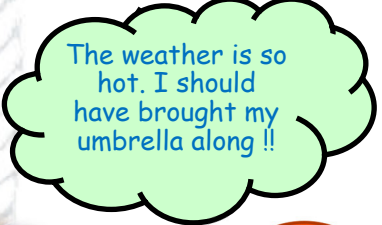


MD11 INTERNAL FIRE EVACUATION DRILL EXERCISE (FEB 2021)



MD11 Fire Emergency procedures briefing at B1 loading bay by Department Fire Warden with safe distancing

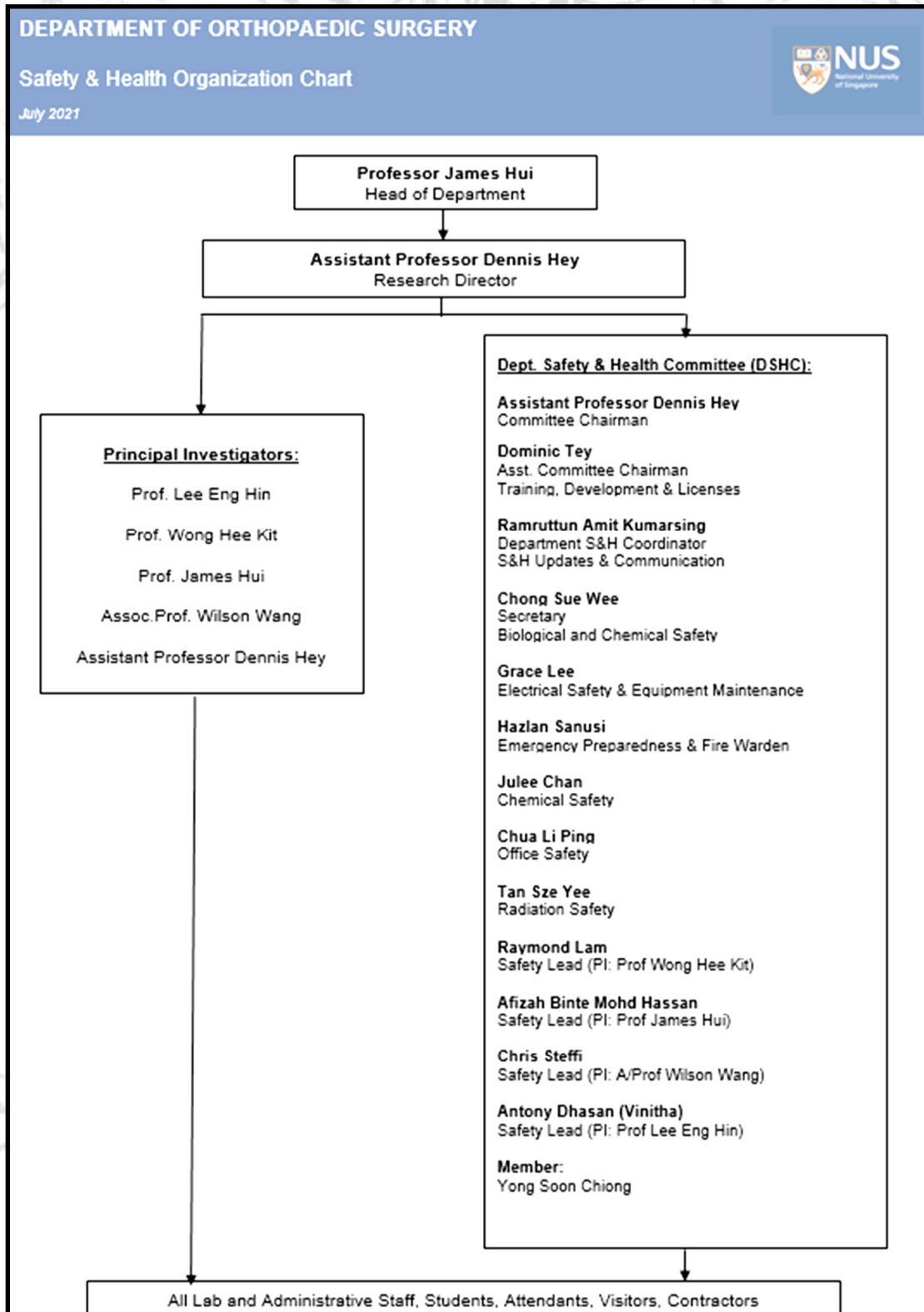
Familiarization of emergency escape routes for dept. occupants stationed in MD11 Basement 1



Roll Call and debriefing by Department Fire Warden at the Assembly Area in the SRC open field near S17

DEPARTMENT SAFETY & HEALTH ORGANISATION CHART (JULY 2021)

With the official announcement of the new Research Director & Chairman of Department Safety & Health Committee (DSHC), Assistant Professor Hey Hwee Weng, Dennis in July 2021, the Department Safety & Health Organization Chart was updated accordingly.



NUS SAFETY & HEALTH AWARDS 2020 PHOTO MONTAGE (MARCH 2021)

Since our department won the Commendation Award in the NUS Safety & Health Awards (NUSSHA) 2020, Office of Safety, Health & Environment (OSHE) organized a department photo taking to showcase the department-specific best safety & health practices/activities and create a photo montage for the NUSSHA 2020 Commemorative e-Book.



Lab personnel operating the biomechanical testing machine



R1 Licensed worker operating the mobile x-ray machine



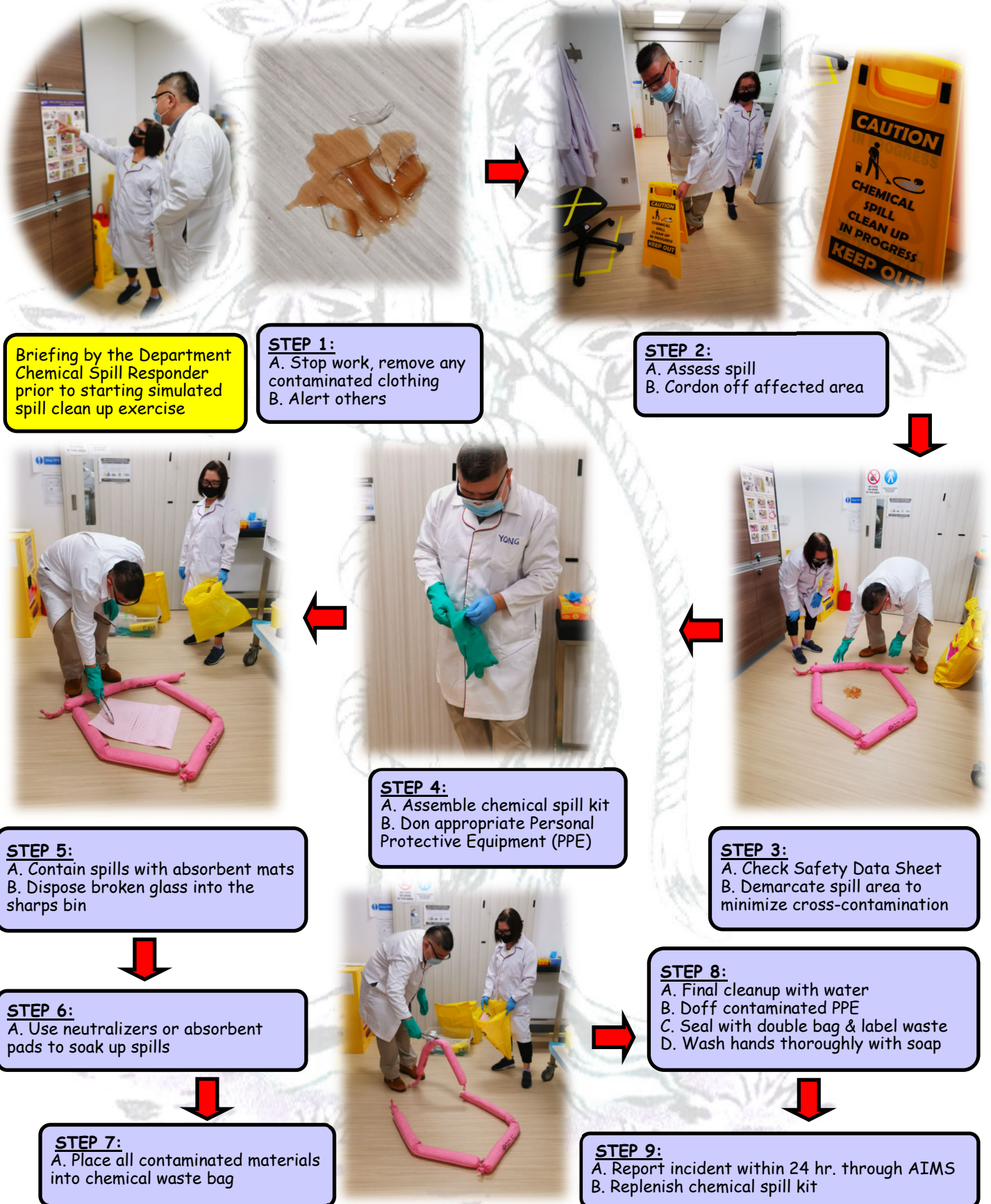
Lab personnel sectioning of specimen for histology



NUSSHA 2020 COMMEMORATIVE E-BOOK LINK:
<https://sway.office.com/V7T2T3bOAFjYrf2G?ref=email>

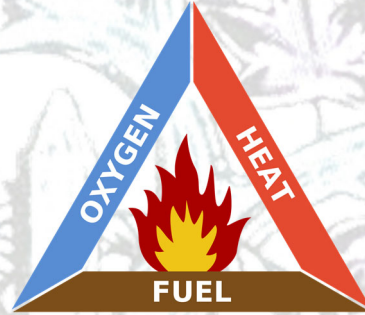


INDUCTION TO MINOR CHEMICAL SPILL RESPONSE EXERCISE (APRIL 2021)



Essential Steps to take if you discover a fire. The RACE & PASS acronyms are a good way to remember what to do during fire emergencies.

FIRE SAFETY



R



Rescue

anyone in immediate danger of the fire

A



Alarm

Activate the nearest fire alarm call point

C



Contain

fire by closing all doors in the fire areas

E



Extinguish

the fire if safe to do so. If not, **E**vacuate the area

How to operate a *Fire Extinguisher*

P



Pull

the pin

A



Aim

at the base of fire

S



Squeeze

the lever

S



Sweep

side to side

SPECIAL WELLNESS FOCUS: TIPS TO ENHANCE OUR MENTAL WELL-BEING

Take Time To Take Care Of Your Safety & Health "Healthy Workforce, Safe Workplace"

A healthy state of mental well-being is key to a productive, safer and healthier workforce.

Take time to pause at work, no matter how busy you are.

Take time to carry out safety checks and health activities.

With more care time, we can improve our health and become more alert to unsafe acts or conditions.

TIP 1. Sleep well

Sleep allows our mind and body to relax and recharge so that we will be alert and energised for a new day. A minimum of 7 hours of sleep daily is recommended.

TIP 2. Eat well

A balanced diet helps us cope better with both physical and mental stress, and focus on the task at hand.

Try following My Healthy Plate ("Quarter, Quarter, Half") as recommended by the Health Promotion Board.

TIP 3. Stay active

Partake in activities like brisk walking, cycling, swimming, and even household chores to give our mind a break from work. Strive for 150 minutes of physical activity each week.

TIP 4. Set work-life boundaries

Set clear boundaries between work and non-work obligations e.g. stop for lunch and set a "switch off" time at the end of each work day.

TIP 5. Play well

Spend time outdoors. Do things we enjoy. Pick up a new skill or hobby. Learning something new can raise our self-confidence and help build a sense of purpose.

TIP 6. Keep in touch

Interacting with others stimulates our mind. Spend quality time with our loved ones. Stay connected socially over the phone or virtually in COVID-times.

TIP 7. Think positive

Replace negative thoughts with positive ones. Reduce stress by seeing problems as opportunities. Focus on things we are grateful for.

TIP 8. Pay it forward

Get involved in community work. Feeling that we are part of a community and the personal satisfaction derived through helping others make us happier.

**SET YOUR
CARE TIME TODAY!**
LET'S REALLY TAKE TIME TO TAKE CARE.

1 Get Rested
If you have been under the sun for too long, or are feeling tired, take time out to rest in a shaded area and get hydrated.

2 Stay Active
There are simple exercises you can do to stay active at the workplace. You can do 1-minute jumping jacks, march on the spot, or do calf raises.

Helpful
Tips

WATCH CARE TIME VIDEOS:
go to: <https://taketimetotakecare.sg/>

Download these Posters from
taketimetotakecare.sg

**SET YOUR
CARE TIME TODAY!**
LET'S REALLY TAKE TIME TO TAKE CARE.

1 Identify Hazards (Unsafe Conditions)
Take time to assess your work surroundings and look out for unsafe conditions. Ensure that you are not using defective or wrong tools, equipment, or machinery. Check if there are missing guards and barriers. And look out for poor housekeeping.

2 Identify Hazards (Unsafe Behaviours)
Take time to assess your work surroundings and look out for unsafe behaviours. Ensure there is no unauthorised use of a machine or vehicle. Check that your personal protective equipment is worn, and in the correct manner. And avoid taking shortcuts by skipping steps in safe work procedures.

Sources:

1) WSH Council:

<https://www.taketimetotakecare.sg>

2) Ministry of Manpower:

<https://www.mom.gov.sg/covid-19/tripartite-advisory-on-mental-well-being-at-workplaces>

3) Extracted from the WSH e-bulletin (28 July 2021, Ref: 2122028). WSH Bulletin is a free e-newsletter published by the WSH Council.

HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (JAN - JULY 2021)

Assistant Dean-Designate (Safety/RFM)



ANNOUNCEMENT

Appointment of Associate Professor Manoor Prakash Hande as Assistant Dean-Designate (Safety/Research Facilities Management), Yong Loo Lin School of Medicine, NUS

NUSMed Annual Declaration of Regulated Materials

- **Deadline: 31 January 2021**

S/N	Regulated Materials	Authorities	Regulations
1	Hazardous Substances	National Environment Agency	Environmental Protection and Management Act
2	Petroleum & Flammable Materials	Singapore Civil Defence Force	Fire Safety (Petroleum and Flammable Materials) Regulations
3	Chemical Weapons Convention Chemicals	Singapore Customs	Chemical Weapons (Prohibition) Act
4	Controlled Drugs and Temporarily Listed Drugs	Central Narcotics Bureau	Misuse of Drugs Act
5	Explosive Precursors	Singapore Police Force	Arms & Explosives Act
6	Poisons	Health Sciences Authority	Poisons Act
7	Biological Agents and Toxins	Ministry of Health	Biological Agents and Toxins Act
8	Radioactive Materials	National Environment Agency	Radiation Protection Act
9	Risk Group 2 Veterinary Biologics	Agri-Food & Veterinary Authority	Animals and Birds Act

Improper Transport and Handling of Liquid Nitrogen Tanks

Background: Liquid nitrogen tanks were transported with personnel in the service lift

- **Concerns:** (1) LN2 expansion ratio ~700x & (2) Rapid drop in O2 level \square asphyxiation
- **Transportation Requirement:** Use unmanned service lift

NUSMed Laboratory Safety Inspection 2020

- Foci: Regulatory Compliance & Documentation
- Number of Laboratories Inspected: 453
- Safety Inspection Teams:
 - NUS Medicine Safety Committee members accompanied by Principal Investigators
- 11 Minor Non-Compliance notices sent to PIs
- Key findings are as follows:
 - Poisons not locked
 - Chemicals not appropriately labelled with GHS
 - Fume hood and BSC not certified for use
 - Gas cylinders not securely chained
 - Waste not appropriately stored
 - SDS not valid

Regulatory Requirements on Possession of Non-advanced Generation HIV Lentivirus Vector

- Regulated as First Schedule Part I biological agent under the Biological Agents and Toxins Act (BATA)
- Possession of non-advanced generation lentivirus vector requires prior approval from MOH
- Examples include psPAX2, pCMV delta R8.2 and pCMV-dR8.2 dvpr plasmids
- Reminder to PIs who are using/intend to use HIV lentivirus vectors
 1. Determine if the HIV lentivirus vector is an advanced or non-advanced generation;
 2. Check the stockpile of plasmids in storage periodically and verify the regulatory requirements for HIV lentivirus vectors;
 3. Incorporate inventory checks for incoming biological materials, especially HIV lentivirus vectors and
 4. Update the inventory of regulated materials to include both the advanced and non-advanced generations of HIV lentivirus vectors

(Source: OSHE Circular - OSHE/2018/01 (29 June 2018))

Fire Safety (Amendment) Act

- Came into effect on 14 September 2020
- Aims to enhance the fire safety of buildings by:
 1. Strengthening the SCDF's regulatory and enforcement powers
 2. Optimizing SCDF's resources to focus on higher risk areas; and
 3. Clarify regulatory processes and requirements for the industry
- New sections added include offence for any person to cause specified fire hazard
(Source: Fire Safety (Amendment) Act 2019)

Updates of LMMS & LMPRS

- New modules for radioactive material & biological material
- Training will be provided later

HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (CONT) (JAN - JULY 2021)

LMMS Radioactive Materials Inventory Module

- Launched on 9 Feb 2021 (OSHE Circular Ref: OSHE/2021/04)
- E-Roadshow & e-Trainings conducted by OSHE Implementation at NUS Medicine
- Departments/ Units/ Centres: 6*
- Training Sessions: 3 conducted @ School's Level
- Usage Records Requirements: Hardcopy & LMMS
- User Access Management: School's level (contact medbox81@nus.edu.sg)
- Status: In-progress (2 units pending revision of L4 licences)

*Biochemistry, BSL-3 Core Facility, Clinical Imaging Research Centre (CIRC), Electron Microscopy Unit (EMU), Medicine, Paediatrics

Safety Concern on Transportation of Laboratory Materials in MD6 Passenger Lifts

Background

- Anonymous safety concern reported to OSHE
- Investigation revealed RA was carrying an empty sample container from MD6 to NUHS Tower

Suggestions

- Use of cargo lift to transport sample

Availability of Safety Standards/References Online

Standard	Online Resource	Remarks
BS/EN/ISO	https://bsol-bsigroup-com.libproxy1.nus.edu.sg/	<ul style="list-style-type: none"> ▪ Access requires NUS NETID ▪ For personal reference only and distribution of standards is not allowed
SS/CP	https://www.singaporestandardseshop-sg.libproxy1.nus.edu.sg/Subscription/Subscriber/TermsAndConditions	
ASTM	http://libproxy1.nus.edu.sg/login?url=http://portal.astm.org	
Fire Protection Standards	https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Codes-and-Standards	<ul style="list-style-type: none"> ▪ Access requires the registration of a free account with NFPA

Annual Review of Explosive Precursors (EPs) @ NUSMed

- 17-19 Mar 2021
- Number of declared EPs*: 58 (23 PIs/Lab-in-charge)
- Findings:
 - Biannual inventory check not done
 - Usage not updated in LMMS
 - Lock used for EP storage fridge was inappropriate

*Each container of EPs is counted as one.

NUSMed Laboratory Safety Inspection 2020

- Follow-up reviews (rectifications) were conducted in January 2021
- Laboratories with Minor Non-Compliance notices have complied to safety inspection recommendations

Legal Updates (as of 15 March 2021)

S/N	Legislation	Summary	Reference
1	Workplace Safety and Health (Approved Code of Practices) 2020	<ul style="list-style-type: none"> ▪ Effect from 14 Dec 2020 	https://www.tal.sg/wshc/-/media/TAL/Wshc/Resources/Publications/Codes-of-Practice/Files/WSH-Approved-Codes-of-Practice-Notification.pdf
2	BATA (Amendment of 1 st Schedule) Order 2021	<ul style="list-style-type: none"> ▪ Addition of 2 viruses (Heartland virus & Severe Fever Thrombocytopenia Syndrome Virus) ▪ Removal of <i>Mayaro virus</i> (Part I of First Schedule) ▪ Revision of criteria for HIV lentiviral vector system 	https://sso.agc.gov.sg/Act/BATA2005#Sc1-
3	Poisons (Amendment to 2 nd Schedule) Rule	<ul style="list-style-type: none"> ▪ Exemption given to cell, tissue and gene therapy under Group I of Second Schedule 	https://sso.agc.gov.sg/SL/PA1938-R1?DocDate=20210217&Timeline=On#Sc2-
4	Guns Explosive and Weapons (GEW) Control Act 2021	<ul style="list-style-type: none"> ▪ Assented by President on 5 Jan 2021 ▪ To repeal the Arms and Explosives Act (Ch 13 of the 2003 revised edition) 	http://www.egazette.com.sg/pdf.aspx?ct=as&yr=2021&filename=21acts03.pdf

- Updated Register of Safety & Health Legislations/ Guidelines Applicable to NUS (https://inetapps.nus.edu.sg/osh/portal/general_safety/legalreq.html)

HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (CONT) (JAN - JULY 2021)

New Appointment

Congratulations & Appreciation



Associate Professor Sim Tiow Suan
NUS Honorary Fellowship 2021
NUS Medicine Safety Chair (Nov'03-Jun'21)

Appointment



Associate Professor Manoor Prakash Hande
NUS Medicine Safety Chair

Revision on Safe Needle Usage in Research Laboratories (OSHBIO06)

Highlights:

- (1) Emphasize on the disadvantages of reusing disposable needles
- (2) Provide solutions to avert incidents that may arise due to reuse of disposable needles

NUS Medicine Business Continuity Plan

- All PIs are required to update their BCP status for both wet and dry laboratories using the centralized NUS Medicine Research Business Continuity Plan Application System
- Deadline: Thursday, 30 Sep 2021
- For enquiries: medbox81@nus.edu.sg

Revision of Lab Commissioning Notification & Verification Form and OSHE Inspection Checklist

- Lab commissioning and OSHE inspection checklist forms have been updated to be aligned with requirement of the
 - Electrical Plug Replacement and UPS standard
 - Laser Hazard Evaluation Form
 - Laser Safety Inspection Checklist
- Lab Commissioning Form

https://nus.sharepoint.com/:b:/r/sites/corporate/forms/safety_and_health/General-Lab-Safety-Checklists/Checklist-lab-commissioning-checklist.pdf?csf=1&web=1&e=fJOxMs

- OSHE Inspection Checklist

https://nus.sharepoint.com/:b:/r/sites/corporate/forms/safety_and_health/General-Safety-and-Health-Checklists/Checklist-safety-inspection.pdf?csf=1&web=1&e=oKIe4V

Updated Biological Agents and Toxins List

- New Fourth Schedule Biological Agents:
 - Mayaro Virus
 - Usutu Virus
 - Cedar Virus
 - Chromobacterium violaceum
- List of Biological Agents and Toxins List (19 Feb 2021) ([https://www.moh.gov.sg/docs/librariesprovider7/news-updates-documents/list-of-biological-agents-and-toxins-\(19-feb-2020\).pdf](https://www.moh.gov.sg/docs/librariesprovider7/news-updates-documents/list-of-biological-agents-and-toxins-(19-feb-2020).pdf))

Genetic Modification Advisory Committee (GMAC) Proposal Form

- Revised in March 2021 to reflect the changes on the criteria of HIV-based lentiviral vector system under the BATA Fourth Schedule ([https://www.gmac.sg/pdf/Research/GMAC%20Proposal%20Form%202021%20\(Final\).pdf](https://www.gmac.sg/pdf/Research/GMAC%20Proposal%20Form%202021%20(Final).pdf))

LMMS (Biological Materials) Module

- Campus wide implementation of the biological module will commence from July 2021
- More information on the e-roadshows and training sessions is available in the circular (OSHE/2021/25)
- Refer to the LMMS website for more information (<https://inetapps.nus.edu.sg/osh/portal/Tools/LMMS.html>)

Update on NUS Lab Biorisk Management Manual & Launch of New Mandatory Safety & Health Training Course

1. Update on NUS Lab Biorisk Management Manual

- PIs to review amendments (Annex A in Circular) and make the necessary changes to their safety & health management system by 31 December 2021

- Contact Ms Jayavani D/O Karuppasamy at oshjk@nus.edu.sg / 6516 8802 for any queries

2. Launch of "Viral Vectors - Safety and Regulations" Training (Course Code: OSHBIO10)

- Mandatory for all staff and students intending to start work with viral vectors
- Those currently possessing and/ or handling viral vectors to complete training by 30 October 2021

- Contact Dr Suzette de Leon at oshdln@nus.edu.sg / 6601 1703 for any queries

HIGHLIGHTS OF NUS/OSHE SAFETY & HEALTH NEWS (CONT) (JAN - JUL 2021)

NUS Medicine Accidents/ Incidents Sharing

DESCRIPTION	POSSIBLE CAUSE	LESSONS LEARNT
<p><u>Animal Bite</u> - A researcher received a mouse bite on his index finger when he attempted to restrain it for ear tag - He felt a slight discomfort and noticed a drop of blood in the punctured glove - He washed the wound for 8-10 minutes, cleaned the wound with a bite-scratch kit and applied a plaster</p>	<ul style="list-style-type: none"> - The mice were slightly more aggressive than normal - The researcher lost grip of the mouse when holding it between his thumb and index finger 	<ul style="list-style-type: none"> - Ensure proper restraint to avoid animal bite - Wash the wound for at least 15 minutes during such incidents
<p><u>Cut by Object</u> -A researcher was coming out from the freezer room and she placed her hand on the edge of the door to close it. - She immediately felt a cut on her left hand. She then noticed a sharp, thin foreign object protruding from the door's edge. - She washed the wound for 10 minutes and first aid treatment was administered, with one plaster used to cover the superficial wound</p>	<p>Foreign object was found on the edge of the door.</p>	<ul style="list-style-type: none"> - Be aware of your surroundings as you work. - Report unsafe conditions/acts to your PI or supervisor.
<p><u>Fire</u> - A staff was working in the admin office when she heard an exploding sound. - The staff saw something burning near the power point on the adjacent table. - All electrical sources were immediately switched off. - The fire was put out by the staff and another colleague with a fire extinguisher. Remaining staff were evacuated due to fumes.</p>	<ul style="list-style-type: none"> - Power bank was left unattended while charging. - Power bank was slightly faulty, but staff continued to use it. 	<ul style="list-style-type: none"> - Avoid leaving the power bank to charge unattended or on prolonged charge as this may cause it to overheat. - Always inspect the power bank and refrain from using it if damaged.
<p><u>Cut by Object</u> - A laboratory staff accidentally scratched his/her thumb against the edge of a metal rack (of the -80°C freezer) while adjusting its position on the trolley. - The edge cut through the glove, resulting in skin laceration and minor bleeding. - The wound was rinsed for 15 minutes under running water. A first aider helped to stop the bleeding and apply a plaster on the wound.</p>	<p>The edge of the metal rack is not smooth and caused the injury.</p>	<ul style="list-style-type: none"> - Handle freezer racks with care as the edges may be sharp. - Thicker gloves should be worn when adjusting freezer racks.

