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Adeline Chow/ Dr Zhou Lei Prepared by	Prof Anantharaman Vathsala Approved By	15-04-2022 Issue Date
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1. OBJECTIVE

This SOP outlines the laboratory safety training provided by OSHE and lab specific training provided by each laboratory in Department of Medicine for all laboratory staff and students. The trainings will equip them with the requisite skills and abilities to maintain workplace safety and health.

2. SCOPE

This SOP applies to all laboratory staff and students working in the Department of Medicine.


3. RESPONSIBILITY AND ACCOUNTABILITY

- 3.1 The Principal Investigator (PI) is to determine the necessary training needs, provide on-the-job training for all his/her staff and students in the laboratory and to ensure that all laboratory staff and students working for him/her abide by this SOP.
- 3.2 Safety lead of each PI group is to ensure that staff and students from his/her group follow the guidelines and attend the necessary safety training.
- 3.3 Staff and students are to complete the required safety training.

4. NUS LABORATORY SAFETY TRAINING


4.1 The OSHE Structured Safety Training System's training requirements are categorized in a progressive training structure. The safety and health requirements are divided into 3 tiers: Stage A, B and C.

- A. Induction training for new staff or student
- B. Hazard specific training (core and 'add-on' modules)
- C. Appointment-based training


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The table below outlines the courses under each heading and indicates who should be attending the courses which may or may not be compulsory. (Note: Unless indicated with the word “Classroom”, all other courses are e-learning courses on LumiNUS.)

Training Course	Who Should Attend
Stage A. Induction Training for New Staff	
NUS Requirements on Safety, Health and Emergency Management (OSHGEN03)	Compulsory for all new NUS staff and to be completed within ONE MONTH upon joining the University. This course is accessed in CHRS LMS.
Online Fire Safety Training Course (OSHFS01)	Compulsory for all new NUS staff and to be completed within ONE MONTH upon joining the University. Staff to access OSHFS01 in CHRS LMS. Students to access OSHFS01 in LumiNUS.
Laboratory Safety Induction Training (OSHGEN01)	All new NUS staff identified to be working in laboratories. This training must be completed via LumiNUS PRIOR to performing activities in the laboratories.
Introduction to Laboratory Safety and Health in NUS - Policy, Principles and Practice (OSHGEN02)	Compulsory for newly matriculated undergraduates who will be having classes in laboratories and/or workshops.
Stage B. Hazard Specific Training (Core and ‘Add-on’ Modules)	
Chemical	
Chemical Safety (OSHCHM01) *	Compulsory for individuals performing activities involving the use of hazardous chemicals.
Safe Use & Handling of Hydrofluoric Acid (OSHCHM02)	Compulsory for individuals working with hydrofluoric acid.
Safe Use & Handling of Pyrophoric Chemicals (OSHCHM03)	Compulsory for individuals working with pyrophoric chemicals.
Semi-Quantitative Risk Assessment (OSHCHM04)	Recommended for individuals appointed to conduct Semi-Quantitative Risk Assessment (SQRA).
Chemical Spill Response (OSHCHM05)	Recommended for individuals appointed to handle chemical spills.
Biological	
Biosafety for BSL-2 Laboratories (OSHBIO08) *	Compulsory for individuals conducting BSL-2 work.
Biosafety for BSL-1 Laboratories (OSHBIO07) *	Compulsory for Individuals conducting BSL-1 work.
Safe Handling of Human Tissue and Fluids (OSHBIO03)	Compulsory for individuals working with materials of human origin eg. tissue, cell line, body fluids etc.
Safe Needle Usage in Research Laboratories (OSHBIO06)	Compulsory for individuals working with needles when conducting life science research.
Safe Handling of Non-human Primate (Macaque) Derived Materials (OSHBIO09)	Compulsory for Students and staff members who will be handling Macaque-derived materials.
Viral Vector Safety and Regulations Training (OSHBIO10)	Compulsory for individuals working with viral vectors.
Biosafety Legislations & Guidelines (OSHBIO04)	Recommended for individuals appointed to identify and monitor legislation for the laboratory / department.

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Biological Spills and Emergency Response (OSHBIO05)	Recommended for individuals appointed to contain biological spills.
Radiation	
Laser Safety Training (OSHRAD02) *	Compulsory for Individuals performing activities involving use of Class 3b or Class 4 lasers.
Safety Handling of Radioactive Materials (OSHRAD03) *	Compulsory for Individuals performing activities involving use of radioactive materials or equipment containing radioactive materials (eg. Gauges, Gamma Irradiators).
Safe Handling of X-ray Machines (OSHRAD04) *	Compulsory for Individuals using X-ray machines or machines that can produce X-rays.
Basic MRI Safety Training (OSHRAD05)	Compulsory for Individuals who will be accessing a MRI controlled area but NOT operating MRI machines/scanners.
MRI Safety Training for Operators (OSHRAD06)	Compulsory for Individuals who will be accessing MRI controlled areas AND operating MRI machines/scanners.
General Safety	
Respiratory Protection Programme (RPP) Training for first-time users (OSHGEN04)	Compulsory . The training aims to educate all NUS staff and students who are required to wear respirators in the course of their teaching and research work on the correct use of respirators.
Respiratory Protection Programme Training for returning users (refresher)(OSHGEN05)	Compulsory . This is for returning users - all NUS staff and students to refresh their knowledge on the usage of respirators in the course of their teaching and research work one year after attending the NUS RPP - First Time User.
Risk Management for Laboratories (OSHGEN06)	Recommended for staff and students who are involved in conducting risk assessments for their laboratory activities.
Risk Management for General Workplaces (OSHGEN07)	Recommended for staff and students who are involved in conducting risk assessments for their general workplaces.
Field Research Safety (OSHGEN08)	Recommended for staff and students who are involved in conducting field research activities.
Conducting Incident Investigation and Root Cause Analysis (OSHGEN09)	Recommended for staff and students who are required to investigate incidents as a lead investigator, or as part of an investigation team.
Ergonomics	
NUS Office Ergonomics Training (OSHERGO01)	This module is about awareness of ergonomic hazards in the office, common musculoskeletal disorders related to work, understand good practices of ergonomics, self-evaluate your workstation and apply control measures to reduce ergonomic hazards.
NUS Laboratory Ergonomics Training (OSHERGO02)	This module is about awareness of ergonomic hazards in the laboratory, common musculoskeletal disorders related to work, understand good practices of ergonomics, Self-evaluate your workstation and apply control measures to reduce ergonomic hazards.

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Stage C. Appointment-Based Training	
Fire Safety Education (Classroom)	Compulsory for staff who have been appointed to perform the role of Building Fire Coordinator, Assistant Fire Coordinator, Building Fire Warden or Assistant Fire Warden, laboratory technical staff that are handling PFM, and any other laboratory personnel identified by their Principal Investigators (PIs) whom are required to attend this course.
Fire Warden Training (Classroom)	Compulsory for staff who have been appointed to perform the role of building Fire Warden or Assistant Fire Warden.
Fire Safety Coordinator (Classroom)	Compulsory for staff who have been appointed to perform the role of building Fire Safety Coordinator or Assistant Fire Safety Coordinator
Fire Safety Refresher (Classroom)	Compulsory for all laboratory staff to attend every three years after attending the Fire Safety Education Course.
Safety and Health Management System (OSHSMS01)	Recommended for PIs and Laboratory Supervisors, Research Fellow on how to conduct risk assessments and develop safety management systems for laboratories.
Chemical Spill Response (Hands-on) (Classroom)	Recommended for Safety and Health Coordinators (SHC) where their department has laboratories using chemicals.
Biological Spills and Emergency Response (Hands-on) (Classroom)	Recommended for Safety and Health Coordinators (SHC) where their department has laboratories using biological material.

* Refresher training requirement: Individuals are required to retake this module after three years.

More details reference of the Structured Safety Training System is available at <https://inetapps.nus.edu.sg/osh/portal/training/ssts.html>


4.2 Procedure for courses

The procedures to apply for e-learning courses on LumiNUS and classroom learning courses are as follows:-

4.2.1 E-learning courses on LumiNUS

- Visit - <https://luminus.nus.edu.sg>
- Login using your NUS User ID and password. You can login only with a valid NUS ID (either staff, student or visitor accounts).
- If you do not have any of these accounts please write to ORMC training coordinator at oshbox11@nus.edu.sg for a LumiNUS guest account. In the email, please provide:
 - a) Your name and email address and
 - b) Your NUS supervisor name and email address.

For instructions on how to complete the safety training through LumiNUS:
<https://inetapps.nus.edu.sg/osh/portal/training/ssts/IVLE%20Instructions%20for%20Learners.pdf>

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- 4.2.2 Classroom training courses
 NUS staff to access courses via CHRS LMS (NUS > Staff Portal > CHRS > Learning > Find Learning > Browse all courses)

5. LABORATORY SPECIFIC TRAINING AND CHECKLIST

Each PI group must provide training on laboratory specific procedures for their staff and students. For all training provided, records must be properly maintained.

5.1 Laboratory Safety Checklist for New Staff/Students

A Laboratory Safety Induction Checklist is provided for new staff/students. The safety lead must complete the checklist together with the new staff within 14 days of his/her employment. (See Appendix)

5.2 Training on use of Equipment & Facilities in laboratory

Specific trainings may be necessary as new equipment, materials and/or processes are introduced. Each PI group must ensure that such training is conducted and well-documented.

6. DOCUMENTATION


The PI shall ensure that safety training records of all their staff and students are properly documented and filed for easy retrieval as and when required.

7. REFERENCE

- Structured Safety Training System <https://inetapps.nus.edu.sg/osh/portal/training/ssts.html>
- SOP on "Instructions to complete the safety training through LumiNUS". (OSHE/SOP/GE/04)
<https://inetapps.nus.edu.sg/osh/portal/training/ssts/IVLE%20Instructions%20for%20Learners.pdf>

8. APPENDIX

DoM New staff/Student Safety Induction Training (DoM-Induction-v04)

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9. REVISION HISTORY

Date Revised	Version No.	Author	Summary of Revisions
10-03-2016	001	Yeo Soh Bee/ Dr Zhou Lei	
18-10-2016	002	Yeo Soh Bee/ Dr Zhou Lei	<p>Section 4.1 B. Hazard Specific Training (Core and 'Add-on'): Addition of courses on "Safe Needle Usage in Research Laboratories" and "Safe Handling of Non-human Primate (Macaque) Derived Materials"</p> <p>Section 4.2.1: Change email address of OSHE contact</p> <p>Section 8: Replace "DoM New Staff Checklist" with "New staff/Student Safety Induction Training (DoM-Induction-v01)"</p>
20-9-2017	003	Yeo Soh Bee/ Dr Zhou Lei	<p>Section 4.1 Add in new training courses: OSHBIO07, OSHBIO08, OSHRAD03 and OSHRAD04</p>
15-04-2019	004	Yeo Soh Bee/ Dr Zhou Lei	<p>Section 4.1: Changed course title of OSHGEN03 Added new training courses: OSHGEN08, OSHGEN09, OSHERG01 and OSHERG02</p> <p>Section 8: Replaced "New staff/Student Safety Induction Training (DoM-Induction-v02)"</p>
15-04-2022	005	Adeline Chow/ Dr Zhou Lei	<p>Update of HOD</p> <p>Section 4.1: Added new training courses: OSHBIO10, Section 4.2: Instructions for e learning and classroom course</p> <p>Section 8: Updated "New staff/Student Safety Induction Training (DoM-Induction-v04)"</p>