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1. OBJECTIVE

Eye and face protection is required whenever there is a risk of injury to the eye or face. This SOP provides guidance for use of eye and face personal protective equipment in the research laboratories of Department of Medicine.

2. SCOPE

This SOP is applicable to all staff and students working in the research laboratories as well as to the external parties (such as visitors, contractors, cleaners, etc.) working in or visiting the laboratories of Department of Medicine.

3. RESPONSIBILITY

- 3.1 Principal investigators (PI) should ensure that all staff and students shall identify eye and face injury hazards arising from work in the areas; assess the risk and ensure that the most suitable precautions are taken to minimise the risk of eye and face injury. The PI is responsible for providing proper eye and face protection for all of their lab workers.
- 3.2 Staff and Students are responsible for properly wearing required eye and face personal protective equipment and to inform their PI when worn or damaged items need to be replaced.

4. MANDATORY EYE PROTECTION POLICY

Mandatory Eye Protection Policy for Research Laboratories (OSHE/44/05/012015)
 @https://share.nus.edu.sg/corporate/circulars/safety_and_health/2015/OSHE%20Circular%20to%20Deans%20and%20Directors_20July2015.pdf


Eye protection will now be mandatory for all personnel working in or visiting the research laboratory and workshops where hazardous materials are handled. The Laboratory Supervisor or Principal Investigator shall assess the risk of injuries to the eye and determine the type of eye protection required.

This mandatory eye protection policy has been effective since 3rd August 2015. From 1st Jan 2017, this current eye protection policy for research laboratories has been extended to teaching laboratories and workshops.

5. HAZARD IDENTIFICATION

Known hazards should be eliminated wherever possible. Protective eyewear should not be the only means of protection against eye and face hazards. Protective eyewear should be used in conjunction with engineering controls and sound safety practices.

The potential eye and face hazards that must be considered include:

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- Chemicals: Liquid splash and droplets, fumes, vapours and irritating mists from acid and chemical handling, degreasing and plating.
- Biological: Bloodborne pathogens (hepatitis or HIV) from blood and body fluids.
- Radiation: Ultraviolet radiation, heat or infrared radiation, and lasers.
- Projectiles: Dust, concrete, metal, wood, and other particles
- Heat: Emission of extreme heat from furnace operations, pouring, casting, hot dipping, welding or other similar operations.
- Human Factors: Length of work with safety equipment, worker fit and comfort, compatibility with prescription eyewear.

6. TYPES OF EYE AND FACE PROTECTION

6.1 Selecting the most suitable eye and face protection for lab members should take into consideration the following elements:

- Ability to protect against specific workplace hazards.
- Should fit properly and be reasonably comfortable to wear.
- Should provide unrestricted vision and movement.
- Should be durable and cleanable.
- Should allow unrestricted functioning of any other required PPE.

6.2 Types of eye and face protection

Where it is not possible to eliminate or control eye hazards, personal eye protectors should be supplied to operators and visitors in areas where eye hazards may exist.

There are three basic types of eye and face protection which will meet University requirements in the laboratories most of the time. These are safety glasses (with side shields), goggles and face shields.

6.2.1 Safety glasses


Eye protection is mandatory in all areas with potential for eye injury. This applies not only to persons who work continuously in these areas, but also to persons who may be in the area only temporarily, such as maintenance or administrative personnel.

These protective eyeglasses have safety frames constructed of metal or plastic and impact-resistant lenses. Side shields are available on some models. Modern eye shields are available with adjustable temple lengths and angle adjustments, pliable, adjustable nose-pads and a variety of ventilation options ensuring the best possible fit and performance. Anti-scratch coating lenses can also be coated to prevent fogging or to optimize lens clarity.

6.2.2 Safety goggles

These are tight-fitting eye protection that completely cover the eyes, eye sockets and the facial area immediately surrounding the eyes and provide protection from impact, dust and splashes. Some goggles will fit over corrective lenses.

Although safety glasses provide adequate eye protection for many laboratory operations, they are not sufficient for operations with substantial danger from chemical splashes or dense particulate environments. Examples include: washing

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glassware in chromic acid solution, grinding materials, or laboratory operations using glassware where there is significant hazard of explosion or breakage (i.e., in reduced or excess pressure or temperature).

6.2.3 Face shields

Face shields provide additional protection to the eyes and face when used in combination with safety glasses or splash goggles. Face shields consist of an adjustable headgear and face shield of tinted or clear lenses or a mesh wire screen. They should be used in operations when the entire face needs protection and should be worn to protect the eyes and face from flying particles, metal sparks, and chemical/biological splashes.


Face shields are used when facial skin protection is needed. Face shields should be used in conjunction with eye protection. A face shield is not a substitute for the safety glasses or goggles.

6.2.4 Specialty Eyewear

- Laser safety glasses/goggles: These specialty glasses/goggles protect against intense concentrations of light produced by lasers. The type of laser safety glasses goggles an employer chooses will depend upon the equipment and operating conditions in the workplace.
- Prescription safety eyewear: Standard prescription glasses are not rated for impacts and do not provide sufficient ocular coverage, as such they are not adequate for the laboratory. If OTG (over the glasses) safety eyewear does not fit, or causes other functional issues, prescription safety glasses can be used.

7. SAFETY PRECAUTION

- Be alert to the eye hazards present at your worksite.
- Ensure eyewear is the appropriate type for the hazard.
- Protective eyewear should fit well; safety glasses and goggles should fit with the bridge properly supported on your nose and the centre of the lens in front of the eye with the frame being as close to the face as possible.
- Inspect eye and face personal protective equipment before putting on for possible physical damage or contamination.
- Eye and face personal protective equipment must be kept clean, especially when dirty or fogged goggles have the potential to impair vision.
- Shared eyewear must be disinfected after every use.
- Face shields alone will not protect employees against impact hazards – the best protection is afforded when goggles and face shields are worn together.
- Know where all eyewash stations and emergency equipment are located.

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8. CARE, MAINTENANCE AND STORAGE

8.1 Cleaning

- Most manufacturers recommend that eye and face protectors should be cleaned with mild, soapy water and dried in the open air. The use of solvents is not recommended for cleaning and may reduce the strength of the protectors.
- Always consult the cleaning directions provided by the manufacturer and consult the manufacturer with questions on cleaning materials or methods not specifically mentioned in the product literature.

8.2 Maintenance

- Routine maintenance of eye and face personal protective equipment is generally limited to cleaning and visual inspections for damage.
- Always maintain personal protective equipment according to the manufacturer's requirements.
- Manufacturers recommend that eye and face personal protective equipment be inspected frequently and equipment that has been impacted or shows other signs of damage be removed from service and immediately replaced.

8.3 Storage


- When not in use, personal protective equipment should be stored in a cool, dry and clean place out of direct sunlight. Avoid areas where heat, oil, chemicals (or their vapors) or other degrading elements may be present.
- Prior to using personal protective equipment, which has been stored for long periods of time, an inspection of this equipment should be performed for signs of damage. Products showing signs of damage should be removed from service and replaced.

9. INCIDENT REPORTING

Accidents resulting in injuries must be reported to the PI and/or laboratory safety lead immediately after first aid is applied.

Seek medical attention when necessary at the University Health Centre or proceed to the Accident & Emergency units of National University Hospital after office hours.

All incidents or accidents have to be notified to OSHE within 24 hours via the online Accident and Incident Management System (AIMS) at https://inetapps.nus.edu.sg/osh/portal/eServices/ehs360_aims.html.

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10. REFERENCES

- Eye and Face Protection Requirements in Laboratories and Workshops (OSHE)
@https://inetapps.nus.edu.sg/osh/portal/genlab_safety/eye%20protection.html
- Requirements on Use of Eye and Face Protection in Teaching and Research Laboratories and Workshops
@https://inetapps.nus.edu.sg/osh/portal/genlab_safety/eye%20protection%20FAQ.pdf
- NUS Laboratory Chemical Safety Manual (NUS/OSHE/M/02)
- NUS Laboratory Biorisk Management Manual (NUS/OSHE/M/01)
- NUS General Laboratory Safety Manual (NUS/OSHE/M/06)

11. REVISION HISTORY

Date Revised	Version No.	Author	Summary of Revisions
16-07-2021	002	Adeline Chow	1) Update of approver (HOD): Prof Anantharaman Vathsala 2) Update of Item 7.Safety Precaution