

UCL Division of Infection & Immunity.

Divisional Health & Safety Arrangements.

The Division of Infection & Immunity subscribes to the UCL Statement of Health and Safety Policy. We acknowledge our obligation to manage work safely. We commit to minimise Health and Safety risks to staff, students and others affected by our activities.

The Division is obliged to record its own safety organisation and arrangements, and this includes a statement of commitment to meeting the requirements of the Health & Safety Policy.

Clear responsibility is central to the Division's safety management system. We follow the principle that those responsible for creating the risk are responsible for managing the risk.

This document contains divisional arrangements for health & safety that apply to all our areas of work and links to UCL standards and guidance where this is followed by default. Each part of the Division has local rules and you must also refer to these documents for more detailed information not included here.

The document is arranged into 3 sections:

- Safety management system elements.
- Guidance on chemical and biological hazards.
- A-Z list of other relevant topics where further information can be obtained.

Section 1: Management system elements.

Responsible Persons Register.

The Division maintains a register of health & safety role holders (e.g. First Aiders and Fire Evacuation Marshalls) which is available on UCL's safety management database known as 'RiskNET'. The register is maintained by safety officers and validated each year by the Director of the Division.

Health & Safety Objectives.

UCL sets health & safety objectives for each academic year. The Division commits to meeting these objectives and will monitor progress through the Health & Safety Committee.

Emergency Plans.

The Division follows standard processes in response to fire evacuation, as determined by fire risk assessment and on the advice of the UCL and Royal Free NHS Trust Fire Safety teams. Fire action notices, fire safety eLearning and local inductions provide information on evacuation and responding to fires. All staff and students must follow the information, instruction and training provided to them. This includes local training such as the Royal Free fire lectures as appropriate.

First Aiders are appointed in all areas occupied by the Division. Staff and students should familiarise themselves with local first aid arrangements and how to obtain help in the area where they are based.

All laboratories must have arrangements in place for responding to spills of hazardous substances. Before handling any chemicals or biological agents, make sure you understand the risks involved and the procedures necessary for dealing with a spill. Know where your nearest spill kit, or spill materials can be found. Minimise the risk of spills by working on trays, in fume cupboards, on Benchkote etc. as appropriate. Where Benchkote is used, this should be changed at regular intervals and immediately after any spillage of hazardous chemicals. Ensure that containers are supported in racks and cannot be accidentally knocked over. The danger of most water-soluble chemicals is reduced by dilution.

Always wear appropriate Personal Protective Equipment (PPE) such as gloves and safety glasses when responding to spills and protect yourself and others first before tackling the spill itself. For large spills of liquids, spill kits must be used. Follow simple steps:

1. Raise the alarm – get help and call first aiders for any injury.
2. If required, ventilate the area and keep others away.
3. Get out of the area until it is clear, closing the door behind you.
4. If necessary, put up a notice to warn others.
5. Plan how to tackle the spill – get the necessary protective equipment and spill materials.
6. Enter the area, contain and clean up the spill.
7. Dispose of waste following local procedures – replace any items used.
8. Raise an incident report so the spill can be investigated.

Health & Safety Committee.

The Division has a Health & Safety Committee which meets 4 times a year and is chaired by the Director. The committee reviews performance data, discusses any significant incidents, feedback from audits and inspections and monitors changes in policy and guidance. If you want to raise an issue at the committee, please contact your local safety officer.

Learning & Development.

All staff and post-graduate students must complete a local safety induction when they start working in the Division. This induction should be carried out by your line manager, or a laboratory manager / safety officer and a record of the induction kept. Your induction must also include completion of mandatory eLearning modules such as Fire Safety. For those working in laboratories, there are further mandatory training modules as outline in section 3 below. For further information, please visit UCL Safety Services' [learning and development](#) webpages.

Risk Assessment.

All work which could cause harm must be risk assessed. Risk Assessments must be recorded on UCL's safety management database 'RiskNET'. We follow the principle that those responsible for creating a risk are responsible for managing it. This means that risk assessments must be created by those carrying out an activity and they must be approved by those responsible for supervising the work, for example Principal Investigators. Laboratory managers and/or safety officers can be consulted when writing risk assessments and can be additional approvers but they are not solely responsible for approval. For more information, refer to UCL [guidance on Risk Assessment](#).

There are specific arrangements for risk assessment of work with Display Screen Equipment (DSE). Heads of Department must appoint Display Screen Equipment Assessors, who will receive training. The assessors must co-ordinate DSE assessments using the RiskNET 'Workstation Assessment' tool. All staff are responsible for co-operating with this process and completing self-assessments when issued to them. For more information on DSE, please visit the UCL [Safety Services website](#).

Audits and Inspections.

Safety inspections (also called audits) must be carried out in each area at least termly. The person responsible for the work being conducted is responsible for ensuring inspections takes place. They can do this in conjunction with departmental safety staff or delegate the task to one of their staff, however the person must have suitable experience and the authority to take any required action.

Sufficient resource/funding must be made available to act on the findings of the inspection. A written summary of each inspection should be produced for the Divisional Health & Safety Committee. The committee must coordinate the inspections and ensure they are carried out to a suitable standard.

For more information, please visit UCL Safety Services guidance on [monitoring](#) and [inspection](#).

Accident / Incident Reporting.

All accidents, incidents, near misses and work-related illness must be reported using the RiskNET online reporting tool. This can be accessed from any computer or mobile device 24/7.

All incident reports must be reviewed and signed off, or assigned for investigation, within 10 working days of the report being made. Incident Coordinators are appointed by the Director to coordinate incident investigation within the Division.

Anyone can report accidents, incidents and near misses including (but not limited to) the individual involved, the individual's line manager, a witness, a first aider.

Incident reports will be investigated by a line manager or the person responsible for the work / area and investigation findings must be recorded.

Further guidance on accidents and incident management can be found on [Safety Services website](#).

Management Review.

Minutes of Health & Safety Committee meetings are circulated to the Senior Management Team (SMT) for information, after each meeting. The SMT will review the Divisional safety management system at least annually. This includes an annual performance report submitted by the Health & Safety Committee in October and validation of the responsible persons register by the Director.

Section 2: Guidance on chemical and biological hazards.

Biological Agents.

Anyone intending to work with biological agents, including Genetically Modified organisms for the first time must complete the UCL [Moodle training course](#) 'Principles and Practice of Biosafety'.

To help you determine the containment level required for your work, first determine the hazard group (or GM Class) of the pathogen / organism involved. The Health & Safety Executive (HSE) has published a [list of agents](#) to help this process. If you will be working with animal pathogens, separate controls and legislation may apply. Information on specified animal pathogens can be found on the [HSE website](#). UCL Safety Services has [guidance on GM work](#) on their website.

GM work at class 2 or above, or first use of a wild type hazard group 2 or 3 pathogen must be notified to the HSE, with an associated fee. Notifications or application for licences must be coordinated via Safety Officers in the Division and UCL Safety Services.

Hazardous Chemicals.

An inventory of chemicals held in laboratories must be maintained and made available in paper or electronic form (or preferably both).

Research laboratories are home to a considerable range of chemicals requiring safe storage. The guidance below illustrates the principles of safe chemical storage and segregation in our laboratories. Note that the guidance is not intended to be exhaustive and users of chemicals are reminded of the importance of consulting other sources for more specific and detailed information, such as Safety Data Sheets.

Chemicals, including reagents, mixtures and waste, should be clearly labelled and laboratories in which they are kept must be locked / secured when not in use. Flammable liquids **MUST** always be stored in solvent cupboards and acids should be stored in separate acid cupboards.

It is the user's responsibility to know the hazards associated with any chemical being used and to take appropriate care. This includes:

1. Knowing the correct method of storage, use and disposal.
2. Knowing how to clear up accidental spillage. Keep the necessary items to hand so any spills can be dealt with immediately (see section on emergencies above).
3. Labelling the containers with appropriate warning signs or using biohazard tape so that people who are not familiar with the substance will recognise any danger.

Always follow these 5 steps:

1. Store the minimum stock levels of hazardous chemicals in the laboratory.
2. Dispose of hazardous chemicals that are no longer required.
3. Store large breakable containers, particularly of liquids, below shoulder height.
4. Ensure containers and bottle tops are sealed properly to avoid unnecessary leakage of fumes / vapours.
5. Never carry a bottle containing chemicals by its top, for example always carry Winchester bottles (2.5 litres) in carriers or baskets that are capable of providing proper support, and support the base of the bottle in use.

It is essential to segregate incompatible substances to prevent dangerous interactions. All newly purchased chemicals should have a label on them identifying their hazard category (e.g. flammable, corrosive, oxidising, toxic etc.). A list of commonly used chemicals that should be segregated is shown below to assist storage.

BASIC CHEMICAL SEGREGATION

CLASS OF CHEMICALS	RECOMMENDED STORAGE METHOD	EXAMPLES	INCOMPATIBILITIES SEE MSDS IN ALL CASES
Corrosives – Acids	Store in separate acid storage cabinet	Mineral acids - Hydrochloric acid, sulfuric acid, nitric acid, perchloric acid, chromic acid, chromerge	Flammable liquids,
Corrosives - Bases	Store in separate storage cabinet	Ammonium hydroxide, sodium hydroxide	Flammable liquids, oxidizers, poisons, acids.
Shock Sensitive Materials	Store in secure location away from all other chemicals.	Ammonium nitrate, Nitro Urea, Picric Acid (in dry state), Trinitroaniline, Trinitroanisole, Trinitrobenzene, Trinitrobenzenesulfonic acid, Trinitrobenzoic acid, Trinitrochlorobenzene,	Flammable liquids, oxidizers, poisons, acids, and bases.
Flammable Liquids	In grounded flammable storage cabinet.	Acetone, benzene, diethyl ether, methanol, ethanol, toluene, glacial acetic acid	Acids, bases, oxidizers, and poisons
Flammable Solids	Store in a separate dry, cool area away from oxidizers, corrosives, flammable liquids.	Phosphorus	Acids, bases, oxidizers, and poisons.
General Chemicals Non-reactive	Store on general laboratory benches or shelving preferably behind glass doors, or below eye level.	Agar, sodium chloride, sodium bicarbonate, and most non-reactive salts	See MSDS
Oxidizers	Store in a spill tray inside a Non-combustible cabinet, separate from flammable and combustible materials.	Sodium hypochlorite, benzoyl peroxide, potassium permanganate, potassium chlorate, potassium dichromate. The following are generally considered oxidizing substances: peroxides, perchlorates, chlorates, nitrates, bromates, superoxides	Separate from reducing agents, flammables and combustibles.
Poisons *	Store severe poisons in a dedicated poison cabinet.	Cyanides, cadmium, mercury, osmium compounds, i.e. cadmium, mercury, osmium	Flammable liquids, acids, bases, and oxidizers.
Water Reactive Chemicals	Store in dry, cool, location	Sodium metal, potassium metal, lithium metal, lithium aluminum hydride	Separate from all aqueous solutions, and oxidizers.

*Poisons: In the context of biology, poisons are substances that cause injury, illness, or death to organisms, usually by chemical reaction or other activity on the molecular scale. Some poisons are also toxins. All hazard labels for poisons are “toxic”. Poisons which fall under Schedule 1 should be kept in a locked cabinet, specific for the purpose, in the laboratory. A designated responsible person should hold the key and a log book should be kept to record when a poison is used, how much and by whom.

In addition it is recommended that certain alkaloids and their derivatives, e.g. aconitine, brucine, ecgonine and atropine, which do not appear on the Poisons List and digitoxin and digitonin, valinomycin and actinomycin D, are also kept locked away. It is also recommended that very toxic chemicals, i.e. those which have Lethal Dose Values LD 50 (30 days) of less than 10mg/kg, are also locked away at the end of each working day and are tightly managed/controlled.

It is good laboratory practice to store other dangerous substances labelled toxic / highly toxic (includes substances that are also carcinogenic / mutagenic / toxic to reproduction) in a locked cupboard, even though they do not appear in Schedule 1. However, this decision can be made by the responsible person who would want to consider practicalities and local security.

DOs AND DON'Ts OF CHEMICAL STORAGE

DO NOT	WHY	DO
Do not store waste in poorly labelled containers	Poor labelling can result in mixing incompatible materials and / the waste being handled inappropriately	Label all waste containers clearly and accurately with the contents, hazards and where they originated (name of producer)
Do not store strong acids and bases with solvents	Acids and bases react with solvents to release heat and evolve gas Nitric acid will react violently with solvents	Store strong acids and bases in a cabinet designed for corrosive substances
Do not store pyrophoric substances in flammable solvent cabinets or stores	One is a source of ignition the other is a fuel	Store pyrophoric materials in separate flame proof containers. Refer to the safety data sheet for specific conditions
Do not store peroxides with flammable solvents	Peroxides form explosive materials on contact with solvent	Peroxides can be stored in a laboratory refrigerator
Do not put cardice (solid carbon dioxide also known as dry ice) or cardice / solvent mixtures into sealed bottles or containers	The liberated CO ₂ will cause an explosive overpressure	Dry ice / solvent mixtures should be allowed to reach room temperature before putting the solvent into bottles alternatively use storage bottles fitted with venting lids
Do not overload storage shelves	The weight of the material may exceed the safe loading weight of the shelf	Store minimum quantities of solvents and chemicals and avoid duplication of common chemicals
Do not mix waste in the same containers	Mixing two or more waste chemicals can cause violent reactions (e.g. chloroform and acetone or methanol in the presence of sodium hydroxide will react violently)	Store waste flammable solvent separately from chlorinated solvents NB <i>halogenated solvents are generally not flammable and do not need to be stored in a flammable solvent cabinet</i>

Hazard symbols

All hazardous chemicals must be labelled with appropriate hazard symbols. These changed in 2015 from old orange and black squares to red and black diamonds. A summary of the hazard symbols is shown in the table below:

OLD			NEW		
Symbols	Description	GHS-Symbols	Description	Hazard statement examples	
	E Explosive		GHS01 Exploding bomb	Explodes due to fire, shock, friction or heat; danger due to fire, blast and projectiles.	
	F+ Extremely flammable F Highly flammable		GHS02 Flame	Flammable; catches fire spontaneously if exposed to air; in contact with water releases flammable gases which may ignite spontaneously.	
	O Oxidizing		GHS03 Flame over circle	May cause fire or explosion; strong oxidizer.	
No equivalent			GHS04 Gas cylinder	Contains gas under pressure; may explode if heated; contains refrigerated gas; may cause cryogenic burns or injury.	
	C Corrosive		GHS05 Corrosion	May be corrosive to metals; causes severe skin burns and eye damage.	
	T+ Very toxic T Toxic		GHS06 Skull and crossbones	Small quantities are harmful or fatal.	
	Xn Harmful	No direct equivalent			
	Xi Irritant				
No equivalent			GHS07 Exclamation mark	Harmful, irritates eyes, skin or respiratory system; large quantities are fatal.	
No direct equivalent			GHS08 Health hazard	Causes allergic reactions; may cause cancer, may cause genetic defects; may damage fertility or the unborn child; causes damage to organs.	
	N Dangerous for the environment		GHS09 Environment	Harmful, toxic or very toxic to aquatic life with long lasting effects.	

Section 3: A-Z list of further topics.

Allergens: Refer to UCL's guidance on [Animal Allergens](#). It is the responsibility of line managers/supervisors to ensure this policy is followed. Animal Allergens are not the only source of workplace sensitizers. Please also refer to UCL's [policy on the use of Latex](#).

Compressed Gasses: Please refer to UCL [guidance on compressed gasses](#). There is related guidance available on [gas monitors and detectors](#).

Cryogenic substances: Please refer to UCL [guidance on cryogenic substances](#). In addition to considering the primary hazards posed by the cryogenic substances, ensure adequate consideration is given to secondary hazards, such as explosive decompression, and ensure that appropriate training, procedures and PPE are utilized. This is the responsibility of the manager/person responsible for the work.

Dangerous goods transportation: A number of staff in the Division are trained to support packaging and transport of biological material for transport. Speak to your local safety officer to find out more. You can also refer to [UCL guidance](#) on this topic.

Electricity: Please see [UCL guidance](#) on the inspection of portable electrical equipment. It is the responsibility of the manager/person in charge of the work/area to ensure that inspections are carried out. The [checklist](#) available online should be used.

Ionising radiation: A number of staff in the Division are appointed as Radiation Protection Supervisors (RPS). Please contact your RPS for advice on work with ionising radiation. You can also refer to [UCL guidance](#) on the topic.

Laboratory Work: The eLearning course 'Principles of Laboratory Safety' is a mandatory training requirement for new post-graduate students (inc. PhD students) working in laboratories. The course is also recommended for all staff new to UCL. It can be found on [Moodle](#).

Manual Handling: Consideration must be given to any process where repetitive movements are involved or the weight or position of the load could lead to injury. The guidelines for how much can be safely moved can be much lower than people expect, however each activity must be properly assessed and the findings recorded. Please refer to UCL guidance for more on [Manual Handling](#).

Pregnant workers: Managers must assess the risks to the health and safety of new and expectant mothers. The risks to new and expectant mothers, as well as other specific groups, should be considered and documented in risk assessments. More guidance can be found on the UCL [Safety Services website](#).

For any topic not specifically referenced above, please refer to the UCL Safety Services website.

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Annual Statement of commitment added May 2020



UCL

ANNUAL STATEMENT OF COMMITMENT TO THE DIVISION OF INFECTION & IMMUNITY'S SAFETY POLICY

UCL Division of Infection and Immunity

This document sets out my commitment to ensure that the activities of the Division of which I have been appointed Director will be carried out in a safe manner in accordance with the corporate statement of safety policy of University College London and the requirements placed upon me by the UCL Approved Code of practice entitled 'The Management of Health and safety in Departments,.

The Division has written Arrangements for safe working that have been drawn up to correspond with the work hazards and activities under my control.

I acknowledge that the Division is part of UCL and that I am responsible to the provost and President for the implementation of UCL's corporate health and safety arrangements wherever they may apply in the Division

Director of the Division of Infection and Immunity, Professor Emma Morris

A handwritten signature in black ink, appearing to read 'Emma Morris'.

21.05.2020

Signature

Date