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Health and Safety

# Policy

## Biological Safety

SAF-POL-BIO

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The Health and Safety Dept will maintain the official version of this document. Before referring to any printed copies, please ensure that they are up to date.

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# Biological Safety Policy

## 1. Introduction

**University policies establish standards and expectations for health and safety across the organisation and set the minimum standards expected.**

## 2. Scope

This policy covers the safe and effective management of Biological Safety across all University activities.

Each unit, which may be a Faculty, School, Department or Institute, will be referred to as Business Unit (BU) in this policy and should produce its own local arrangements on Biological Safety. Any local arrangements imposed at a local level must meet all requirements set out in this policy. Where there is a discrepancy, the University policy takes precedence.

The Health and Safety Department has established a University Health and Safety Management System (HSMS). The system is detailed in Health and Safety Management Systems Framework (MAN1.1) alongside the University Health and Safety Policy (P2) and creates a framework for the organisational management of health and safety at the University. All University policies and guidance are written to account for and implement these arrangements.

## 3. Policy statement

The University Health and Safety Policy (P2), alongside the Vice-Chancellors Vision Statement (P1) sets out the University's drive and ambition for health and safety, including defining our principal aims for health and safety. These aims are to ensure legal compliance is established as a baseline, and that everyone strives for best practice.

## 4. Regulatory background

The Control of Substances Hazardous to Health Regulations 2002 (as amended) (COSHH) are intended to protect against risks to health arising from exposure to hazardous substances, including biological agents. These are the principal regulations for biological agents, but particular work activities can fall within the scope of more specific regulations.

Genetic Modification work is subject to regulation by the Genetically Modified Organisms (Contained Use) Regulations 2014 (GMO(CU)) with some aspects being regulated by the Environmental Protection Act 1990, or if outside containment, the Genetically Modified Organisms (Deliberate Release) Regulations 2002. It is a legal requirement under the Genetically Modified Organisms (Contained Use)

Regulations 2014 for the University to appoint a University Biological Safety Advisor (UBSA) and to form a GM Safety Committee (referred to at UoN as the “Biosafety Committee”) to provide expertise and advice on contained use risk assessments.

The Anti-Terrorism, Crime and Security Act 2001 covers the security of certain pathogens and toxins, listed in Part 7 of Schedule 5 of the Act.

The Specified Animal Pathogens Order (SAPO) 2008 regulates the use of certain animal pathogens to prevent the introduction and spread into Great Britain of specified animal pathogens. If introduced, these could cause serious disease and economic loss to the British livestock and poultry industries.

Plant health is regulated by the Animal and Plant Health Agency (APHA). Requirements are set out in the EU Plant Health Directive and implemented in England by the Plant Health Order (England) 2005 which requires control of invasive or non-native plant diseases and pests.

International regulations from the United Nations governing the transport of dangerous goods, including biological agents, are in place. There are specific regulations for postal, sea, road, rail and air transportation. The University recommends that the International Air Transport Association (IATA) Dangerous Goods Regulations (DGR) are followed, as compliance with other transport regulations will then be met. The DGR are updated annually so shippers must ensure that they have access to current guidance. Note that the regulations include a **mandatory training requirement**. Any individual involved in the transport of dangerous goods must be trained, tested, certified every two years and retain a record of their training.

The Department for Transport (DfT) regulate security of High Consequence Dangerous Goods (Category A biological samples) in transport by road and rail. DfT require that those involved in transporting these materials have security training.

The Safe Management of Healthcare Waste Regulations outline the legal requirements and give guidance on safe disposal of healthcare waste, which is often known as clinical or biological waste in the University. Note that these Regulations were written with a healthcare setting in mind and can require interpretation in a laboratory setting. Others such as the Hazardous Waste Regulations 2005 also govern safe waste disposal.

## 5. Definitions

For the purpose of this policy, biological agents include:

- Bacteria, viruses, fungi, prions and other single cell organisms as defined under COSHH and the GMO(CU) regulations as relevant biological agents, whether genetically modified or not.
- All genetically modified microorganisms (GMMs) and genetically modified organisms (GMOs), including large GM organisms (LGMOs; plants and animals).
- Any organisms or materials covered in the SAPO regulations.
- Any organisms or materials covered by Schedule 5 of the ATCSA (pathogens and toxins).
- Any facility or space in which the above work takes place.

## Significant Incident

An incident that either has, or has the potential to, affect University operations or negatively impact its reputation.

## 6. Notifications and licensing requirements and fees

***All notifications must be made through the Health and Safety Department.***

The **COSHH Regulations** require that HSE must be notified in writing, at least 20 working days in advance, before biological agents in hazard groups 2, 3 or 4 are used at any particular premises:

- For the first time.
- Any subsequent use of agents specified in part V of Schedule 3 (any hazard group 3 or 4 agent, any three named group 2 agents: *Bordetella pertussis*, *Corynebacterium diphtheriae*, *Neisseria meningitidis*).
- Currently there is no fee attached to these notifications.

The **GMO (CU) Regulations** require advance notification to HSE of:

- intention to use a premises for genetic modification for the first time
- individual activities of classes 2, 3 and 4 involving GMMs.
  - There is a fee for this notification - see the HSE website for a current list of fees. <https://www.hse.gov.uk/biosafety/gmo/notifications/fees.htm>
- transfer of notified activity (from or to another organisation)
- “significant change” administrative only (e.g. change to name, address, premises, where the risk assessment is not affected) - by letter (no form).
- “significant change” requiring alteration to the risk assessment - by letter.
  - There is a fee for this notification, see the HSE website for a current list of fees. <https://www.hse.gov.uk/biosafety/gmo/notifications/fees.htm>
- Derogation under Reg 18(2) containment and control measures **after** normal notification has been submitted - by letter.
  - There is a fee for this notification, see the HSE website for a current list of fees. <https://www.hse.gov.uk/biosafety/gmo/notifications/fees.htm>

The **Specified Animal Pathogens Order (SAPO)** states that no person may have in their possession any specified animal pathogen listed in Part 1 of the Schedule to the Order or any carrier in which they know contains such a pathogen except under the authority of a licence.

Those who intend to possess or work with a specified animal pathogen, or a carrier of a specified animal pathogen must complete an application form for a licence under SAPO, which is available through the UBSA or the University Biosafety Committee via the local Biological Safety Officer (BSO). The licensing process can take up to 3 months to complete and may require a pre-licensing inspection. Currently no fees are required.

## 7. Roles and responsibilities

General roles and responsibilities for health and safety are defined in the University Health and Safety Management System (HSMS) (MAN1.2 - Roles and Responsibilities). Specific responsibilities are detailed below and are considered to be in addition. It is an expectation of the University to understand ownership and accountability. Roles identified below should be reflected in performance reviews to ensure safety alongside scientific endeavours.

### University Council will

- Seek assurance from the Director of Health and Safety that appropriate systems are in place to ensure compliance.
- Receive annual assurance reports from the Health and Safety Committee on compliance with this policy.
- Receive a copy of this policy from the University Health and Safety committee once approved.

### The University Health and Safety Committee will

- Be the formal oversight and compliance committee for the university and will provide assurance to University Council and University Executive Board (UEB).
- Provide University Council and UEB with copy of this policy once approved.
- Promote good practice among University staff and students in relation to the management of biological agents identified in this policy.
- Consider and advise on University management policy and arrangements.
- Be notified of any significant incident or enforcement action and ensure appropriate action is taken.
- Receive an annual report of audits and/or assurance monitoring.

### University Executive Board (UEB) will

- Ensure a University Biological Safety Advisor (UBSA) is appointed to oversee biological safety at the University.
- Ensure a University Biosafety Committee, reporting to the University Health and Safety Committee, has been established to address the requirements of the Genetically Modified Organisms (Contained Use) Regulations 2014 and to oversee hazardous biological work.
- Ensure that they receive information on the significant risks from biological hazards facing the institution.
- Consider the risk implications of strategic decisions such as large projects involving biological agents.
- Seek assurances that all health and safety arrangements for biological safety are adequately resourced.
- Ensure that they are provided with information on non-conformity with this policy.
- Seek assurances that all mandatory requirements for biosafety are met.

- Seek assurances that all health and safety arrangements for biosafety are adequately resourced.
- Seek assurances that identified risk control measures are in place and are being acted upon.
- Seek assurances that those with responsibilities for biosafety are adequately trained and competent.
- Seek assurances that there is a process for auditing health and safety performance for biosafety arrangements.
- Seek assurances that competent health and safety advice is available to assist in managing and assessing risks arising from biosafety activities.
- Be notified of any significant incident or enforcement action and ensure appropriate action is taken.
- Seek assurances that emergency plans are in place for biosafety activities.
- Receive an annual report of audits and/or assurance monitoring from the Health and Safety Department.
- Receive a copy of this policy from the University Health and Safety Committee once approved.

### **University Health and Safety Department will**

- Provide and keep updated policy, arrangements and guidance, to ensure any statutory requirements are met.
- Provide competent advice and support on biosafety to the University.
- Ensure appropriate oversight for compliance with the Biosafety Policy and provide reports to the University Health and Safety Committee and to UEB.
- Have oversight of training required for biosafety and ensure adequacy through routine review.
- Have oversight of situations where there are non-conformities with biosafety requirements.
- Report investigation findings following incidents or non-conformities to the University Health and Safety Committee and to UEB.
- Lead on and coordinate visits by external agencies, including the Health and Safety Executive.
- Receive annual assurance reports from Business Units on biosafety.
- Monitor Business Units are adhering to the University policy by carrying out audits (see University Health and Safety Monitoring Policy SAF-MAN3.1).

### **University Biosafety Committee will**

- Provide expertise and advice on biological and GM risk assessment.
- Approve new facilities for work with HG2 or above biological materials, SAPO 2 or above, GM Class 2 or above and all Schedule 5.
- Ensure the terms of reference and expectation of attendance (where required) are adhered to for relevant submissions and reviews by the Committee.



- Provide advice to the University Health and Safety Committee on all workplace biological hazards.
- Review and approve relevant biosafety policies and arrangements within the University to ensure compliance with current legislation, and to recommend to the University Health and Safety Committee any actions necessary to improve compliance and/or performance.
- Promote good practice for work with biological agents and biological material among University staff and students.
- Consider and advise on reports on biological safety and compliance of projects, facilities, biological materials and genetic modification across the University arising from formal inspections, monitoring, benchmarking and reviews including an annual report.

### **Heads of Business Unit will**

- Lead by example in order to develop and improve safety culture e.g., undertake leadership walk rounds and actively discuss health and safety matters with relevant staff or students.
- Ensure that a local BSO is appointed where biological work at hazard group 2 or above, any genetic modification work, SAPO licenced work or work covered by Schedule 5 is undertaken.
- Formally appoint their local BSO following the UoN procedures for appointment into Safety Critical Roles.
- Ensure that the local BSO has sufficient training, experience or knowledge and time and resources to enable them to assist in undertaking the measures required to meet all of the statutory provisions.
- Ensure that biological hazards are identified in their Business Unit.
- Ensure relevant resources are in place to manage Biosafety.
- Ensure that anyone in a management or leadership role can communicate effectively at all levels on health and safety matters.
- Ensure that following any significant incident or enforcement action that an appropriate investigation is undertaken, and any findings implemented.
- Provide opportunities to hear and discuss any concerns raised within their Business Unit.
- Ensure arrangements for effective cooperation and coordination between all relevant parties to ensure safety.
- Ensure that no work requiring a notification as outlined in this policy starts before approval is given. Consider any biological risk implications of strategic decisions such as new projects and multidisciplinary facilities.

### **Principal Investigators / Line Managers will**

- Comply with all policy, arrangements and guidance both at a University and local level.
- Ensure that suitable and sufficient risk assessments are in place for their area of responsibility.
- Ensure that adequate resources are in place.
- Ensure that staff they're responsible for are receiving relevant training and that this is recorded robustly.

- Ensure suitable levels of supervision are in place.
- Report any shortcoming or defect in the current control measures.
- Ensure all incidents (including near misses) relating to their activities are appropriately reported and investigated.
- Ensure suitable monitoring activities are followed and any actions are completed.
- Where monitoring activities identify significant compromises of health and safety, suspend the activity pending implementation of appropriate actions.
- Ensure that all biological work at hazard group 1 and class 1 genetic modification assessments are reviewed by the local BSO.
- Ensure that all biological work at hazard group 2 or above, genetic modification work of class 2 or above, SAPO licenced work or work covered by Schedule 5 for their group(s) is notified in a timely fashion to the University Biosafety Committee through the local BSO before work starts.
- Ensure that new facilities and modifications are notified to the University Biosafety Committee for approval.
- Ensure that no work requiring a notification as outlined in this policy starts before approval is given.
- Ensure an inventory of biological agents held by their group is kept and maintained.

#### **Local Biological Safety Officers (BSOs) will**

- Provide advice and guidance to PIs in their Business Unit to undertake biological and GM risk assessments effectively and implement appropriate controls.
- Notify any biological work at hazard group 2 or above, genetic modification work of class 2 or above, SAPO licenced work or work covered by Schedule 5 to the Biosafety Committee.
- Maintain an inventory of biological agents for the Business Unit.
- Coordinate annual review of biological agent risk assessments.
- Where health and safety is being compromised suspend the activity pending a further assessment.
- Report significant failings relating to the local biological agent risk assessment process to senior managers.
- Inform the UBSA of any new containment laboratory facilities or any modifications planned in existing facilities.
- Provide support and technical input in the investigation of any significant accident, incident or enforcement action relating to biosafety.
- Have an oversight of local monitoring related to biosafety.
- Participate in Health and Safety department biological audits.
- Attend the University Biosafety Committee.
- Provide biosafety reports to the Business Unit Health and Safety Committee and report on significant issues to the Biosafety Committee.

## Estates will

In University maintained buildings estates are responsible for ensuring that:

- New and refurbished containment facilities are designed, installed and commissioned to the appropriate containment standard.
- Suitable physical building security measures are installed and maintained in areas where Schedule 5 organisms and toxins are used or stored.

## Occupational Health will

- Undertake health surveillance and immunisation services where appropriate in accordance with University policy and where identified through risk assessment.
- Ensure maintenance of health records / exposure records.

## Individuals (staff, students or other employees) at the University will

- Take appropriate action in the event of an emergency as per University emergency procedure.
- Comply with all policy, arrangements and guidance at the University and at BU level.
- Undertake activities in a safe manner.
- Report any shortcomings or defects to their line manager.

## 8. Appointment of Safety Critical Roles

Local BSOs should be formally appointed, and sufficient time and training provided to allow them to perform their duties. The appointment of Local BSOs should be in accordance with the University Management arrangement, SAF-MAN2.1 - Appointment of Safety Critical Roles.

## 9. Risk assessment and seeking advice from your Local BSO and the Biosafety Committee

### 9.1 Risk Assessment

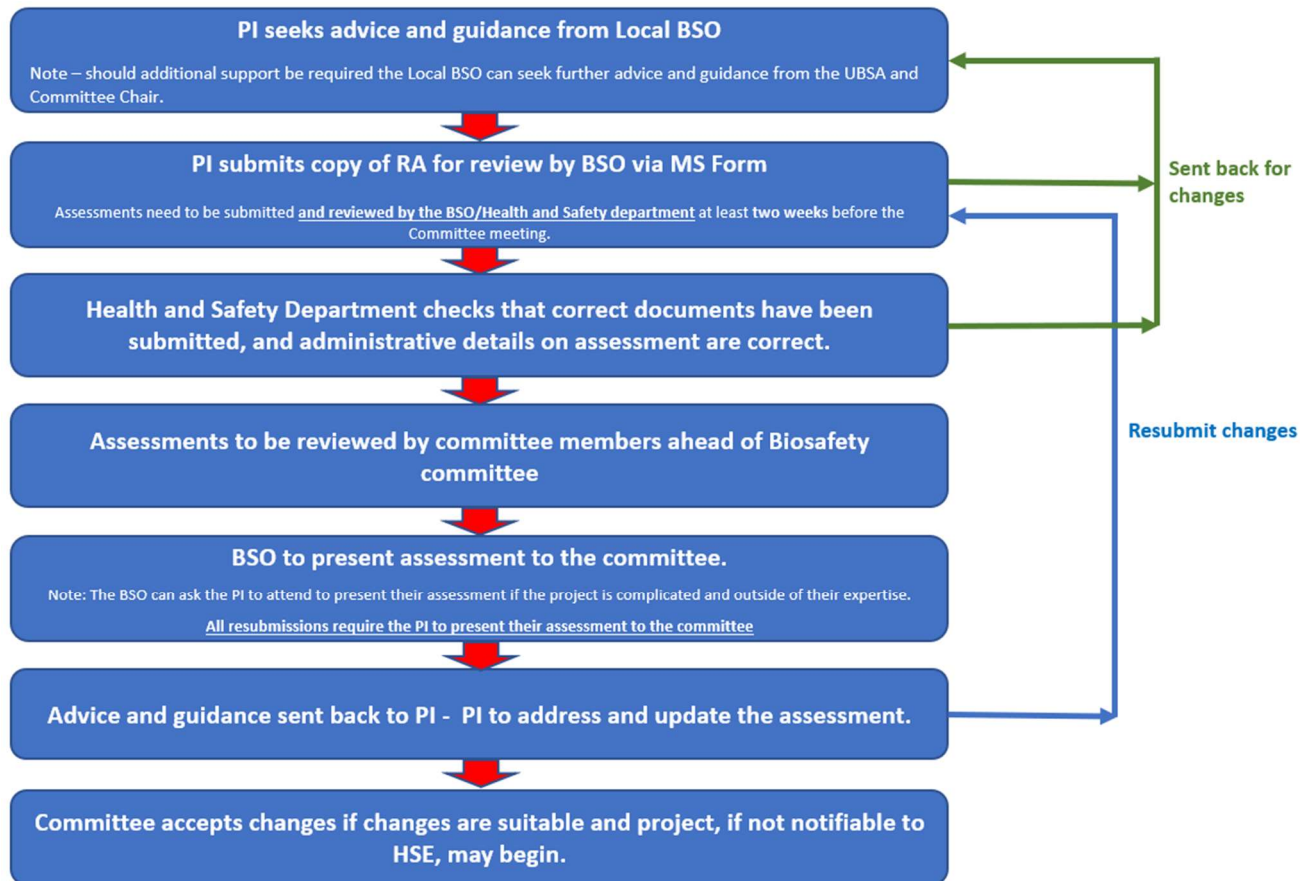
All Biosafety work/activities shall be subject to suitable and sufficient assessment of the risks (see SAF-MAN-2.3).

Work with biological agents must have been assessed, advice provided, and where required notifications and licences obtained before work can start.

Forms and templates can be found on the Safety Office website under Biosafety.

## 9.2 Seeking Advice from your local BSO and the Biosafety Committee

PIs must seek advice and guidance from their Local BSO and / or the Biosafety Committee on assessment of biological agents. For more information on the Biosafety Committee see the Management Arrangement SAF-POL-Bio-TOR.



Risk assessments must be used to determine appropriate control mechanisms. For additional information see section 9.1.

## 10. Control measures

Control measure identified in your risk assessment must be put in place in the lab or work area before work starts. Where practicable Business Units should produce local rules and / or a code of practice which should consider the following areas:

### Topics for consideration / inclusion in local rules and code of practice;

- Details on general or specific/specialised hazards within the labs
- What alarms are fitted, what the alarms mean, what actions should be taken
- Health surveillance, vaccinations and personnel requirements
- Training, supervision and competency, records of training, refresher training
- Reference to other documents, risk assessments, GM assessments, SOPs etc
- Lab rules, housekeeping and cleaning

- Personal protective equipment
- Reporting defects
- Storage and labelling details and practices
- Equipment used
  - Information on MSCs, autoclaves and other lab equipment
- Waste streams, segregation – where to put what
- Approved disinfectants, contact times, how the disinfectant is made up and how often
- Detailed on any license requirements and reference
- Loss of containment, chemical and biological spillages
- Access restriction
- Access of maintenance personnel
- Out of hours working
- Any other information required
- Other significant hazards

## 11. Maintenance and servicing

Equipment maintenance promotes its correct and safe function and extends its useful life. COSHH includes a statutory requirement for maintenance and testing of equipment used to control exposure to hazardous biological agents in containment laboratories. The interval of testing reflects the level of risk, and generally more frequent maintenance is required for equipment used in CL3 laboratories. Such testing is required to ensure that the equipment continues to perform as originally intended by design and will contribute to the adequate control of exposure. Suitable records must be kept.

Guidance on statutory inspection can be found the Safety Office webpages.

## 12. Training, competency and supervision

The university will ensure that all relevant staff who have responsibilities for biosafety will receive the appropriate level of training detailed below.

It is important that employees have suitable training, competency, and supervision in order to safely undertake the role. This section defines specific requirements that are in addition to those in the Health and Safety Management System (see SAF-MAN-2.5 – Training and Competency and MAN2.1 – Appointment of Safety Critical Roles).

<b>Biological Safety Training</b>		
<b>Role</b>	<b>Expected minimum experience and training</b>	<b>Supervised / supported by</b>
University Biosafety Safety Advisor	Appropriate scientific and lab experience. Minimum BSP1, holds or working towards NEBOSH Diploma	Director of Health and Safety.

## Biological Safety Training

Local Biological Safety Officer (BSO)	Appropriate scientific and lab experience, completion of BSP1.	UBSA
Principal Investigator (PIs) / line manager	Appropriate scientific and lab experience, completion of / attendance at internal University biosafety courses	BSO
Staff / Students	Local induction and training on risk assessments, procedures and local rules, including GM assessments, completion of / attendance at internal University biosafety courses.	PI and BSO

Records of all training and instruction must be kept at University level (by Health and Safety Department) for the UBSA and at Business Unit level for BSOs, PIs and staff / students.

The University has a duty to ensure employees are competent to carry out their work tasks and where competency has not been attained, appropriate supervision must be in place. The employee's line manager is responsible for managing this.

## 13. Monitoring and inspection

In order to ensure high standards of health and safety are maintained, the University policy is to carry out monitoring and inspection in all areas in accordance with the University's Monitoring of Health and Safety Performance (MAN3.1). Monitoring must be carried out at both Business Unit and University levels; records of monitoring must be kept robustly on the University system and the responsible person must ensure that actions are being followed up and completed.

Specific monitoring and inspection requirements are listed below and map to the 5 levels established by the Health and Safety Management System.

The approved monitoring tools can be found on the Safety Office website.

### Training and competencies for using Compass monitoring tools

Type of Monitoring	Carried out by	Specific Training and competency	Frequency and requirement	Reporting to
<b>Level 1 Housekeeping Checks</b>	Local employee/monitor e.g., Technician, Post-Doc, PGR, Administrator	Briefed on what to look for, how to record and how to report issues.	Monthly	Local manager and HSC/HSA as set in BU arrangements
<b>Level 2 Inspections</b>	HSC/HSA or other safety critical role with local staff	Briefed on what to look for, how to record and how to report issues.	Annually	Biosafety Committee, HSC & local manager.

## Training and competencies for using Compass monitoring tools

				Summary report to BU Health and Safety Committee
<b>Level 3 BU Mini audits with Success Indicators</b>	HSC with support from local BSO	NEBOSH certificate or equivalent. Trained in how to undertake inspections and report.	As identified in local plans	Biosafety Committee, HoBU and BU Safety Committee
<b>Level 4 Annual Plan and Review</b>	HSC	NEBOSH certificate or equivalent. Trained in how to undertake inspections and report.	Annually	HoBU and BU Safety Committee
<b>Level 5 University Audits</b>	Health and Safety Advisors in H&S Department	NEBOSH Diploma trained or equivalent. Trained & experienced in formal auditing techniques.	Every 3-5 years	Biosafety Committee, HoBU. University Health and Safety Committee
<b>Review of Risk Assessment</b>	Local BSOs and PIs	Knowledge of risk assessment.	Annually	Biosafety Committee, HSC & local manager. Summary report to BU Health and Safety Committee
<b>BA Inventory</b>	Local BSOs and PIs	Knowledge of work being carried out.	Bi-annually	Biosafety Committee, HSC & local manager. Summary report to BU Health & Safety Committee

Key performance indicators (KPIs) for Biological Safety to be measured are given below:

### Current KPIs to be measured. Current Target on Biosafety Homepage.

Percent of BARAs / GMRAs reviewed within the last year

BSO Attendance at Biosafety Committee meetings

Number of staff and students having completed e-learning module

Number of audits completed in Biosafety labs annually

% of BA/GM assessments bounced by committee

Monitoring of incidents by Business Unit and type

**Table for Assurance Reporting (KPI)**

Description of Report	By	To	Frequency
Biosafety Report for Business Units	H&S Coordinator	HoBUs	Business Unit Health and Safety Committee
Biosafety Report for University Health and Safety Committee	UBSA	Health and Safety Committee	Annually
Audit	Health and Safety Department	Health and Safety Committee	3 – 5 Years

## 14. Emergency Plans

Local arrangements should be in place to deal with emergencies and other untoward occurrences that may take place for all areas where biological work is carried out, e.g. accidental release of biological or GM agents, fire or flooding, etc. Emergency plans for containment laboratories should include:

- The foreseeable types of incidents, accidents and emergencies that may occur
- The role, responsibility and authority of individuals during an emergency
- Procedures for workers to follow
- The safety equipment and PPE to be used
- First aid facilities
- Procedures for cleaning up, decontamination and waste disposal
- Reporting procedures
- A programme of safety drills or practice
- A post-incident investigation and review to identify what happened and why, how it was dealt with and if any amendments are required to the emergency plan.

## 15. Incident reporting

The Health and Safety Management System defines the University process for Incident Reporting, Investigation and Trend Analysis (see MAN3.02)

When the immediate crisis has been dealt with and people are no longer at risk, the incident must be reported locally, and to the Health and Safety Department who will inform HSE if necessary. All incidents will be investigated with the aim of identifying lessons learned and preventing similar occurrences in future. Any remedial actions required must be implemented immediately where possible and lessons learnt communicated widely to all who can benefit.

In some cases, HSE must be notified by the Health and Safety Department under the Reporting of Incidents, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR). We are required to report any infection reliably attributed to work with live or dead humans or animals, exposure to blood or bodily fluids or any potentially infected material derived from any of the above.



Under the GM regulations any significant and unintended release and which presents an immediate or delayed risk to human health, or the environment must be reported to the HSE via the Health and Safety Department.

Accidents or incidents that result in or could result in the release or escape of a biological agent likely to cause severe human disease (HG3) is defined as a Dangerous Occurrence also to be reported under RIDDOR.

## 16. Occupational Health and Health Surveillance

The University Occupational Health Service provides services to protect the health of staff and students, at work, in training, and in study, to assess fitness for work, training and study, and to help manage health issues effectively.

Occupational Health staff see clients by appointment via management referral. Management referral documents available from the HR website. The staff cannot provide primary care, minor injury or accident and emergency services.

### 16.1 Immunisation

There are effective vaccines against some biological agents. On the basis of a specific risk assessment, the Occupational Health Service can make arrangements for vaccination, for workers who are considered vulnerable to the biological agents to which they may be exposed, or are likely to be exposed to, at work.

Immunisations should be seen purely as a useful supplement to reinforce other safety controls, and not as the primary protective measure.

### 16.2 Health Surveillance

Health surveillance is required under COSHH where:

- There is an identifiable disease or health effect which may be related to workplace exposure.
- There is a reasonable likelihood that the disease will occur.
- There are valid techniques for detecting indications of the disease or its effects.

A suitable health surveillance program for laboratory work may range from self-checks, through to medical surveillance and clinical examination, depending on the nature of the work and the biological agents involved. Visiting researchers are included in health surveillance where this is appropriate.

- Pre-employment screening - may be by questionnaire rather than medical examination. This is carried out by the Occupational Health Service in collaboration with Human Resources.
- Monitoring - checking employee's health to detect workplace illness e.g. following up sickness absence, or explaining symptoms to workers so they can monitor their own health. In some cases it may be useful to issue medical contact cards to alert medical practitioners about the nature of the work in the event of sudden illness.

The University Occupational Health Department carries out health surveillance for people exposed to respiratory sensitisers, such as animal allergens, at work.

The requirement for health surveillance should be identified in your risk assessment.

For detailed information on this, please consult the University Management Arrangement, MAN 2.04 - Health Surveillance.

## 17. New and Expectant Mothers

A new or expectant mother is someone who is pregnant, has given birth in the previous six months or is breastfeeding. Health and safety advice for new and expectant mothers and their managers can be found on the Safety Office website.

Certain biological agents can affect the unborn child if the mother is infected during pregnancy. Infections can be transmitted across the placenta while the child is in the womb, during birth or after birth e.g. during breast feeding or during close physical contact between the mother and child.

Examples of biological agents that can affect the unborn child include: *Chlamydia abortus*, *Listeria monocytogenes*, *Parvovirus*, *Cytomegalovirus*, *Rubella virus*, blood borne viruses such as HIV, Hepatitis B, C, A, and E, *Toxoplasma gondii* and Varicella-zoster virus.

Exposure to these agents can occur outside the laboratory environment, therefore the risk assessment should reflect the likelihood of exposure and the appropriate controls that are put in place. Pregnant veterinary staff and students should avoid contact with ewes, lambs and placentas at lambing time to control exposure to infectious agents.