

# School of Clinical Medicine Safety Manual

Incorporating:

Safety Policy for the Department of Oncology

**Part 1 of 2**

Issued: 2016

Amended date: 26 March 2020

Review date: 09 January 2021

**Contents**

This Safety Manual contains information which is generally applicable to all University departments/institutions within the School of Clinical Medicine. The core template, which is maintained by the Clinical School Safety Officer, should be adapted and supplemented with local information as appropriate.

The Manual is in two parts with Part 1 containing the most generally applicable information forming core policy. This part contains the departmental safety policy statement and should be signed by the Head of Department.

Part 2 and the Appendices referred to herein comprise more specialised information/policy and are expected to be consulted as required along with corresponding information, comprising policies and guidance, from the University Safety Office.

A set of departmental local rules and procedures should accompany this document to form the full Departmental Health and Safety Policy.

At least one full copy (parts 1 and 2 and appendices) signed by the Head of Department should be held as hard copy centrally for reference. Hard copies of Part 1 should be issued to departmental members as required while Part 2 and other departmental or Safety Office information can be accessed via electronic formats.

The template is reviewed regularly by the Clinical School Safety Committee. Any errors or omissions encountered should be reported to the Clinical School Safety Officer.

Departments are free to develop this manual according to circumstances e.g. departments that do not operate laboratories or employ staff who work in them can dispense with laboratory specific sections. However, the generic information within the Manual template **should not be changed without consultation** with the Clinical School Safety Officer.

<b>Part 1</b>	<b>Page</b>
1. Introduction .....	4
2. Statement of Departmental Safety Policy .....	6
3. Responsibilities .....	8
4. Risk Assessment and Training .....	10
5. Safety Information and Advice .....	12
6. Fire .....	13
7. Accidents .....	15
8. First Aid .....	16
9. Out of Hours Emergencies .....	17
10. Serious Incident Procedure in Addition to Fire .....	18
11. Office Safety .....	19

12. Visitors Including Contractors .....	21
13. Atypical Lone Working, Travel and Working Away .....	22
14. Good Laboratory Working .....	25

## Part 2

15. Chemicals .....	32
16. Cryogenic Gases .....	35
17. Compressed Gases .....	37
18. Ionising and Non-Ionising Radiation Including UV, Lasers, MRI ...	39
19. Biological and Genetic Modification (GM) Work .....	43
20. Blood Work .....	48
21. Needles and Other Sharps .....	50
22. Electricity, Equipment, Repairs and Maintenance .....	51
23. Working at Height .....	53
24. New and Expectant Mothers .....	55
25. Clinical Research .....	56

## Appendices/Local Rules and Policy

I. Specific Fire Arrangements and other Emergencies .....	58
II. Accidents: Basic Action .....	59
III. Display Screen Equipment/Visual Display Units (DSE/VDUs) .....	62
IV. Upper Limb Disorders .....	65
V. Manual Handling .....	67
VI. Chemical Storage and Waste .....	68
VII. Rules for the use of Lasers .....	70
VIII. Local Rules for Work with Radioactive Sources/Radiation .....	71
IX. Local Rules for Work with Biological Agents/GMOs .....	72
X. Departmental Safety Committee(s) .....	77
XI. Safety Contacts and Organogram .....	78
XII. Food and Social Events .....	82
XIII. Disinfection Policy .....	85
XIV. Biological/Clinical waste .....	86
XV. Asbestos Management .....	87
XVI. Legionella Management .....	89
XVII. Occupational Health Arrangements .....	90
XVIII. Work Experience .....	91
XIX. Recycling .....	92
XX. Emergency Action Plan .....	93
XXI. Transport of Samples/materials .....	94
XXII. Travel and Working Away .....	95

## **PART 1**

### **1. INTRODUCTION**

The University Statement of Health and Safety Policy forms the core of health and safety management within the University:

‘The University of Cambridge is committed to the highest standards of education and research. With this comes the responsibility for the health and safety of the staff, students, visitors and others who may be affected by our activities.

The University will take all reasonable steps necessary to provide a healthy and safe environment for work and study. Compliance with all statutory obligations is the minimum standard. It is the duty of every employee to take care of their own health and safety and that of others who could be affected by their acts or omissions. In addition, employees have a duty to bring to the attention of the employer any failings in the arrangements for health and safety. The University Health and Safety Policy can only be effective if there is commitment by all staff, students, visitors and others at the University.’

In summary, the policy lays out the following:

The University recognises that failures in health and safety management can potentially lead to loss of life, personal injury, damage to property and legal action.

Control of risk is a management responsibility inseparable from other aspects of professional management. The underlying principle of policy is that those who create the risks must manage them.

Heads of Departments are responsible within their own domain(s) for implementation of University Health and Safety Policy. Each Head of Department shall prepare a Departmental Safety Policy and must ensure, as far as is reasonably practicable, that everyone who may be affected by the activities of the Department, is aware of the health and safety arrangements, and members have appropriate information, equipment, knowledge, time, training and supervision to enable risks to health and safety to be identified and controlled.

Each Head of Department must appoint an appropriate member of staff as Departmental Safety Officer, to advise on and administer health and safety policy, and a suitably trained Fire Safety Manager and sufficient fire wardens to ensure that procedures and controls are developed for the evacuation of their areas in an emergency.

No work shall be undertaken unless suitable and sufficient assessment of risk has been carried out by the appropriate person. This will be the person who supervises any activity.

All staff in a supervisory position must be familiar with the University Health and Safety Policy and recognise that they have in this respect responsibility for the health and safety of those whom they supervise.

The Policy also defines safety roles within the University.

Copies of the University Policy are available from the University Safety Office.

## 2. STATEMENT OF DEPARTMENTAL SAFETY POLICY

It is the policy of the Department that all work is done efficiently and safely. All who work in the Department are required to observe the provisions of health and safety legislation and University and departmental safety policies.

The Head of Department (HoD) is responsible for implementing University Safety Policy and may delegate the day-to-day management of safety to the Departmental Safety Officer (DSO) and specialist officers (appointed by letter unless in their role descriptions) for hazards such as biological agents, radiation, fire etc. as necessary. The University Safety Policy states that in discharging their responsibility Heads of Department must ensure that the relevant procedures are in place.

All those having a **supervisory** role in the Department, at whatever level, are expected, so far as is reasonably practicable, to identify the hazards associated with any premises, plant, process, or substance for which they bear responsibility, to carry out risk assessments, and either to remove any hazards identified or by means of appropriate control measures to reduce the level of risk associated with them to those whom they supervise or who may otherwise be affected.

Risk assessments must be reviewed periodically, at intervals in relation to the magnitude of risk they represent and in the light of changes to working practices/environments (new personnel, agents, applications etc.)

Training and information are key elements in providing a safe working environment. Supervisors, managers and staff/students must identify and provide/arrange for training needs as necessary, either through the Department or via the University. Training is particularly important on induction of new members or where there are significantly increased or altered risks. All new group leaders/PIs should be introduced to the Clinical School Safety Officer.

Equipment must be supplied and maintained so that it may be operated safely. Users should make their own checks before use and report any defects. Certain equipment must undergo regular checks according to specific legislation; local exhaust equipment (e.g. microbiological safety cabinets, fume cupboards), pressure equipment (e.g. autoclaves) and lifting equipment (e.g. hoists) must be inspected annually by competent persons.

Health and safety information relevant to particular groups should be kept in one readily accessible place for easy reference by group members or during any inspection.

The Department will ensure that there is sufficient cooperation and exchange of information with other University or external institutions as is necessary to ensure the health and safety of departmental members or others who may be affected by departmental work activities. Where members work in other institutions, they will operate in accordance with the procedures and practices of that organisation; any

activities that are not the responsibility of that organisation remain the responsibility of the Department and must be managed according to departmental principles.

The Department will include health and safety considerations in any strategic or developmental plans. Any works affecting the fabric of the Department must involve liaison with the appropriate estates/facilities departments.

Inspections will be held annually, lead by the Head of Department or other senior member, accompanied by safety officers, and appropriate representatives of the areas to be inspected. The Clinical School Safety Officer and a member of the Health and Safety Office will also be invited to attend.

Safety matters will be given suitable consideration at departmental committee level on a regular basis involving the Head of Department and/or senior departmental members.

Each employee of the Department and each student working in the Department has responsibility to take care of their own safety and the safety of others.

All departmental members are expected to comply with the policies and procedures herein or otherwise issued by the Department.

Signed:



Head of Department

Date:

### **3. RESPONSIBILITIES**

#### **3.1 Head of Department**

The HoD has devolved resource management responsibility and therefore carries general responsibility for local (departmental) operations including safety. The HoD will lead in committing the Department to operate to a high standard and that its performance is effectively monitored.

#### **3.2 Departmental Administrator/Business & Operations Manager**

The administrative manager should be familiar with University and departmental safety policies, and is responsible for ensuring that there are adequate arrangements in place to manage safety and by liaison with the safety role holders, monitor the effectiveness of safety measures in controlling risk.

They will facilitate safe project management, allocating resources and considering safety as part of departmental planning and strategic development.

They are responsible for maintaining safety related records such as safety training attendance records.

#### **3.3 PIs and Supervisors**

Supervisors/PIs are in key positions to manage safety given that they are in the best position to have knowledge of the people and risks involved with their projects. They are operational people managers at base level and so are responsible for ensuring their group's work is conducted safely. Good supervision, including safety, should set the example to those being mentored.

Supervisors are responsible for ensuring that work carried out for their projects is risk assessed and significant findings recorded.

Supervisors must arrange appropriate training for those they supervise and should monitor their competence for example in working unsupervised, out of normal hours etc.

Groups/sections should manage safety locally by including safety in group meetings, nominating local safety contacts and monitoring higher risks, such as chemical storage, as appropriate.

It is expected that supervisors/PIs will structure their groups (nominate persons) to address safety areas such as supervision and training, local monitoring/safety specialism or contact point between the department and their group as necessary.

Supervisors must ensure group members working away from the department have suitable health and safety arrangements in place.



The University Safety Office provides training on PI responsibilities.

### **3.3 Researchers, support staff and students**

All other departmental members need to take reasonable care for their own and other's safety and they must cooperate with the department on matters of safety. They should understand the risks assessed for the work they are doing, abide by any safety rules and report safety concerns and accidents.

#### 4. RISK ASSESSMENT AND TRAINING

Risk assessment and training are fundamental management control measures providing key information for people to control risks associated with their work. They are essential in developing good health and safety practice.

No new work activities are to be undertaken unless suitable instruction has been received and any risks appraised, including those who are not directly involved but who may be affected e.g. shared work areas.

University policy reflects national safety legislation and requires that all work is risk assessed and appropriate, proportionate measures applied to mitigate significant risks. Departmental members must be familiar with the relevant information and procedures before starting any new work; if in any doubt, ask.

It is important that all significant risks within the Department are prioritised, recorded and made known to those who may be affected, directly or indirectly. Assessments must be reviewed periodically or when significant changes occur.

Common work procedures or practices are often covered by a generic risk assessment; where the work presents enhanced or different risks these must be incorporated into a specific risk assessment. Some types of work may have to be communicated to the departmental safety committee(s).

Assessments may be undertaken by the person doing the work with suitable guidance from the group leader or other competent person. Safe or standard operating procedures and training will be informed by the risk assessment as well as any appropriate emergency procedures.

Risk assessments should identify situations where health surveillance is necessary and Occupational Health registration is required.

Training will be provided both at induction and for specific tasks and will be ongoing (including refresher training as appropriate). Training should be appropriate to experience and take into account particular vulnerabilities such as young persons.

**New staff:** will be inducted as soon as possible initially according to requirements laid out in the Human Resources checklist including basic safety. As part of induction, several online modules including general safety and fire are to be used.

**Students:** A Safety Course for New Graduate Students in Scientific Departments is held annually by the University Safety Office. Students must attend unless they have been formally excused by the Head of Department.

All new members of the Department will receive general and local induction safety training from the DSO or other designated individuals. Specific/ongoing training will be

identified by PI/supervisors on starting, at the time of appraisal or when persons are reassigned to new work. Individuals may request training themselves as necessary.

Training may be required for non-departmental staff who may be regular attenders, such as cleaners, or less frequent such as engineers. It is important that these workers receive appropriate induction/training as required by their operations within the department.

A number of seminars and training sessions are arranged each year by the University Safety Office. These courses should be used to complement other training as appropriate.

Records of training are very important and will be kept by the Department and can be kept by individuals/supervisors using the Personal Training Record available at the Safety Office website (some training and records thereof are mandatory e.g. work with radiation and at high (CL3) biological containment).

Training should be kept under regular review, at appraisal time or when work changes e.g. a new technique. Students will not fall within a staff development program but must be in receipt of comparable consideration.

See the Safety Office website for relevant publications and their extensive training course program. On line induction and safety training can be accessed via the Clinical School, Human Resources/Safety Office and Estates Management (Fire) websites.

## 5. SAFETY INFORMATION AND ADVICE

Safety information is available through the various Departmental information sources, including our departmental website: <http://www.oncology.cam.ac.uk/current-members/health-and-safety>. Further information is also available at the University Safety Office website [www.admin.cam.ac.uk/offices/safety](http://www.admin.cam.ac.uk/offices/safety) including a comprehensive set of policy and guidance publications and the Clinical School website [www.medschl.cam.ac.uk/](http://www.medschl.cam.ac.uk/).

The Department has appointed a number of individuals to assist with safety management in different areas. Departmental members should be familiar with who such persons are and consult as required – if in doubt, ask.

Health and safety matters should be raised with the relevant Departmental Safety Officers in the first instance. Advice can also be sought from the Clinical School Safety Officer, University Safety Office, Occupational Health or Estates Management (fire).

All new departmental members should be made aware of those with safety roles. Changes of safety personnel must be advised to the CSSO and University Safety Office.

See Appendix XI.

## 6. FIRE

The Department recognises that fire represents a serious risk and undertakes to mitigate this risk through a robust fire safety management system. The HoD and the appointed fire safety team will ensure that fire risk assessments for buildings and activities therein are undertaken and findings actioned, that there are suitable fire response procedures and that all fire safety issues and arrangements are under regular review.

All departmental members and visitors (particularly those that may spend time independently of others) must be familiar (through induction) with the sound of the fire warning, location of the fire alarm call points, the emergency exits and means of escape, the Fire Evacuation Procedure and Fire Assembly point for each area in which they work.

### ON DISCOVERING A FIRE:

- Sound the fire alarm immediately by activating the nearest call point and alert colleagues nearby before evacuating; without risking yourself, assist others should they need it.
- Leave immediately by the nearest fire exit route and proceed to the assembly point.
- Do not stop to pick up personal belongings and do NOT use lifts.
- If confident and unlikely to endanger yourself or others, use an appropriate extinguisher to douse the fire, but only after raising the alarm, either yourself or by getting someone else to do so. Remember that the different types of extinguishers for general use have different applications according to fire type and location. Staff should know the location of extinguishers within the area they are working.

Inform the Laboratory Manager or Fire Officer if a fire extinguisher has been used, however briefly, so that the used extinguisher can be sent for testing and refilling.

Extinguishers and alarm systems must be checked on a regular basis.

It is University policy that all members undertake fire safety awareness training **every two years – this is mandatory**. Staff are encouraged to attend more advanced training including the use of extinguishers.

Staff who may need passive or active assistance to escape in an emergency must be assessed for a personal emergency evacuation plan which should include training for those identified as assistants.

During evacuations, appointed departmental fire wardens will check and assist with evacuation progress. It is expected that members will cooperate with their directions.

Members visiting other areas or organisations should expect to be made aware of local arrangements by their hosts.

See Appendix I.

## 7. ACCIDENTS

All departmental members must be familiar with the specific emergency procedures necessary to employ in the event of an accident at any stage of the work they are doing. These have been drawn up by the Department and included in any risk assessment, induction or training period. Basic action for incidents involving concentrated acid or alkali on the skin, splashes to the eye, ingestion of poisonous chemicals, burns, scalds and electric shock are listed in Appendix II.

Members of staff qualified in first aid may not always be available and everyone should familiarise themselves with how to summon suitable help. **All** accidents involving personal injury, however slight, should be reported to a First Aider as soon as possible.

**All** accidents, potentially dangerous occurrences ('near misses'), and major spillages must be reported to the Laboratory Manager/Departmental Safety Officer or their Deputy. Incidents or near misses should be reported so that potential causes of future accidents can be identified.

The University has introduced a new accident/incident reporting system. It is now an online system and paper forms (or scans/emails of the old forms) will no longer be accepted.

All members of the Department who wish to report an accident / incident, however major or minor, can do so by clicking on the 'AssessNet' logo as shown below (portal link) within the Accident & Reporting page.



Once you have logged into the online reporting system, there are manuals, guidance and screen tours to assist you to complete reports.

All relevant information about the new reporting system can be found at the following link: <https://www.safety.admin.cam.ac.uk/subjects/accidents-incidents> and a guidance note at: [https://www.safety.admin.cam.ac.uk/system/files/hsd091e\\_0.pdf](https://www.safety.admin.cam.ac.uk/system/files/hsd091e_0.pdf)

Submission of an incident via the portal will alert the Department Safety Officer (DSO)/other registered departmental users to complete any investigations, finalise and electronically 'sign off' the report for submission to the University Safety Office.

The Clinical School Safety Officer must also be informed directly of any serious incidents.

In addition, any details that are specifically applicable to Addenbrooke's Hospital or other partner organisations should also be reported to the appropriate risk management offices.

Accident reports will be monitored and **investigated** as appropriate.

See Appendix II and the Safety Office website.

## **8. FIRST AID**

Suitable cover for first aid needs is arranged by the Department and first aider contact details are posted at suitable locations. Members should be familiar with those details or at least where to find them and also any alternative cover arrangements for leave. Members visiting other locations should be aware of the arrangements of their hosts.

First aiders can log on to the online portal to report an accident / incident, however major or minor, can do so by clicking on the 'AssessNet' logo as shown below (portal link) within the Accident & Reporting page.

See also Safety Office website for further information:

<https://www.safety.admin.cam.ac.uk/subjects/accidents-incidents> and a guidance:

[https://www.safety.admin.cam.ac.uk/system/files/hsd091e\\_0.pdf](https://www.safety.admin.cam.ac.uk/system/files/hsd091e_0.pdf)



## 9. OUT OF HOURS EMERGENCIES

All departmental members who may work outside typical hours (9am-5pm) must be familiar (through induction) with the security service provision for the building(s) they work in. In the event of an emergency which requires the Emergency Services (e.g. fire or serious accident), **dial 9-999 from internal phones**. Emergencies should be reported to the University Security Control Centre on **101** (Emergency Number) on a University telephone - for the Addenbrooke's Hospital Security Office, dial **700-3333**.

In the event of an incident out of hours which does not necessarily require the Emergency Services but which requires immediate attention (e.g. non-serious accident, failure of security system, malfunction of electrical equipment, flood) contact the relevant departmental support staff. All those working out of normal hours must know the relevant contact details or where to find them easily. The University Security Control Centre also has support staff details – dial 101 in emergency or 31818 for routine calls (both on the University network).

**Alarm systems** for hazardous areas such as cold rooms and cryogenic store rooms must be fit for purpose. That is if someone's safety is dependent on their activation, they must elicit a response in a reasonable time even during out of hours periods.

## 10. SERIOUS INCIDENT PROCEDURE IN ADDITION TO FIRE

A serious incident could involve explosion, chemical (gas) leakage, and release of pathogens, radiation incidents or a bomb threat.

In the event of a local incident departmental members involved or aware of the incident are to inform others, evacuate the local vicinity and raise the alarm with the relevant laboratory head, manager or DSO.

The appropriate safety personnel will assist in dealing with the incident according to standard or local procedures, or as identified in the relevant risk assessment. See Appendix I.

In the event of a more widespread/serious incident the evacuation procedure will be as for fire. A summary of the Bomb Alert Procedures to be followed by all users of the Addenbrooke's site (as issued by Addenbrooke's Hospital) is given below.

### 10A. BOMB ALERT PROCEDURE

**As with the Fire Procedure, no member should hesitate to invoke this procedure if there is the slightest suspicion concerning bombs. You will be supported if your actions are in good faith. Note: the Department may be used by terrorists to pass on bomb warnings regarding other areas e.g. the city centre, etc. If this is the case, the procedures below still apply.**

Key responsibilities for dealing with bomb alerts lie with the Incident Controller (Laboratory Manager/Fire Officer) or Security (out of hours). The Police will be informed as soon as possible and thereafter will take charge of the situation.

### **ACTION TO BE TAKEN BY DEPARTMENTAL STAFF (suspicious packages, etc.)**

- Should you at any time be suspicious of a package, bag, case, etc. **DO NOT TOUCH OR MOVE IT!**
- **Make sure that mobile phones and walkie-talkies are switched off within 15 meters of the package.**
- **Do not panic and cause unnecessary alarm**
- Ask the local population if the package/object belongs to one of them.
- **Inform** the Incident Controller (Laboratory Manager or any deputy or the Fire Officer).
- Await further instructions from the Laboratory Manager or the Fire Officer.
- In addition, the University Security Control Centre must be informed immediately of all serious incidents by dialling **101** on the University network. The University Security Control Centre can also be contacted in relation to routine calls on tel: (3)31818.

## **11. OFFICE SAFETY**

At a superficial level a risk assessment of the office environment yields few areas of serious risk. However, as the majority of time-loss accidents right across the University, in whatever activity, are mainly slips, trips, falls and cuts, the office can still present situations when these accidents arise. Other notable risks arise from manual handling boxes of paper or water cooler bottles and shelf collapses due to overloading. Therefore, the Department recognises that there should be a greater awareness of the potential hazards present in the modern office.

Office users should:

- Maintain a clean and tidy working area (particularly floor areas; clear of bags, boxes etc., and trailing leads (in good condition).
- Make visual inspections of electrical equipment but not tamper with, or attempt to repair, electrical equipment (your DSO should always be consulted).
- Have lighting facilities and ventilation adequate to maintain a comfortable working environment.
- Have seating arrangements, keyboard positions and VDU locations suitable to prevent associated health hazards (musculo-skeletal and eye problems) and be adapted to meet the needs of individuals.
- Take regular breaks from their work station.
- Handle photocopier toner according to the handling instructions provided by the manufacturer.

- Be aware that solvent-based correction fluids can be harmful if inhaled, swallowed or splashed into eyes so need to be handled carefully.
- Ensure guillotines have guards.
- Only open one drawer of a filing cabinet at any one time to avoid overbalancing and should not leave drawers open when not in use.
- Have shelving of suitable strength for the loads to be stored and provided with end supports; store heavier items lower down.
- Use only suitable equipment for height access and minimise the need to do so (store more frequently used items lower down).

**Fire check doors** should never be left open unless they are regulated by a system which closes them in the event of a fire.

Portable appliance testing (PAT) may only be conducted by a competent person. This need not be done annually as electrical office equipment is generally low risk and is likely to be replaced before problems arise as long as equipment is not moved regularly or abused. Kitchen items such as kettles and toasters are of higher risk.

Certain coffee machines that generate steam are classed as pressure equipment and are required to be inspected annually according to the University insurance scheme. Check with the Safety Office.

Apart from personal electronic devices, equipment such as fans or additional heaters must be requested through the Department.

See also Appendices III (VDUs) IV (ULDs) and V (Manual Handling) and associated Safety Office information.

## 12. VISITORS INCLUDING CONTRACTORS

**All visitors** must report to your building's reception or be met by an arranged contact/host. The contact will be responsible for the visiting persons while in the Department and will decide on the appropriate safety information to be provided according to their length of stay, activity and level of supervision. This may be in the form of documentation or verbal instruction.

**Contractors** once received will likely be operating independently within the Department and will therefore need safety induction to include fire, accidents and first aid and high hazard areas/materials and restricted access. Such induction should be recorded.

They should be signed in and out for each visit and they should know how to contact their host, or a suitable alternative, during their visit and on any given repeat visit. Due consideration should be given to regular contractors or during longer works where circumstances may have changed between visits.

Their work should be covered by a risk assessment or method statement and the departmental contact should check to make sure this is in order (it may be supplied by the contractor or need to be developed between contractor and Department). The Department will make efforts to employ competent contractors.

Certain activities or work in certain areas may require a Permit to Work. The departmental contact must ensure any permits are arranged as necessary and copies kept.

**Cleaning staff, service engineers and maintenance personnel** must be made aware of any special hazards and every precaution taken to prevent them being exposed to risk. While the Department will remain responsible overall, it may be necessary for contractors to take control of areas to minimise risks to others. How these arrangements work will be agreed beforehand.

**Visiting Scholars or workers** may attend the Department under the aegis of a senior member of staff. Visitors who will be working in laboratories must have the permission of the Head of Department, or an authorised Deputy, and are required to follow all departmental safety procedures which will include formal safety induction.

Visiting workers may remain unfamiliar with safety procedures and emergency exits due to their length of stay and it may be preferable to ensure that they are not left alone when working.

**Short term/casual visitors** are expected to remain in the company of their host/contact who will remain responsible for them until their departure.

Friends or relations of staff are required not to enter laboratory working areas except for the purposes of accessing inner offices. Children under sixteen must be escorted at all times.

Hosts must ensure that works affecting building infrastructure are conducted in liaison with the appropriate Estates Management.

Consult 'Managing Contractors Safely' at the Safety Office website (Buildings).

### **13. LONE WORKING AND TRAVEL AND WORKING AWAY**

The Department recognises that lone working, work out of 'normal hours' and work away from the usual place of work may present an increased level of risk which may require special consideration.

As with any risk, the hierarchical approach is (1) remove, (2) minimise, (3) control. Particular attention must be paid to high hazard areas or activities such as collapse in confined spaces or in dangerous atmospheres, their prevention or suitable emergency response.

Work under conditions of significantly reduced or no staff support should be avoided where possible; lone workers are more vulnerable when the unexpected occurs.

Supervisors should be broadly aware of the types of activities undertaken by those in their charge and when they take place.

Supervisors or those in control of others must be satisfied that individuals are competent and have the necessary training and information to enable them to work safely and deal with emergencies during their known work patterns.

Unusual or significant changes to work arrangements should be brought to the attention of and agreed with the supervisor in advance and a note made of any significant safety implications.

In assessing the risk, consideration should be given to the activities (and location) being undertaken and the competence of the person undertaking the activities.

Research by nature is driven by a combination of departmental expectation and self-motivation (choice) by the researcher. The balance is not always readily apparent, even in cases of essential but extensive time-course experiments or deadlines. However, habitual late working through the night is not expected nor is a shift to entirely nocturnal work patterns. Workers who work in such circumstances through choice must take reasonable steps to ensure their own safety and others that may be affected.

Consideration should be given to arranging suitable contacts informing them of the situation, including an expected finishing time, and in cases of emergency.

A risk assessment for any work conducted away from the usual place of work should be carried out; who has health and safety responsibility should be established (such as another employer's premises) and checks that suitable arrangements for health and safety have been made by them. Supervisors/PIs must be satisfied that they understand such arrangements.

Those visiting other institutions should expect some form of safety induction commensurate with the nature of their visit.

Home working in connection with Department business during normal working hours must be risk assessed.

The main issue for field workers after travel is personal security and a number of measures can be taken to reduce risk for those who cannot be accompanied. Advice can be sought from the Safety Office or the School Safety Officer.

Undergraduates generally should not be allowed to work alone/out of normal hours.

Post-graduates in their first year should be restricted in the activities they undertake until confidence in their abilities is confirmed.

Consideration should be given to prohibition of any activities which have been assessed as high risk such as CL 3 work or which involve hazards such as naked flames, use of radioactive open sources, hazardous chemicals, electricity etc. Access and supervision in bio facilities must also be considered.

It should be remembered that the Department is a place of work and members should be fit for work on attendance.

## **TRAVEL AND WORKING AWAY**

This section covers safety issues related to working away from Cambridge, i.e. for Business Trips, Conferences, Travel, Placements (including all occasions of working offsite) and Field Trips.

Working away from Cambridge means:

***any activity undertaken in connection with the business of the University in locations other than those which are the usual domain of the work.***

When working away, duties of care and duties imposed under the Health and Safety at Work Act still apply. This means that Line Managers are responsible for ensuring the safety and wellbeing of all their staff and students whilst they are undertaking activities related to their work/studies, wherever they are carrying out those activities.

Before you travel on University Business you **must** complete the appropriate risk assessment form:

### **Students:**

- Low Risk (Basic) Travel Risk Assessment form (return 2 weeks prior to travel)
- Medium Risk (Standard) Travel Risk Assessment form (return 1-2 months prior to travel)
- High Risk (Elevated) Travel Risk Assessment form (return 2-3 months prior to travel)

**Staff:**

- Low Risk (Basic) Travel Risk Assessment form (return 2 weeks prior to travel)
- Medium Risk (Standard) Travel Risk Assessment form (return 1-2 months prior to travel)
- High Risk (Elevated) Travel Risk Assessment form (return 2-3 months prior to travel)

There are links below to access our departmental travel risk assessment forms on the Department of Oncology website: <https://www.oncology.cam.ac.uk/current-members/health-and-safety/travel-work-away/travel-risk-forms>

Please return your completed forms to our DSO at: [oncsafe@hermes.cam.ac.uk](mailto:oncsafe@hermes.cam.ac.uk); failure to return the forms within the stated timeframes may result in you being denied permission to travel.

Travel on behalf of departmental business during the working day (but not travel to and from work at the start/end of the day) is a work activity and must be risk assessed to identify risks and possible training/awareness needs.

Travel around your site may largely be by foot or maybe by bicycle so the main considerations are risks to those persons from site traffic and building/maintenance work. The Department expects all members to take due care and apply the principles of the Highway Code where required.

Travelling off your site will involve many other issues, including insurance, competence, equipment and comprehension of the requirements of the Highway Code.

Cycling and car use will involve risks to others as well as those travelling; the provisions of the Highway Code are the minimum standard expected (see [www.highwaycode.gov.uk/index.htm](http://www.highwaycode.gov.uk/index.htm)).

Refer to the Safety Office website for further information/guidance or consult the Clinical School Safety Officer (CSSO).

See also Appendices XXII on Travel and Working Away.



## 14. GOOD LABORATORY WORKING

It is the responsibility of all departmental members to ensure that their actions do not jeopardise their safety or that of other members of the Department. It is essential that everyone understands how to operate the equipment they are using or the materials being handled, as misuse can lead to personal injury or expensive damage. Individuals must consult any relevant local rules.

For these reasons all new members of the Department must be instructed by their Supervisor or other suitable person on the correct use of equipment and materials. If anyone is unsure of the correct procedure, they must obtain help before starting.

The risks from chemicals can be under appreciated and general **chemical safety awareness training is mandatory** for those who handle chemicals or manage them in addition to specific (local) training for all significant chemical risks associated with people's work.

Biological and radiation work have stringent requirements that must be understood by those engaged in the work. Consult the Biological Safety Officer (BSO) and Radiation Protection Supervisor (RPS) as necessary.

Before new work starts and before new materials are ordered, planning of the work should include establishing that suitable facilities exist, that any new training can be sourced and that contingencies for emergencies (trained staff and procedures) are in place. For example, a noxious chemical may need a fume cupboard for experimental handling but if spilled in the open lab may result in the need for a major response.

The principles of Good Microbiological Practice and Good Occupational Safety and Hygiene should be practiced wherever appropriate.

All workers in shared areas should be aware of any significant hazards.

**Each Research Supervisor** is responsible for assessing the risk of the work being carried out. Arrangements for controlling risks must first be approved by the Laboratory Manager and the Head of Department

**All** workers are responsible for maintaining their laboratory in a clean and tidy condition. When they leave the Department they are responsible also for the safe disposal of all their chemicals, solvents and cultures, etc.

There should be good separation of 'wet' (active) and 'dry' (write-up) areas; the use of 'lap top' computers in laboratory areas should be subject to risk assessment and in any case for shorter periods of continuous use.

## **Use of Personal Protective Equipment (PPE):**

### **Laboratory coats:**

Must be worn in general laboratories or containment level (CL) 1 biological laboratories when the risk assessment indicates that the exposure to chemical, physical and biological agents indicates the need (but note Genetically Modified Organism (GMO) Regulations stipulate mandatory protective clothing at even this lowest containment). At CL 2 and 3 dedicated lab coats must be worn at all times; coats must be changed and disposed/launched according to departmental policy. Wearing of lab coats is to be avoided in public circulation areas.

### **Gloves:**

For general and biological use vinyl and nitrile gloves are to be used wherever possible; the use of latex gloves must be risk assessed and users subject to health surveillance so should be used only when the benefits significantly outweigh the cost of managing their use. Powdered latex gloves should no longer be available anywhere in the University. Users must check that the glove will provide the protection required for the application – chemicals will attack gloves and lead to break through. Gloves should not come into contact with items that are regarded as clean – e.g. door handles, phones.

### **Eye Protection:**

It is mandatory that when work carries a risk of eye injury (as determined by area or activity risk assessment) the persons concerned will be wearing appropriate eye protection; protective spectacles, goggles, or under certain circumstances, visors. The appropriate supervisor will ensure that the correct advice is given. **Personal corrective spectacles may not provide adequate protection. DO NOT risk eye injury.**

### **Face masks/RPE:**

Are PPE of **last resort** and should not normally be required – they only protect one worker and the protection provided is critically determined by the type of mask and its correct fit. If these are identified in the risk assessment as necessary, each worker must be face-fit tested for each type of mask used.

**Food and drink must not** be consumed or stored in laboratories or stored in laboratory refrigerators. Nor may it come into contact directly or indirectly with lab ice.

Mouth pipetting is **forbidden** in all circumstances (except in some limited and highly specialised procedures covered by risk assessment). Mechanical or electronic pipetters must be used.

Ear/headphones should not be worn where they could impair hearing of alarms or warnings, cause spillages or otherwise become ensnared in equipment, foul safe operating movements or become contaminated.

**Samples** stored in cold rooms and freezers **must** be labelled with the owner's name and hazard label if appropriate. The Department will from time to time conduct a survey to identify and destroy all unmarked samples. Samples must be transported according to departmental policy.

Proper carriers should be used when carrying Winchester bottles - **they should not be carried directly** in arms or by the neck of the bottle. Carriers should be examined for signs of weakness or corrosion before use and removed from use (permanently) if unsafe.

All relevant pressure equipment (e.g. autoclaves and pressure cookers) must be registered for inclusion in the annual University inspection scheme. This also covers some types of lifting equipment.

Autoclaves used for waste inactivation must in addition undergo regular validation checks according to the British Standard. They must be appropriately monitored for each run and records kept.

All relevant local exhaust ventilation (LEV) equipment (e.g. fume cupboards and microbiological safety cabinets) must be checked regularly by users before use and at least annually by a competent person (contractor).

Ice machines and water baths must be maintained so as to minimise the risks from Legionella.

**All** workers are responsible for ensuring that before requesting either a repair or a service to their equipment they declare in writing that it is safe and free from any contamination before requesting either a repair or a service. Any decontamination statement must describe details of decontamination used and be checked and countersigned by a senior member of staff.

Equipment repairs must only be carried out by competent persons. Portable appliance testing (PAT) must be conducted by a competent person.

Any apparatus, which is left on overnight, should be checked by the worker concerned to ensure that there is no danger of fire or flood. Any service or apparatus which is running continuously should be labelled accordingly and emergency shut down procedures prominently displayed.

**Fire check doors** should never be left open unless they are regulated by a system which closes them in the event of a fire.

**Fume cupboard fans** should be switched off at night or when the cupboards are not in use, except where the cupboard is supplying ventilation to stored reagents or waste that requires ventilated storage. BUT note that fume cupboards should not be used as storage areas if at all possible.

If experiments require overnight running of the fume cupboards this should be stated on a prominently displayed notice.

Slips and trips and falls constitute significant hazards. Keep walkways clear of clutter and clear up spillages (including ice) immediately. Footwear must be fit for purpose i.e. provide protection where necessary and minimise slip/tripping risks.

Heavy or dangerous items (e.g. glass) or those used frequently should not be stored at height. Use suitable step ladders or kick stools for access, not furniture.

While the Department will endeavour to inspect laboratories periodically, local monitoring by groups should be conducted on a risk basis, such as chemical storage (e.g. compatibilities, aging chemicals or their containers).

Members of the Department are reminded that laboratories and workshops are particularly dangerous places for children. Staff are not permitted to bring children into these areas.

See further information under specific chemical, biological and radiation sections/appendices and the Safety Office publications on their website.

**Declaration**

**PLEASE COMPLETE AND RETURN TO THE DEPARTMENTAL SAFETY OFFICER**

I have received the Safety Manual/Policy for the Department of

The importance of understanding and following all departmental safety rules has been explained to me and I accept my responsibilities as indicated herein.

I understand that failure to comply may result in disciplinary action and may contravene national legislation.

Name: .....

Signed: .....Date:.....

Supervisor/Line Manager:.....

Signed: .....Date:.....

DSO: .....

Signed: .....Date:.....

# School of Clinical Medicine Safety Manual

Incorporating:

Safety Policy for the Department of Oncology

**Part 2 of 2**

Issued: 2016

Amended date: 28 March 2020

Review date: 27 March 2020

## Contents

The information in this document supplements Part 1 which contains core policy and should be consulted in the first instance.

Further information, policy and guidance can be found in the web pages and publications produced by the University Safety Office.

### Part 2

26. Chemicals .....	32
27. Cryogenic Gases .....	35
28. Compressed Gases .....	37
29. Ionising and Non-Ionising Radiation Including UV, Lasers, MRI ...	39
30. Biological and Genetic Modification (GM) Work .....	43
31. Blood Work .....	48
32. Needles and Other Sharps .....	50
33. Electricity, Equipment, Repairs and Maintenance .....	51
34. Working at Height .....	53
35. New and Expectant Mothers .....	55
36. Clinical Research .....	56

### Appendices/Local rules and Policy

I. Specific Fire Arrangements and other Emergencies .....	58
II. Accidents: Basic Action .....	59
III. Display Screen Equipment/Visual Display Units (DSE/VDUs) .....	62
IV. Upper Limb Disorders .....	65
V. Manual Handling .....	67
VI. Chemical Storage and Waste .....	68
VII. Rules for the use of Lasers .....	70
VIII. Local Rules for Work with Radioactive Sources/Radiation .....	71
IX. Local Rules for Work with Biological Agents/GMOs .....	72
X. Departmental Safety Committee(s) .....	77
XI. Safety Contacts and Organogram .....	78
XII. Food and Social Events .....	81
XIII. Disinfection Policy .....	84
XIV. Biological/Clinical waste .....	85
XV. Asbestos Management .....	86
XVI. Legionella Management .....	88
XVII. Occupational Health Arrangements .....	89
XVIII. Work Experience .....	90
XIX. Recycling .....	91
XX. Emergency Action Plan .....	92
XXI. Transport of Samples/materials .....	93
XXII. Travel and Working Away.....	94

## PART 2

### 15. CHEMICALS

All use of chemicals must be risk assessed for the purposes of the Control of Substances Hazardous to Health (COSHH) Regulations and the Dangerous Substances and Explosive Atmosphere Regulations (DSEAR). The University **Hazardous Substances Policy** sets out the arrangements for compliance with these and other requirements and all departmental members must be familiar with and adhere to this policy. The underlying principle is to remove or replace a hazardous chemical/agent/process if at all possible.

A wide variety of chemicals may be used in research; these present a spectrum of types and degrees of risk and only significant risks are required to be recorded. The material safety data sheet accompanying any new purchase may be used to complete the risk assessment, though it is not in itself sufficient as it only provides general properties; a University Chemical Hazard Assessment form should be completed.

The risk assessment (before use/ordering) should cover all aspects including transport and emergency action such as for spillages and exposures (consequences, response plan). 'Special risks' such as those to (undeclared) pregnancy and reproductive function must also be included.

Nanoparticles are covered under COSHH but merit special consideration given their novelty and unknown health effects.

Research groups must be satisfied that they manage chemical safety adequately through risk assessment, training, inventories, housekeeping and local rules and monitoring etc and record this where necessary.

The Department expects a 'cradle to grave' approach to chemical use; careful consideration should be given to the amounts obtained in relation to ongoing aspects of chemical lifetime such as use, storage, aging (stability) and disposal.

Health surveillance may be indicated when certain chemicals are used. These are principally known carcinogens (including oncogenic DNA), asthma sensitisers and agents causing serious dermatitis. Where the risk assessment identifies a potential risk of an identifiable disease or adverse health effect from a substance in use, the user must have a health record card and may need to be registered with the University Occupational Health Service. Contact Occupational Health or the Clinical School Safety Officer (CSSO) for advice.



The Department keeps an inventory of all highly hazardous chemicals held including those that are classed as 'prohibited' (see University Hazardous Substances Policy for definition/details). This includes where they are located and the names of individuals who have access to the information in case of emergency.

Many chemicals fall under strict legislative control and may need licensing. Users must check that compliance issues are addressed by discussion with the DSO.

## **HANDLING CHEMICALS**

All those working with chemicals must know the potential hazards and safety precautions necessary for every procedure that involves the chemical.

All those using chemicals must be suitably trained which should include specific training for the chemicals/tasks involved. Chemicals are ubiquitous and their risks generally unappreciated giving rise to potentially dangerous situations through lack of care e.g. segregation/incompatibility storage problems; general chemical safety awareness is regarded as an important means to improve upon such problems.

Suitable gloves and a lab coat **must be worn** when this is indicated by the risk assessment. Consideration should be given to the suitability of a glove to the chemical in question – gloves will vary in their permeability and breakthrough characteristics and therefore the protection they provide.

Latex itself is now covered by COSHH Regulations and so is subject to risk assessment and health screening; the need for latex gloves should be considered carefully and alternatives used whenever possible.

Laboratory areas should not be left before removing gloves (or glove) otherwise the door handles may be contaminated.

Suitable eye or face protection **must be worn** for **activities or in areas** where the risk assessment indicates the need.

Fume cupboards should be used wherever possible for procedures involving toxic or hazardous compounds or volatile solvents. These must be maintained and operated correctly and not overloaded/used for general storage.

Flammable solvents must not be stored in refrigerators or freezers unless it is known that they are suitable for this (spark free).

All chemicals and reagents must be properly labelled. Label all newly prepared reagents with name of contents, date and user's name.

Some chemicals become unstable or react to form more dangerous chemicals with age such as peroxides and picric acid – care should be taken to ensure aging stocks do not accumulate.

Poisons must be stored in a separate marked and lockable cupboard and the Laboratory Manager must be aware of the ordering and use of these chemicals. Highly toxic chemicals (e.g. those marked with a skull and cross bones) are also advised to be more carefully stored.

Large quantities of flammable or corrosive solvents and reagents must be stored in designated storage cabinets. Flammables should be in fire resistant cabinets not exceeding 50L in lab storage or 500 mls (while in use) on the bench.

Stock materials that go missing should be reported to the DSO.

The University runs general chemical safety awareness training courses which **must be attended** by members handling or managing hazardous chemicals.

The Safety Office website on chemicals should be consulted for more detailed information on policies, safe practices and risk assessment. If in doubt, contact the DSO, Clinical School Safety Officer or University Chemical Safety Adviser.

## 16. CRYOGENIC GASES

The Department requires extreme care from members engaged in the use of cryogenic gases and consideration of others who may be exposed to this hazard.

Deliveries and dispensing must only be handled by trained personnel using safe systems of work informed by a suitable risk assessment. Due to the size of some vessels, there may be significant manual handling issues (safety boots?) and personnel **must not** travel with vessels in lifts.

Users of liquid nitrogen storage should be aware of the associated risks of burns and exploding sample tubes and how to mitigate them. All other use (and that of other gases) must be fully risk assessed.

All liquefied gases are extremely cold and can cause burns. Therefore, handling will involve the use of the correct protective clothing to minimise exposure for the particular circumstance (consider lab coat, gauntlets, closed shoes face shield, tongs etc).

When released, small amounts of liquid (or solid for dry ice) are converted to large amounts of gas (expansion factor of generally several hundred fold) which may result in explosions and/or depression of local oxygen concentration leading to asphyxiation.

Explosive situations must be avoided or mitigated according to their potential to do damage. Usage should not present the possibility of oxygen depletion; the space in use should be considered in relation to the potential volume of gas that could be released and its effect on oxygen level.

Most gases in use are undetectable by humans as is any oxygen depletion; if there is a risk of asphyxiation then the working arrangements must be altered to remove this risk.

Special consideration is given to the storage of liquefied gases, especially in relation to the larger volumes of gas involved and the volume of the room and its ventilation; certain circumstances could be regarded as constituting a confined space - a risk assessment must be conducted and should take into account the potential for asphyxiation and consideration given to access, escape, signage and the provision of suitable atmospheric monitors/alarms in critical areas.

All areas where these gases are present in quantity must be risk assessed in line with the guidance given on the Safety Office chemicals web pages and in particular the

oxygen depletion calculator and accompanying Reduced Oxygen Atmospheres guidance.

The assessment must consider the consequences of a gas release including impact on surrounding areas (evacuation) and appropriate remedial actions.

If installed, pipe runs must be known and identifiable including suitable and safely accessible safety taps.

Oxygen depletion alarms must be correctly deployed. All members/visitors will be informed of the alarm and how to respond. A maintenance and testing regime will be operated for such equipment.

When using dry ice for transport, care must be taken to ensure gas is not able to build up in containers.

**Pressure vessels** are subject to annual inspection by the University insurers (see 'A Code of Practice for Pressure Equipment in the University of Cambridge'). Consideration must be given to address catastrophic failures, to prevent explosions due to the formation of ice when moisture from the air is frozen and if valves become stuck.

See further information and guidance in the Safety Office 'Chemicals' and 'Workplace' websites and corresponding publications.

## 17. COMPRESSED GASES

The following guidance must be followed for the use of compressed gases in the Department.

Always use a regulator of the correct type for the application required. Regulators must be regularly inspected (annually) by a competent person and replaced if significantly worn or damaged and after 5 years in any event. Pipe work/hoses, including connectors and clips, must be of an approved type and be checked annually or more often if subject to movement/wear.

General:

- Site gas cylinders away from working areas if possible.
- Know the cylinder contents and the properties of the gas.
- Handle cylinders carefully and transport them on a cylinder trolley.
- Fasten cylinders securely in use, transit and storage.
- Never secure a cylinder near a source of heat (and that includes leaving it in the sun).
- Make sure the thread of the regulator and cylinder are free from grit before fitting.
- **Never** use oil or grease or tape on the threads of a regulator.
- **Never** hammer at a regulator, or even over tighten it.
- Check for leaks by applying a leak detection fluid round the seal.
- Report immediately a cylinder which is leaking and remove it from the working area.
- Close valves when not in use and remove regulator in transit.
- Close valves on empty cylinders and mark 'empty'.
- **Always** keep acetylene cylinders and other liquefied gases in an upright position.
- **Always** remove cylinders from the working area when they are not required.

Maintaining an atmosphere that supports life/confined spaces:

Some compressed gases will be used in situations where a significant release will potentially reduce the oxygen content of the air. A risk assessment must be carried out to determine the risk posed and control measures needed to reduce the risks to a minimum.

The action level is taken as when oxygen levels may go below 18%; generally this would equate roughly to release of a volume of gas equivalent to 1/7<sup>th</sup> the volume of the room. More detailed guidance is given on the Safety Office chemicals web pages and in particular the oxygen depletion calculator and accompanying Reduced Oxygen Atmospheres guidance.

Nitrogen and carbon monoxide are not detectable by the body and so elevated levels present significant risks of asphyxiation. Oxygen depletion monitors must be employed where the risks cannot be reduced by other means. Deployment of a monitor will necessitate training/awareness of members and visitors in general responses to an alarm, response measures to address the incident and a checking/maintenance program.

Tissue culture facilities where incubators are fed from cylinders must be carefully managed. Checks must be made that equipment is functioning correctly, that hose runs and connections are secure and leak free. Rooms should be ventilated before use whenever possible, particularly at the first use of the day.

Although the body's physiological response to elevated CO<sub>2</sub> levels is well before oxygen depletion is critical, CO<sub>2</sub> monitors must be employed as this is not an acceptable way of detecting releases and may expose workers to levels of gas that are above the Workplace Exposure Limit.

If installed, fixed pipe runs must be known and identifiable including suitable and safely accessible safety taps.

**Pressure vessels** are subject to annual inspection by the University insurers (see 'A Code of Practice for Pressure Equipment in the University of Cambridge'). Consideration must be given to address catastrophic failures, to prevent explosions due to the formation of ice when moisture from the air is frozen and if valves become stuck.

Compressed gas cylinders must not be stored with cryogen vessels as cryogen leaks may cause fatiguing in the cylinder leading to failure.

Deliveries/transport and connecting up must only be handled by trained personnel using safe systems of work informed by a suitable risk assessment. Due to their weight, there may be significant manual handling issues (safety boots?) and personnel **must not** travel with cylinders in lifts.

See further information and guidance in the Safety Office 'Chemicals' and 'Workplace' websites and corresponding publications.

## 18. IONISING AND NON-IONISING RADIATION

### 18.A IONISING RADIATION

Work with ionising radiation, whether from radioactive material or from radiation generators such as x-ray machines, can cause harm in various ways and therefore all sources of ionising radiation are strictly controlled by law.

The use of ionising radiation is highly regulated by the HSE (Ionising Radiation Regulations - IRR) and, in the case of radioactive materials (possession and disposal), the Environment Agency (Environmental Permitting Regulations - EPR); in addition the security of sources is also of interest to the Police under counter terrorism.

The University has developed comprehensive policy and procedures for safe and compliant work with ionising radiation ('yellow books'), which includes a commitment to principles to ensure human exposures are 'As Low As Reasonably Practicable' (ALARP), Ionising Radiation Regulations (IRR) and that waste will be minimised through 'Best Available Techniques' (BAT), Environmental Permitting Regulations (EPR).

The Department accepts and works to these principles and standards by following University procedures in conjunction with its own local rules. All members must be familiar with and work within this framework as appropriate. Regulators expect users as well as managers to demonstrate understanding of permit conditions, 'ALARP' and 'BAT'.

Radiation Protection Supervisors (RPS) are statutory appointments under IRR who assist the Department in complying with the Regulations and ensure compliance with the local rules. They are appointed by letter from the HoD and work cannot proceed without such persons in place. 'Competent Persons' appointed under EPR fulfil a similar function under these regulations (see Section 2, 'Management of Work with Ionising Radiations', University publication).

In order that the Department can commit to work safely and compliantly:

The Department will work to local rules covering specific working arrangements and suitable RPS cover will be made to ensure these are followed. See Appended local rules for work with ionising radiation (See Appendix VIII).

All radiation workers must be registered and suitably trained for the procedures to be undertaken. Records of such will be made and kept by the Department.

All work must be risk assessed prior to commencement. This information should be made available to those who may access radioactive work areas where applicable.

All radioactive material shall be kept under strict control and supervision from receipt to disposal and corresponding records kept during transit through the Department. **All**

**acquisitions (purchases, gifts, transfers) are only permitted through prior arrangement with an RPS.**

All work must be conducted in suitable areas and using suitable equipment that minimises personal exposure and contamination.

Monitoring (exposure or contamination) will be conducted wherever specified.

Any deviations from standard procedures such as transfers to other departments must be discussed and approved by the relevant departmental RPSs.

Any transport or movement of radioactive material will be subject to the appropriate University policy and guidance.

All equipment or areas that are accessed for maintenance or repair shall be monitored/decontaminated as necessary to prevent exposure of contractors.

Where radiation matters involve or impinge upon other organisations, there must be evident cooperation between the Department and those other organisations.

Where an RPS wishes to make a purchase, a counter authorisation is required to negate any conflict of interest.

Plans for refurbishment, expansion or new work shall take into consideration requirements for work with radiation including laboratory standards.

All procedures, records, training (including refresher) and assessments will be kept under regular review.

**WASTE:** Safe disposal of radioactive waste in accordance with statutory provisions is an essential part of work with unsealed radioactive sources. Each piece of work is not complete unless the resultant waste has been dealt with.

**Before** they begin any work, users should be familiar with the permitted disposal routes for their waste and the limits and conditions that apply in the Department. The risk assessment documentation for the work will identify how Best Available Techniques (BAT) will be used to ensure that the activity of disposed waste is minimised, and that the volume of waste transferred to other locations is also minimised. BAT is now a specific compliance issue required by the permits issued under the terms of the Environmental Permitting Regulations 2010. The RPS with responsibility must be consulted in respect of waste disposal issues *before* new work commences.

The University's general policy is that radioactive wastes should be disposed of promptly either in the laboratory, in the case of aqueous wastes, or transferred to the department's radioactive waste store from where they will be regularly collected by the



Safety Office for disposal. Radioactive waste should not be allowed to accumulate on laboratory benches, in fume cupboards, or elsewhere in laboratories, although accumulation for short periods is acceptable provided it is under control and the wastes are regularly cleared (within a week). Aqueous radioactive waste *must not* be accumulated, except in situations with explicit prior agreement of the University Radiation Protection Officer / Adviser (RPO/RPA).

Consult your RPS, the University RPO/RPA, School Safety Officer or Safety Office for further details or advice.

See the University policies, codes of practice and guidance on the Safety Office 'Radiation' website.

## **MEDICAL (RESEARCH) EXPOSURES**

Intentional exposures of people to radiation as part of treatment or research are regulated under the Ionising Radiation (Medical Exposures) Regulations (IRMER) and, if administering radioactive substances, the Medicines (Administration of Radioactive Substances) Regulations (MARS).

Medical exposures may only be authorised by an appropriate (medical) Practitioner and in the case of research will have ethics approval. A Medical Physics Expert (MPE) must be appointed to provide advice. This is usually provided by the East Anglian Regional Radiation Protection Service (EARRPS), based at Addenbrooke's, although the Radiation Protection Advice (under IRR) is usually provided by the University.

Where the subject comes under hospital responsibility, exposures will be conducted according to written hospital procedures and protocols. Where the subject comes under University responsibility (for example volunteers in research projects), exposures will be conducted under written employer's procedures prepared by the RPA/Medical Physics Expert in consultation with the Department.

In instances where radioactive compounds are administered, a certificate must be obtained from the Administration of Radioactive Substances Advisory Committee (ARSAC).

Consult your MPE (EARRPS), the University RPO/RPA or School Safety Officer for further details or advice.

## **18.B NON-IONISING RADIATION**

There are 2 categories of non-ionising radiation, optical radiation (including visible light, UV and IR) and electromagnetic fields.

Many technologies and instrumentation in regular use utilise these radiations and they can represent significant risks to users (or subjects) and incidental persons.

Therefore, risk assessment and suitable control measures including training and mechanical and procedural controls are critical to preventing serious harm.

The University has produced extensive guidance and policy for these areas which must be consulted and followed prior to new work or users starting.

### **Optical radiation:**

All artificial optical radiation is covered by the Control of Artificial Optical Radiation at Work Regulations. The sources range from trivial risk types (exempt class such as domestic lighting, visual displays) to specialised and higher risk types such as lasers and UV illuminators.

The University **Artificial Optical Radiation Policy** will be followed along with associated and more specific guidance on **broadband** ('light'), **lasers** and **UV**.

The Department will have an appointed Laser Safety Officer (LSO) where this is appropriate (class 3R 3B and 4 lasers).

An inventory of such equipment will be useful in assessing, and determining departmental policies and procedures in managing, risks from such radiation sources.

Consult your LSO, the University Radiation Protection Officer, School Safety Officer or Safety Office for further details or advice.

### **Electromagnetic fields:**

EMFs are generated whenever a piece of electrical or electronic equipment is used. We are surrounded by such items at work and at home - in general the risk from most commonly used equipment is negligible and many types of equipment may not need to be considered further.

High field equipment such as NMR/MRI will already have been considered and robust controls in place.

There may be intermediate equipment that may need to be considered (e.g. high current electrical circuits, wireless communications) especially where persons at particular risk may be exposed – people with passive or active medical devices (implanted or worn) and possibly expectant mothers.

The department will follow the University Electromagnetic Fields Safety Policy and associated guidance.

See Appendix VII and the University policies, codes of practice and guidance on the Safety Office 'Radiation' website.

## **19. BIOLOGICAL AND GENETIC MODIFICATION (GM) WORK**

The Department requires that all work with microbiological agents or biological materials is done under the appropriate containment level (CL) conditions and requires that good microbiological practice is always followed (see Appendix IX). All proposed work must be submitted to the Department for consideration.

### **Pathogens:**

Anyone wishing to work with potentially pathogenic organisms, i.e. Advisory Committee on Dangerous Pathogens (ACDP)/COSHH hazard group 2 or above, Specified Animal Pathogens Order (SAPO) agents, or anyone who is working with micro-organisms or viruses for the first time, should consult the Departmental Biological Safety Officer (BSO) and carry out a risk assessment for the proposed work. Work must be done at the containment level appropriate for the hazard group of the agent.

### **Genetic modification:**

Before starting experiments a risk assessment must be carried out which includes full consideration of potential for environmental harm if Genetically Modified Organisms (GMOs) were released and submit it to the BSO for approval by the Department. The containment required may be higher (or lower) than for the unmodified organisms.

Work with pathogens or GMOs may be subject to legal permissioning requirements through notification to governmental regulatory bodies (principally the Health and Safety Executive).

Certain pathogens (inc GM) and toxins are subject to Schedule 5 of the Anti-terrorism, Crime and Security Act and will also be subject to notification requirements as well as onerous security measures – it is important that risk assessments take these factors into account.

Some micro organisms are controlled by Department for Environment, Food & Rural Affairs (DEFRA) such as those under SAPO for example. These agents usually require special consideration in the risk assessment.

Record summaries (data base) of microbiological/GMM work indicating research group, activity status, notification references, approval dates, legislative area, containment level etc. will be kept centrally.

All containment level (CL) 3 work must be advised to the Clinical School Safety Officer and Safety Office (CSSO and SO). Any fumigation of these facilities must be reported to the CSSO/SO.

All those working with GMMs (according to risk assessment e.g. oncogenes in retrovirus vectors, all class 3), hazard group 3 agents, animals or human materials must register with the University Occupational Health Service.

Risk assessments must take into account the immune-compromised and pregnancy (which may be undeclared).

**Human materials:**

The handling of all human derived material (inc both primary and established cells) should be undertaken at a minimum of CL2 unless risk assessment indicates CL1 is adequate for the risk posed.

Primary material will require ethical compliance either through licensing under the Human Tissue Act (HTA) or through local ethics approval. Check that this is in place.

In order to assist the global polio eradication program, samples that could potentially harbour polio virus should be identified and reported so that the Safety Office may inform the appropriate authorities. This applies to current samples from high risk areas and any historic samples.

Where containment facilities are shared by workers using different biological agents, they will all be informed of those risks that are not associated with their work.

Any percutaneous/mucosal introduction of material or suspicion of such should be treated as follows: Irrigate the area with running water and allow to bleed freely if blood was drawn. Get help if necessary and dress the wound as appropriate. Report the incident to the DSO and inform Occupational Health; where this contact is not available, attend Addenbrooke's Accident and Emergency and inform Occupational Health the next working day.

See also 'Blood Work' Section 20.

**Animal work:**

All work on animals will take place in central facilities and members will abide by the operating procedures that operate there. Work must be fully risk assessed by the user/supervisor before starting and the outcome (including any division of training) fully discussed with the facility's staff. The Department remains responsible for all work carried out by its members (procedures) unless agreed to be otherwise.

The transplantation of human tissue/material into animals must be carefully risk assessed and would normally indicate that such animals be handled at CL2 unless the risk assessment concludes convincingly otherwise.

Risk assessments must take into account those that may be presented to facility staff such as those conducting husbandry and shared with the facility's safety management.

The use of Freund's complete adjuvant is strongly discouraged. Alternatives must be used wherever possible and if this is not possible its use must be justified in the risk assessment.

Work on animal tissue or derived materials should be risk assessed for any potential infectious risk. Note that importation of many animals/animal pathogens and animal products require licensing from DEFRA.

**Training:**

Appropriate training, including at induction, will be given and records kept by the Department. This will include any emergency situations where contingency responses are required.

**Microbiological Safety cabinets (MSCs):**

Most MSCs in use are of the class II type, which provide protection for the work and the user. The most up to date models (BS 12469:2000) are suitable for most applications at CL2 and CL3 but they have their limitations and users must be trained in their use prior to operation.

Cabinets will be ducted whenever possible for easier fumigation in the event of spillages or maintenance operations.

Always check with the BSO/Lab Manager that the cabinet is suitable for the work proposed. Users must ensure the safety cabinet is working correctly before beginning work.

Cabinets providing operator protection (above CL1) must be checked for airflow and have an operator protection factor test at least annually and may be more frequently according to risk assessment.

Fumigation of cabinets will be required for filter disposal and certain other servicing requirements and must only be conducted by authorised persons by validated methods.

UV germicidal lamps pose some hazard, particularly to less informed persons and when interlocks are not present or inoperative and are considered of limited value in maintaining sterility. All those at risk should be properly informed on how the cabinet operates in all settings.

**Aerosols:**

Aerosols are generated readily by shaking, homogenisation, pipetting, centrifugation and Fluorescence Activated Cell Sorting (FACS). They should be minimised as much as possible and must be contained (microbiological safety cabinet or authorised equivalent) where infectious agents are present that may be transmitted/spread by this route.

**Spillage or breakage:**

In the event of any spillage or breakage involving infectious material, the Laboratory Manager/DSO (and BSO) must be informed at once. There must be appropriate procedures for dealing with spills and other emergencies which should be familiar to workers before conducting work.

**Disinfection:**

The following disinfectants are generally suitable to be used at the concentrations given for the purposes listed. The choice of a particular disinfectant for any given application should be covered in the risk assessment which must consider validation for the conditions and agents in use and incidental risks such as potential to harm users. If in any doubt seek advice from the BSO, Laboratory Manager or Departmental Safety Officer. See Appendix XIII.

- **Distel (formally Trigene):** for surface disinfection is preferred where blood is not involved.
- **Alcohol:** use only at 70% v/v as a surface disinfectant only (higher and lower dilutions are not effective) and only on essentially "clean" items. **Do not use methanol.**
- **Chlorine** based disinfectant: use at about 10,000 ppm for blood spills and 2,000 ppm for general disinfection, wiping down surfaces etc. Note that chlorine can be corrosive on metals and fabrics.
- **Precept Tablets:** suitable alternative as a chlorine based disinfectant i.e. use precept granules as an alternative for smaller spills.
- **Virkon:** a disinfectant effective against most viruses and Gram negative bacteria with a concentration of 2%. Also corrosive.

**Certain disinfectants such as Hycolin, Stericol and Clearsol are no longer legal; make sure any alternatives are effective against the biological agents involved.**

All equipment or areas that are accessed for maintenance or repair shall be decontaminated as necessary to prevent exposure of contractors.

**Waste:**

All bio-hazardous waste must be autoclaved or treated with a suitable sterilising agent before disposal. Autoclaves must be operated in accordance with the appropriate Standard Operating Procedure to ensure that sterilisation process has been carried out successfully and records kept. See Appendix XIV.

Autoclaves are pressure equipment and subject to annual inspection schemes (see 'A Code of Practice for Pressure Equipment in the University of Cambridge'). Autoclaves used for waste inactivation must be validated at regular (annual or 6 monthly) intervals.

**Transport:**

Transport of any biological agents or materials will be undertaken according to Departmental policy – see Appendix XXI.

**Hazards signs:**

Warning 'Biohazard' and restricted access signs must be displayed at and above CL2.

**Storage:**

Microbial samples must be stored safely (and securely if of high risk).

All procedures, records, training and assessments will be kept under regular review.

Plans for refurbishment, expansion or new work shall take into consideration requirements for work with biologicals including laboratory standards and any specialised containment facilities (e.g. FACS).

Consult the Clinical School Safety Officer, Safety Office or Safety Office 'Biologicals' websites for further policy and advice.

See local rules for work with biological material (Appendix IX).

## 20. BLOOD WORK

The Department requires that work involving blood be conducted according to guidance issued by the Advisory Committee on Dangerous Pathogens (ACDP). A risk assessment must be conducted for the activities concerned taking into account the risk status of the blood and whether culturing will occur. Of major concern are blood-borne pathogens, particularly the blood-borne viruses (BBV) such as HIV, HBV and HCV. Wherever possible the BBV status of the material should be ascertained before commencing work.

Workers must be assessed for their HBV immune status and registered with Occupational Health.

The ACDP advises that for purposes other than their propagation or concentration, materials that contain or may contain BBV can be handled at containment level (CL) 2 with additional precautions (CL 2+, see below). Deliberate propagation or concentration must be conducted at CL 3.

However, for known or suspected HIV cases, culture of blood or other material containing lymphocytes or other HIV permissive cells beyond 100 hours at CL 2+ will require transfer to full CL 3 due to the potential for HIV titres to rise significantly under certain conditions. The treatment beyond this time of other samples presenting an HIV hazard will depend on risk assessment (for example samples from sub-Saharan Africa or GU medicine clinics are high risk and would be subject to this 100 hour rule).

Potentially infected material can be brought out of CL3 in a double layer of containment e.g. a tube inside a sandwich box (which has been externally disinfected before leaving the suite). One of the layers should be made of shatter proof material such as polypropylene. The potentially infected material must not be left unsupervised. It should not be opened until within CL3 again.

Blood or blood products from the National Blood Service are screened, can be considered low risk and handled at CL 1.

However, it should not be assumed that such materials are free of all infectious risk and best practice will be to adopt some additional control measures so as to confine the work and limit exposure.

Blood taking from volunteers should be done by informed consent by competent persons and conducted in a suitable room set aside for the purpose. Blood should not be taken in laboratory areas.

In addition to the measures and facilities normally specified for work at CL 2, the additional measures listed below should be applied to guard against percutaneous inoculation, contamination of the skin/mucous membranes and working surfaces.



Generally, there is no requirement to confine work to a microbiological safety cabinet (MSC) **unless the Risk Assessment (RA) indicates this is required; the RA must take into account risk status of blood sample, i.e. is it screened or unscreened.** However, opening of containers (including centrifuge buckets) with blood in or other operations likely to create aerosols, large droplets or splashes should be conducted within an MSC.

Work not conducted in a MSC should be confined to a designated area of the laboratory with space to work safely.

Sharps and glassware use must be minimised and centrifugation must be in polypropylene or equivalent tubes. Sealed rotors or buckets should be used; the rotor or bucket should be opened in a MSC.

Lesions on exposed skin should be covered with waterproof dressings.

It is important that known or suspected 'risk of infection' samples are appropriately labelled.

Effective waste management and decontamination procedures must be in place and familiar to all appropriate staff.

Any percutaneous/mucosal introduction of material or suspicion of such should be treated as follows: Irrigate the area with running water and allow to bleed freely if blood was drawn. Get help if necessary and dress the wound as appropriate. Report the incident to the DSO and inform Occupational Health; where this contact is not available, attend Addenbrooke's Accident and Emergency and inform Occupational Health the next working day.

## **SUMMARY**

### **CL1**

- Blood screened for all major blood-borne pathogens including that supplied by National Blood Service.

### **CL2(+)**

- Blood of unknown status.
- Blood known or suspected to contain BBV, including that known or suspected to be HIV+ve but cultured for less than 100 hours.

### **CL3**

- Blood known or suspected to be HIV+ve and cultured for more than 100 hours.
- Deliberate propagation of BBV.

## **21. NEEDLES AND OTHER SHARPS**

The Department requires that the use of syringe needles and other sharps should be minimised as far as is practicable. Their use should be suitable for the intended purpose and considered by risk assessment (including the need for training).

Safer alternatives should be employed when feasible, for example blunt ended needles could be used for breaking up material and volume transfers.

Needles and blades should be disposed of correctly when finished with or stored safely. Generally, all sharps should be disposed to sharps bins (yellow lids if not chemically contaminated) without attempting to re-sheath them.

Glassware should also be treated with similar caution.

Work in containment laboratories where there is a percutaneous infectious risk should not employ sharps/glassware unless absolutely necessary. Extra care should be taken including wearing gloves and practice runs.

Pipette tips are not considered sharps. However, they may pierce bags and skin so means should be considered to minimise this ('sweetie' jars, spent tissue culture medium/low hazard chemical bottles, double bagging or heavier gauge bags for waste).

Any injuries incurred from sharps must be reported.

See the Safety Office leaflet 'Safe use of sharps'.

## **22. ELECTRICITY, EQUIPMENT, REPAIRS AND MAINTENANCE**

Safety checks of electrical equipment will be carried out at appropriate intervals by a competent person involving visual checks and using portable appliance testing equipment.

The frequency of checks will depend on the type of equipment, its use and the environment in which it is used. Most equipment will be tested every 1-2 years, less frequently for items such as computers and other IT equipment. Items in harsher environments or which are subject to high stress will be considered for more frequent testing

Any malfunction of electrical apparatus, worn cable, damaged plugs or sockets must be reported immediately to the Laboratory Manager and the equipment will be withdrawn from use until repaired.

Mains electrical plugs should only be fitted and fuses replaced by competent staff approved by the Head of Department.

It is recommended that 13 amp adapters are not used. Four gang extension leads (robust quality) can be used provided the total load does not exceed 13 amps; however, the provision of more socket outlets should be sought through the Laboratory Manager. Such extension leads must not be 'daisy-chained'.

The use of electrical equipment must be covered by suitable risk assessments which consider the application, environment and competency of the user; the potential for sparking/arcing in the vicinity of flammable or explosive materials or overheating must be considered.

Some equipment can be noisy – it should be placed where it cannot cause harm to hearing or cause undue annoyance to others.

Equipment that is purchased must be safe and fit for purpose. When considering equipment from abroad, particularly if not through a UK agent, discuss first with the Departmental Business & Operations Manager/DSO to ensure suitability.

New equipment may benefit from PAT testing if there is any doubt about its quality.

All equipment including pressure, lifting, access, ventilation and electrical equipment must be maintained regularly by competent persons. Any equipment to be worked on by service engineers must be in a safe state including decontamination of radiological, biological or chemical contaminants. A signed/countersigned declaration to this effect must be produced before work commences.

Spark proof refrigerators or freezers must be used if solvents or other flammables are to be stored in them.

The Safety Office 'Workplace' website should be consulted for additional information.

See also publications 'Electrical safety: 12 rules' and 'Guidance for the use of electrical adaptors and extensions'.

## 23. WORK AT HEIGHT

The Department requires that all work at height be properly risk assessed and suitable control measures adopted to minimise accidents and personal injury.

A place is 'at height' if a person could be injured falling from it, even if it is at or below ground level.

'Work' includes moving around at a place of work (except by a staircase in a permanent workplace) but not travel to or from a place of work. Examples are a lab worker using a kick stool to reach a shelf or someone using a step ladder to carry out some minor maintenance.

The overriding principle is that all must be done that is reasonably practicable to prevent anyone falling. This can be addressed by the following hierarchy:

- Avoid work at height where possible;
- Use work equipment or other measures to prevent falls where this cannot be avoided; and
- Where risks cannot be eliminated, work equipment or other measures are used to minimise the distance and consequences of a fall should one occur.

Practically this may include that:

- All work at height is properly planned and organised;
- All work at height takes account of environmental conditions that could endanger health and safety (e.g. weather, cold room/damp);
- Those involved in work at height are trained and competent;
- The place where work at height is done is safe;
- Equipment for work at height is suitable and appropriately inspected;
- The risks from fragile surfaces are properly controlled; and
- The risks from falling objects are properly controlled.

Employees, or those working under someone else's control, must report any safety hazard and use the equipment supplied (including safety devices) properly, following any training and instructions (unless thought unsafe, in which case further instructions should be sought before continuing).

Access to items stored at height: storage at height should be avoided; if necessary, items should be placed according to the risk they pose with heavier/breakable/or otherwise harmful items kept at lower levels. Access should be by appropriate equipment such as step ladders or kick stools. These should be regularly inspected for damage.

'Inspection' is defined as 'such visual or more rigorous inspection by a competent person as is appropriate for safety purposes (including any testing appropriate for those purposes)'.

## **Ladders and step ladders**

All ladders and stepladders within the department are to be uniquely identified, logged and checked annually; the log is kept by the Lab Manager/DSO for each building. Should a new ladder be required, consult the DSO prior to purchase. It is advised that only industrial standard ladders be used.

Where possible, ask a colleague to hold a ladder steady whilst it is in use.

Check that any safety interlocks fitted are operational before use. Report any malfunctions to your Lab Manager/DSO immediately. Faulty ladders must not be used.

Any surface upon which a ladder rests should be stable, firm and level, of sufficient strength and of suitable composition to safely support both the ladder and any load to be placed on it.

The ladder or stepladder must be suitable and of sufficient strength for the purpose for which it is being used.

The ladder or stepladder must be so erected as to ensure that it does not become displaced.

Where a ladder whose length exceeds 3 metres is to be used, it must be secured to the extent that it is practicable to do so and where this is not possible, a person shall be positioned at the foot of the ladder to prevent it slipping at all times it is being used.

Where ladders or a run of ladders rise to a vertical distance of 9 metres or more above its base, there shall, where practicable, be provided at suitable intervals sufficient safe landing areas or rest platforms.

The top of any ladder used as a means of access to another level shall, unless a suitable handhold is provided, extend to a sufficient height above the level to which it gives access so as to provide a safe handhold.

If the ladder does not allow for easy access, reposition it. Do not over extend your body.

Consult the Safety Office 'Buildings' website for more information.

## **24. NEW AND EXPECTANT MOTHERS**

Where women of childbearing age are employed, risk assessment must include consideration of risks specific to new and expectant mothers. This is irrespective of whether or not it is known that a new or expectant mother is working for the department.

When it is informed in writing that a worker is pregnant, has given birth within the previous six months or is breast-feeding then certain actions must be taken. As a general rule the employer should first consider removing any hazard to her that has been identified or prevent exposure to it. If, however, there is still a significant risk to the safety or health of a new or expectant mother at her work – a risk that goes beyond the level to be expected outside the workplace – then an employer must temporarily adjust her working conditions and/or hours of work, offer her suitable alternative work if any is available or suspend her from work (give her leave on full pay) for as long as it is necessary to protect her safety or health or that of her child.

When notified that a woman is pregnant, has given birth in the previous six months or is breast-feeding the original risk assessment must be consulted to ascertain whether any risks specific to new or expectant mother have been identified. Based on this initial risk assessment it will be necessary to carry out a risk assessment specific to the employee, taking into account any medical advice their doctor has provided.

See the Safety Office publication 'Risk Assessment for Expectant and Nursing Mothers' for further information and an assessment form.

## 25. CLINICAL RESEARCH

Clinical research involving patients/volunteers, their organs, tissue and/or data, represents a complex interface between the activities and responsibilities of the University and the NHS, primarily Addenbrooke's Hospital.

Numerous organisations may be involved in carrying out different phases of a clinical research project. Therefore, employees of one organisation may be working within facilities of a different organisation. In particular, employees of Cambridge University may be working within Trust's facilities and vice versa. It is essential therefore that the demarcation of health and safety responsibilities among University, Trust or other employers are clearly defined and understood.

The Department of Health's Research Governance Framework seeks to ensure that research partner organisations recognise and discharge their responsibilities regarding compliance with appropriate national ethical, financial, legislative and regulatory requirements, including Good Clinical Practice and health and safety.

The Chief Investigator (CI), leading the research project and the Principal Investigators (PIs), at the different study sites are responsible for the wellbeing of study subjects, in conjunction with the organisations that have a duty of care to patients involved. All people involved in running a research project involving NHS staff, patients, their organs, tissue and /or data which do not hold a substantive contract with the NHS Trust must request an NHS honorary contract

The CI and the PIs also have a key role in ensuring the health and safety of researchers and other workers involved in the research. Corporate responsibility (University/Department, NHS) will depend on the degree of management responsibility for the area (or activity) in question. If it is not clear where ultimate responsibility lies, this should be determined, officially agreed and communicated to the appropriate safety management. If the PIs are University employees, they must operate in communication with the Head of Department.

University employees working in areas under NHS control are the responsibility of the PI/NHS and should operate to NHS policies. For such University employees, the Department has residual responsibility to ensure that the health and safety provision by another employer under such circumstances (NHS) is adequate and their working arrangements should be known to and monitored by Departmental safety management. There should be communication and cooperation with equivalent systems in the NHS.

Department controlled areas are the full responsibility of the Department, including non-University employees who should work to University policies.

Variations from corporate policies must be agreed locally.



Field work should be given consideration. Again, PIs have responsibility to ensure activities are risk assessed. Oversight will be determined by the employment status of the worker; a non-University employee under the control of a University PI will have similar shared status to a non-University employee in a University controlled area.

Proposals should be initiated by contact with the Trust Research and Development Department (<http://www.addenbrookes.org.uk/research>) and the Ethics Committee (<http://www.addenbrookes.org.uk/serv/resethics/lrec1.html>).

Research projects must not commence until both Ethics and R&D approval have been granted. The R&D Department will also be able to advise on many aspects of research management. The Clinical School Safety Officer may also be contacted for advice on health and safety matters.

NHS Indemnity for clinical negligence covers negligent harm to patients by members of the research team, e.g. (honorary) contract holders. It does not cover non-negligent harm or liabilities for employees (employers' liability). Liabilities cover should be discussed with the Trust or University Insurance managers.

Gene therapy trials will need careful consideration given the need to satisfy requirements of either Deliberate Release and/or Contained Use Regulations regarding genetically modified organisms.

For example, a genetically modified virus may be received in one part of the Hospital/University, be dispensed by the Pharmacy, administered (and possibly excreted) on a ward and patient tissue analysed in a departmental (University) laboratory; all of these areas must be covered in some way by notification to the appropriate authorities and be suitably risk assessed.

Given this, public sensitivity and the direct oversight by the Health & Safety Executive (HSE), the Clinical School Safety Officer must be informed of any proposed gene therapy trials.

Proposals must be put before Local Research Ethics Committee (LREC) and departmental GMSC (Genetic Modifications Safety Committee) before going for assessment by the Trust's GMSC, who will submit any notifications required.

Consult the Clinical School Research Governance and Addenbrooke's R&D websites.

## Appendix I

### **Specific Fire Arrangements**

All staff and students must be familiar with fire arrangements for the building(s) in which they work; all necessary information will be provided at induction.

For further information, contact your local Fire Marshall, DSO or Laboratory Manager (contact details can be found in Appendix XI).

## Appendix II

### Accidents: Basic Action

In the event of any accident, application of the correct treatment can prevent more serious injury. Members of staff qualified in First Aid may not always be on hand and everyone working in the laboratory should familiarise themselves with the basic action required to deal with accidents.

#### 1. Concentrated acid or alkali on the skin

- Flood the splashed surface thoroughly with cold water and continue until satisfied that no chemical remains in contact with the skin. Soap will help to remove chemicals, which are insoluble in water.
- Remove all contaminated clothing, taking care not to contaminate yourself in the process.
- If necessary take person affected to hospital, or refer him/her for appropriate medical advice.

#### 2. Splashes in the eye

Eye protection should be worn for any work where there is a potential hazard, but if an accident occurs:

- Flood the eye thoroughly but gently with water.
- Seek medical advice for all eye injuries from chemicals.
- Take the injured person to hospital with the information on the chemical and brief details of the emergency treatment.

#### 3. Ingestion of poisonous chemicals

- If the chemical has not been swallowed wash the mouth out thoroughly with water. Do not swallow the mouthwash.
- If the chemical has been swallowed, give copious drinks of water or milk to dilute it in the stomach. **DO NOT INDUCE VOMITING.** Take the person to hospital.

Provide information on the chemical swallowed with brief details of the treatment given and if possible an estimate of the quantity and concentration of the chemical consumed.

#### 4. Cuts, bites and scratches

All wounds and scratches, even minor wounds, should receive attention immediately. Clean the skin around the wound and apply a sterile dressing. For animal bites, check whether a recent anti-tetanus injection has been given. Cuts with glass must be cleaned carefully. Small fragments of glass must be removed before dressing the wound. If there is a large piece of glass in the wound, do not remove it

as severe bleeding may start. To control severe bleeding squeeze the sides of the wound together and apply direct pressure on the bleeding point. Get the injured person to hospital.

#### 5. **Burns and scalds**

Cool the affected area by immersing in cold water or cover with a wet cloth. **Speed is essential.** Continue for at least 5 minutes or until pain is relieved, then cover with a sterile dressing. **Never** use an adhesive dressing.

#### 6. **Electric shock**

Switch off the current. If this is impossible, free the person using something made of rubber, cloth or wood. Do not touch the victim's skin before he/she has been removed from contact with the current. If breathing has stopped, give artificial respiration until the ambulance arrives.

#### 7. **Phenol**

Small amounts of phenol (mls) can cause burns, larger amount on the skin could be fatal. In addition to causing burns, phenol absorbs rapidly through the skin and can affect the central nervous system, liver, and kidneys. A splash to the eyes could cause blindness. Phenol vapour can cause respiratory problems.

Suitable personal protective equipment should always be used when handling phenol, i.e. lab coat, 2 pairs of standard nitril gloves (no gaps between gloves and lab coat) and suitable eye protection. Polyethylene glycol solution (PEG-300) should also be readily available in all areas where phenol is used.

Remove contaminated clothing immediately and wash or drench affected skin with large quantities of water, swabbing continuously and/or swab continuously with polyethylene glycol. Continue treatment, changing swabs frequently until the odour of phenol disappears.

If able, remove contaminated clothing immediately, taking care not to contaminate other areas of the body or yourself. If a small area of skin is exposed, flush with PEG-300 repeatedly until the phenol odour disappears. For larger exposed areas or splashes to eyes, flush with COPIOUS amounts of water (eyewash, drench hose or safety shower) for at least 15 minutes, then arrange urgent transfer to hospital.

If splashed in the eye, flush the exposed eye with copious amounts of water or saline for at least 15 minutes. Remove contact lenses if easily removable without additional trauma to the eye, then arrange urgent transfer to hospital.

Rescuers should wear protective clothing and gloves while treating patients whose skin is contaminated with phenol. Contaminated clothing should be double bagged and labelled 'Hazardous Waste: Phenol Contamination' prior to disposal.

## **Display Screen Equipment (DSE)/Visual Display Units (VDUs)**

### **1. Adjusting your workplace to suit you**

#### **1.1 Chairs**

If you are working at the DSE/VDU for long periods you need a chair with adjustable height and back support.

#### **1.2 Posture**

There is no such thing as 'ideal posture', but your seating position should allow your lower arms to reach your keyboard at a horizontal attitude when sitting comfortably upright in your chair. Feet should be flat on the floor when the knees are at right angles or use of a support may be necessary.

#### **1.3 Layout of Workstations**

If your system has a detachable keyboard and tilt swivel facilities on the screen, use them to adjust the system to meet your own needs.

#### **1.4 Ergonomics of the Workstation**

Some movement is desirable but repeated stretching movements are not. Make sure you have enough work space to accommodate whatever documents you need.

#### **1.5 Document Holders**

Use of a document holder can help reduce awkward neck movements and hence reduce muscular fatigue in the neck and upper back. The holder should be easily moveable, adjustable for height, and able to hold its contents securely in any position from horizontal to vertical.

#### **1.6 Wrist Movement**

Do not rest your wrists on the edge of the keyboard or desk or bend your hands up at the wrist. Try to keep a soft touch on the keys but don't over stretch your fingers. Good keyboard technique is important in prolonged operation. Experiment with different layouts of keyboard, screen and document holder to find the best arrangement for you.

#### **1.7 Footrests**

A footrest is necessary in cases where the chair height is set in a position which does not allow the user's feet to rest flat on the floor. It should be possible to position the footrest where required and it should not move unintentionally while in use. Its surface should be non-slip and of sufficient size to allow some freedom of movement. Take care to adjust the footrest so that the underside of your thighs are comfortably placed on the chair and your knees are not touching the underside of the desk.

#### **1.8 Changing Position**

However well designed your chair and desk, sitting in the same position for long periods is undesirable: you should therefore change your position as often as is practicable.

## **2. Adjusting your DSE/VDU to suit you**

2.1 Arrange your desk and screen so that bright lights are not reflected in the screen. You should not be looking directly at windows or bright lights. Easy to operate curtains and blinds can be provided to cut out unwanted light.

2.2 Make sure your screen is sharp and individual characters can be read easily. The characters should not flicker or move. There should be no reflections on the screen.

2.3 Use the brightness control to suit the lighting conditions of the room. Make sure there are no layers of dirt or grime, or even finger marks on the screen.

## **3. Muscular Work and Fatigue**

### **3.1 Static and Dynamic Work**

There are two types of muscular work: static work and dynamic work. Any particular task can be partly static and partly dynamic. Keyboard operation is an example of both types of muscular work. The muscles associated with the shoulders and arms do mainly static work when holding the hand in the keying position, while the muscles associated with the fingers perform mainly dynamic work when operating the keys. Examples of movements involving tiring static effort include:

3.1.1 Actions which involve bending the back either backwards or forwards without support;

3.1.2 Hunching the shoulders for long periods of time;

3.1.3 Bending the neck significantly downwards or backwards;

3.1.4 Maintaining any awkward stationary position.

### **3.2. Musculoskeletal Problems**

If an awkward and strained position is maintained daily over a long period, aches may appear which involve muscles, joints, tendons and other tissues.

Normal fatigue symptoms are temporary. The pains are mostly localised to the muscles and tendons and disappear as soon as the muscle tissues have had a chance to recover. These are the normal pains of weariness, which occur e.g. after a day of writing. Persistent troubles can also be localised to strained muscles and tendons and may affect the joints of adjacent tissues as well. Contact the Occupational Health

Service - Tel: 01223 336594, email: [occhealth@admin.cam.ac.uk](mailto:occhealth@admin.cam.ac.uk) if you are having problems.

### **3.3. Rest Breaks**

Frequent rest breaks are recommended while carrying out work on a VDU. To reduce muscular tension, it is better to take a 30 second break every 5 minutes than a longer break once in an hour.

Rest from keying can be carried out by a brief change of task. Just getting up and stretching can also help.

The eyes may be rested from reading the screen by focusing on a distant object for a moment. If that is not possible at least regularly look away from the screen. Blink often to keep your eyes moist, exercise your eye muscles by tracing an X in a box: look as far to the sides as possible. Reduced eye fatigue, reduces stress.

Conscious tensing and relaxing of the shoulder and neck muscles and fists can help to reduce muscle tension. This can be carried out frequently during the day.

When possible try to take a longer break away from the screen.

When you have a lunch break, take it away from your desk.

### **3.4. Other Factors**

Stretching may help to increase joint flexibility and muscle tone. However, care must be taken not to over-stretch muscles and tendons as this may cause them damage.

### **3.5. Exercise**

This increases the flow of blood around the body and hence aids in the removal of waste products in the muscles that lead to muscular tension and pain. Moderate exercise three times a week is more beneficial than maximum exertion once a week.

### **3.6. After Injury**

The body needs time to recover. If this is not available, the body may adjust its way of working to cope. This can lead to the development of unsuitable techniques and in time place stress on other areas of the body.

Further information can be obtained from the SO website or from Occupational Health.

## Appendix IV

### Work Related Upper Limb Disorders (WRULDs)

Work related upper limb disorders (ULDs) can affect a large number of people. They involve the muscles, tendons, joints and skeletal frame, particularly in the hands, arms, and back. The symptoms vary from mild aches and pains to severe swelling and inflammation. Most people with ULDs suffer some degree of discomfort.

Upper limb disorders may be caused or made worse by work, though other activities may also contribute. The HSE warn that ULDs may have serious consequences in terms of serious and prolonged ill health, loss of productivity and compensation claims.

ULDs can occur in jobs that require repetitive finger, hand or arm movements, twisting, squeezing, hammering or pounding or pushing, pulling, lifting or reaching movements. It is not only keyboard workers that are affected. Laboratory work, including pipetting, is commonly reported. Where the task is highly repetitive with a short cycle time, as with pipetting, repetitive strain disorders may develop, often affecting the wrist and forearm.

Unsuitable posture, often caused by poor seating arrangements reaching or stretching awkwardly may contribute to poorly defined general symptoms such as upper limb pains. Manual handling and lifting involving heavy loads and poor technique can contribute to back and neck problems. Lifting with a bent back can be four times more stressful than lifting with a straight back.

We are required by law to assess the risks to health of all work-related activities and record the results. "Every employer shall ensure that work equipment is so constructed or adapted as to be suitable for the purpose for which it is used or provided". In particular: if employees are at risk; whether they need to take specific precautions to reduce risks; and whether procedures need to be modified to minimise risks.

In a survey of pipette users, it was found that almost 90% of subjects regularly using pipettes for more than 60 minutes continuously reported hand complaints of some degree, compared with 37% of non-users. Difficult features of pipette operation included tip ejection, plunger operation, volume setting, and grip design. Other contributory factors reported included seating, overcrowded workspaces, and awkward equipment.

In assessing the safety, or otherwise of pipetting activities, the following factors should be considered:

- How frequent is the activity?
- Can the activity be broken down into a number of short periods, perhaps interspersed between other duties?
- Are the pipetting devices appropriate for the job and for the operator?
- Are the automated devices or procedures available?



- Is the workspace laid out ergonomically without clutter and so as to avoid unnecessary stretching?
- Can the arm be supported comfortably during pipetting?
- If seated, is the seating appropriate to the workstation so as to facilitate good posture?
- Are lighting and other environmental conditions adequate?
- Has the operator been given adequate training in use of the devices and procedures?
- Are new operators given adequate induction and allowed to 'come up to speed' at their own pace?

Records should be kept of all assessments (as with COSHH assessments) and made available for inspection by the Head of Department, members of the Safety Committee, University Safety Office, and HSE when required.

## Appendix V

### Manual Handling

Handling loads can cause serious injury, particularly to the back. The checklist below highlights some activities that may increase the risk:

- Handling loads that are heavy, bulky, difficult to grasp, or unstable.
- Awkward lifting, reaching or handling.
- Pushing or pulling.
- Repetitive handling that does not allow enough rest time between loads.
- Twisting and stooping.

If possible, employers should avoid the need for hazardous manual handling. However, if workers must handle goods as part of their work, employers are responsible for assessing and reducing the risks, for example by providing training and/or lifting aids to prevent injury. This could involve using a trolley to allow the load to be moved easily. Guidelines for handling and moving goods are covered by the Manual Handling Operations Regulations 1992. When lifting is necessary, good techniques can help reduce the risks.

These could involve:

- keeping the feet apart, bending the knees and keeping the back as straight as possible;
- keeping the load as close to the body as possible;
- keeping twisting of the torso to a minimum if turning to one side;
- lifting or carrying goods in small amounts;
- wrapping the load or using gloves if it has sharp edges; and
- using a table or bench as a halfway resting point.

## Appendix VI

### Chemical Storage and Waste

Safe storage begins with the identification of the chemicals to be stored and their intrinsic hazardous properties. This can be done either from the label on the container or from the Material Safety Data Sheet (MSDS). Separation, segregation or isolation is recommended depending on the severity of the hazard, total quantities and the size/break resistance of the container. It is important to note that chemical compatibility must take preference when storing chemicals. Two other points, one it is sensible to have an inventory of chemicals (+ MSDS) with their storage location, second that for every storage area there should be evacuation and emergency procedures to be followed in the event of a leak, spill or fire within that room.

**Acids and Alkalis:** Small quantities can be stored in wooden cupboards as long as there is a containment tray to contain any spillages. Acid chlorides and other materials, which liberate acid fumes, may be stored similarly. The exceptions are oxidising acids like nitric or perchloric acid that require being stored as oxidisers (see below). Alkalis are incompatible with acids and must be stored separately.

**Chlorinated Solvents**, e.g. chloroform, trichloroethylene: are best stored in ventilated cabinets separated from flammable solvents, because violent reactions can occur when flammable and chlorinated solvents are allowed to mix. They must not be stored with alkali metals (e.g. Sodium, Potassium, Lithium), since any mixing may cause an explosion.

**Flammable Solvents**, e.g. alcohol's, toluene,hexane,etc: should only be stored in specialised flammable solvent containers, with containment in the event of spills.Organic acids are combustible materials and many are combustible liquids, these can be stored with the flammable liquids.The containers should have at least half hour fire resistance and be clearly labelled, e.g. " Highly flammable no naked flames." These must not be located near the exit of a room. Oxidising agents (such as peroxides, nitrates, perchlorates) must never be stored with flammable solvents, since fires and explosions can result after any spillage, even without a naked flame or heat

**Oxidisers**, e.g. perchlorates,peroxides,nitrates: are best stored separately from other materials. Ideally they should be stored in a bin or cabinet made from metal or other non-organic material. They should not be stored where they can come into contact with paper or wood. Perchloric acid is especially hazardous and should be stored standing in a tray filled with sand within a cabinet or bin.

**Noxious chemicals**, e.g. mercaptans, amines,etc: These should be stored in cabinets with forced ventillation, so that fumes etc are ducted away. Alterniitively containers of these noxious materials can be stored in sealed secondary containers which should only be opened in a fumecupboard. Note fume cupboards are not designated chemical

storage areas and should be kept clear of all materials other than that which are required for the ongoing work.

**Carcinogens and Poisons:** Carcinogenic materials must be stored in closed containers that are clearly labelled and marked with visible hazard warning signs. All containers must be kept segregated in a lockable preferably ventilated cupboard fitted with trays to contain spillage and clearly labelled “Carcinogens”. Access to these must be restricted to designated members of staff and that amounts of carcinogens are kept to a minimum. A list of of Carcinogens is available on the Safety Office website.

Poisons as listed in Schedule 1 of the Poisons Act (1972), which includes arsenic,strychnine,cyanide must be stored in a locked cupboard and a list kept of the contents. Any poison removed must be signed for. In additon certain substances not on the list, e.g. alkaloids – atropine for example, also digitoxin, digitonin, valinomycin and actinomycin D are also kept locked away. It is also recommended that any very toxic chemicals, i.e. those with a Lethal Dose Value 50 (30 days) of less than 10mg/kg are locked away when not in use and are strictly controlled.

**Other Chemicals:** Dry chemicals can be stored together, but this will depend on their reactivities; some organic and inorganic chemicals should be stored separately. Chemicals stored at the work bench or other work areas should be those used frequently. Quantities should be kept to a minimum.

## WASTE

Strict legislation and local trade effluent agreements control disposal of chemicals and is reflected in University policy. Our duty of care extends to waste contractors and the wider environment.

The University provides a chemical waste disposal service, details of which can be found at the Safety Office website.

All waste must be clearly labelled and stored safely in your local chemical waste store with appropriate paperwork completed for collection by the contractor.

See Appendix V (Storage), and the extensive links and publications at the Safety Office ‘Chemicals’ website.

## Appendix VII

### Lasers

Work with class 3B and 4 lasers or lower classes which are significantly modified or use contrary to manufacturer's instructions, must be subject to risk assessment and local rules written for their operation.

The Departmental Laser Safety Officer (LSO) is appointed (by letter) in order to advise on laser use and safety. The LSO must be informed and consulted on any proposed laser work.

The LSO must be consulted regarding any purchase/procurement of laser equipment and any modifications to equipment or working procedures which affect significantly on the risk assessment.

Users must adhere to the departmental authorisation system – only authorised members are allowed to work with lasers who will consult with the LSO before work starts.

Refer to the Safety Office publication 'Safe Use of Lasers' for University policy and guidance.

## Appendix VIII

### **Local Rules for Work with Radioactive Sources/Radiation**

All users must be familiar with local rules.

During your induction, you will be provided with information about local rules for work with radioactive sources/radiation which is specific to the building in which you are based.

For further information, contact your local Radiation Protection Supervisor (RPS), DSO or Laboratory Manager (contact details can be found in Appendix XI).

Refer to the Safety Office website for publications, guidance and University policies on use of radioactive sources/radiation:

<http://www.safety.admin.cam.ac.uk/subjects/radiation>

## Appendix IX

### Local Rules for Work with Biological Agents/Genetically Modified Organisms (GMOs)

During your induction, you will be provided with information about work with biological agents/Genetically Modified Organisms (GMOs) which is specific to the building in which you are based. This should include arrangements for complying with the *Specified Animal Pathogens Order (SAPO)*, working with *Schedule 5 Anti-Terrorism Crime and Security Act (pathogens and toxins)*, and working polio, as appropriate.

For further information, contact your local Biological Safety Officer (BSO), DSO, or Laboratory Manager (contact details can be found in Appendix XI).

Refer to the Safety Office website for publications, guidance and University policies on use of biological agents and GMOs:

<http://www.safety.admin.cam.ac.uk/subjects/biologicals>

### Good Microbiological Practice

Containment describes facilities, procedures and processes that are used to help prevent exposure of people and the environment to the micro-organisms that are being deliberately manipulated either by accident, or once work has finished. It is used in combination with good microbiological practices (e.g. aseptic technique) which is designed to prevent cross-contamination of work but also supplements the containment objectives by preventing the spread of contamination.

Work with micro-organisms (using good microbiological practice) is undertaken in containment laboratories. There are four levels of containment defined under which a particular micro-organism in the corresponding hazard group should be handled (unless a risk assessment determines otherwise).

Below summaries the containment measures for containment levels one to three (CL-1 to CL-3), as defined by government advisory bodies, regulations and guidance for work with wild-type and genetically modified biological agents or materials contaminated with such agents.

For some activities involving both wild-type and genetically modified agents the containment requirements will overlap and in all cases the most stringent measure required should be adhered to. The containment measures for work with genetically modified animals or plants and specified animal pathogens (under SAPO) are not described here. However, information on the requirements for these types of work is available at:

<http://www.hse.gov.uk/biosafety/sapo.htm>

<http://www.safety.admin.cam.ac.uk/subjects/biologicals>

## **Containment Level 1 (CL-1)**

CL-1 is suitable for work with agents in Hazard group 1. Although defined as unlikely to cause disease by infection, some agents in this group are nevertheless hazardous in other ways, i.e. they are allergenic or toxigenic, and adequate control measures must be in place. Laboratory personnel must receive suitable and sufficient information, instruction and training in the procedures to be conducted in the laboratory.

1. HSE guidelines state that it is optional for the Laboratory door to be closed whilst CL- 1 work is in progress.
2. Laboratory coats must be worn in the laboratory when indicated by risk assessment (mandatory for any GM activity) and be removed when leaving the laboratory area.
3. Eating, drinking, smoking, storing of food and applying of cosmetics must not take place in the laboratory.
4. Mouth pipetting is prohibited in the laboratory. Hands must be washed and disinfected:
  - a. when any contamination is suspected,
  - b. after handling viable materials,
  - c. before leaving the laboratory.
5. All procedures must be performed so as to minimise the production of aerosols.
6. Effective disinfectants must be available for immediate use in the event of a spillage.
7. All contaminated glassware must be disinfected before removal from the laboratory for washing.
8. HSE guidelines state that it is optional for waste material that is not to be incinerated to be rendered non-viable before disposal.
9. All accidents and incidents must be recorded, at the time, on an Accident Report Form, available from the Departmental Office.

## **Containment Level 2 (CL-2)**

CL-2 is suitable for work with agents in Hazard group 2. Laboratory personnel must receive suitable and sufficient information, instruction and training in working safely with biological agents in this hazard group. A high standard of supervision of the work should be maintained.

For CL-2 the following measures should be adopted in addition to the those described for CL-1:

1. Access to the laboratory is limited to laboratory personnel and other specified persons.
2. Laboratory coats must be worn and be removed when leaving the laboratory area.
3. The door to the laboratory must be closed when work is in progress.



4. Eating, drinking, smoking, storing of food and applying cosmetics must not take place in the laboratory.
5. Mouth pipetting is prohibited in the laboratory.
6. Hands must be washed and disinfected:
7. when contamination is suspected
8. after handling viable materials
9. before leaving the laboratory
10. In general, work may be conducted on the open bench, but care must be taken to minimise the production of aerosols. For aerosol-generating manipulations, e.g. vigorous shaking or mixing, ultrasonic disruption etc., a Microbiological Safety Cabinet (MSC) must be used.
11. Effective disinfectants must be available for routine disinfection and immediate use in the event of a spillage and must be used as prescribed in the section on biological hazards.
12. Bench tops must be disinfected after use.
13. Used laboratory glassware and other materials awaiting sterilisation must be stored in a safe manner. All contaminated glassware must be disinfected before removal from the laboratory for washing.
14. Plastic disposable pipettes must be used and discarded in the large sharps container provided.
15. Gas burners must not be used in MSCs.
16. Material for autoclaving, e.g. agar plates, tissues etc., must be placed in a flip-top bin lined with a bag displaying the Biohazard sign.
17. All waste material must be made safe before disposal or removal for incineration. There should be an autoclave in the Department or containment equivalent to CL-2 provided for transport.
18. All accidents and incidents must be recorded, at the time, on an Accident Report Form, available from the Departmental Office.

### **Containment Level 3 (CL-3)**

CL- 3 must be used for work with all biological agents in Hazard Group 3\* except where specific derogation has been applied. Laboratory personnel must receive suitable and sufficient information, instruction and training in working safely with biological agents in Hazard Group 3. A high standard of supervision of the work should be maintained. A list must be kept of employees engaged in work with biological agents in Hazard Group 3 indicating the type of work done and, where known, the agent(s) to which they are exposed. This must include, as appropriate, a record of exposures (e.g. resulting from accidents and incidents). In general, this list must be kept for at least 10 years but an extended period of up to 40 years may be necessary.

All work must be advised to the Clinical School Safety Officer and University Director of Health & Safety.

For CL-3 the following measures should be adopted in addition to the those described for CL-1 and CL-2:

1. The laboratory must be separated from other activities in the same building.
2. Access to the laboratory is to be restricted to authorised persons.
3. The laboratory must be maintained at an air pressure negative to the atmosphere. Extracted air must be high-efficiency particulate absorption (HEPA) filtered (or equivalent).
4. The laboratory must be sealable to permit disinfection.
5. Disinfection must be by specified disinfection procedures.
6. Bench surfaces and the floor must be impervious to water, easy to clean and resistant to acids, alkalis, solvents and disinfectants.
7. There must be safe storage of biological agents.
8. There must be an observation window or an alternative so that occupants can be seen.
9. The laboratory must contain its own equipment, so far as is reasonably practicable.
10. Laboratory procedures that may give rise to infectious aerosols must be conducted in a Microbiological Safety Cabinet (MSC), isolator or other suitable containment.
11. An incinerator must be accessible for the disposal of animal carcasses (see paragraph 27).
12. Personal protective equipment, including protective clothing, must be:
  - a. stored in a well-defined place;
  - b. checked and cleaned at suitable intervals;
  - c. when discovered to be defective, repaired or replaced before further use.
13. Personal protective equipment which may be contaminated by biological agents must be:
  - a. removed on leaving the working area;
  - b. kept apart from uncontaminated clothing and equipment;
  - c. decontaminated and cleaned or, if necessary, destroyed.
14. Laboratory Space - There should be adequate space (24m<sup>3</sup>) in the laboratory for each worker.
15. The laboratory door should be closed when work is in progress and locked when the room is unoccupied. A biohazard sign should be posted at the entry to the door.
16. Side or back fastening laboratory gowns or coats should be worn in the laboratory and removed on leaving it. These should be autoclaved before sending for laundering. Additional protection, for example, gloves and plastic aprons, should also be made available.
17. Eating, chewing, drinking, smoking, taking medication, storing food and applying cosmetics is forbidden in the laboratory.
18. Mouth pipetting is forbidden.
19. Class I or Class II MSCs (of appropriate British Standards) are the most suitable for laboratory procedures likely to give rise to infectious aerosols. Where protection of the work is essential (for example cell cultures are in use) and the route of transmission of the agent concerned is primarily percutaneous, a Class II MSC may be used provided that it can be shown to offer operator protection to the appropriate standard under the conditions of use.

20. Safety cabinets must exhaust through a HEPA filter or equivalent to the outside air or into the laboratory air extraction system, and in other respects such as siting, performance in use, protection factor and air filtration, should comply with the performance specifications detailed in British Standards. If laboratories are faced with a major problem because of difficulties in arranging for the cabinet to exhaust to open air, recirculation of exhaust air through two HEPA filters in series may, in exceptional circumstances, be considered an alternative. In this case, the maintenance of a continuous airflow into the laboratory during work with infectious material will be of particular importance and such an option should not be adopted without prior consultation with HSE.
21. A wash basin should be provided near the exit of the laboratory. Taps should be of a type that can be operated without being touched by the hand.
22. Gloves should be worn for all work with infective materials and hands should be washed before leaving the laboratory. Gloves should be washed or preferably removed before touching items that will be touched by others not similarly protected, for example telephone handsets, paperwork. Computer keyboards and, where practicable, equipment controls should be protected by a removable flexible cover that can be disinfected.
23. An autoclave for the sterilisation of items to be recycled and/or waste materials should preferably be situated within the laboratory, but if this is not practicable, then one should be readily accessible in the laboratory suite.
24. Materials for autoclaving should be transported to the autoclave in robust containers without spillage.
25. There should be means for the safe collection, storage and disposal of contaminated waste.
26. Contaminated waste should be suitably labelled before removal for incineration.
27. 'Access to an incinerator' – see paragraph 11, may be taken to mean an incinerator at another site but whether local or distant, carcasses for incineration must be transported in secure containers.
28. COSHH requires that the CL- 3 laboratory be sealable to permit disinfection. While the definition of 'disinfection' may be widely interpreted, in practice, it may be necessary, subject to the assessment of risk, to decontaminate by fumigating the accommodation when, for example, a spillage has occurred or when maintenance work is to be carried out.
29. Where it is not reasonably practicable for the laboratory to contain its own equipment, for example, a deep-freezer, material should be transported and stored without spillage in properly labelled robust containers which should be opened only in CL- 3 accommodation.
30. All accidents and incidents should immediately be reported to and recorded by the people responsible for the work or other delegated people.

## Appendix X

### Departmental Safety Committee(s)

#### Safety Committee for the Department of Oncology

##### Remit

It shall be the role of the committee:

1. To provide a forum for the discussion of health and safety issues pertinent to the department.
2. To identify health and safety matters requiring action and to ensure actions are carried out.
3. To receive and disseminate information regarding health and safety to departmental members.
4. To promote a positive health and safety culture where members understand their responsibilities in accordance with the law and University policy.
5. To adopt and implement University policy and guidance where appropriate.
6. To review policies and procedures and revise if necessary in order to improve health and safety performance.
7. To ensure that accidents and incidents of ill health are monitored and kept to a minimum.

The committee shall meet termly and review annually the membership and remit of the committee. Minutes should be sent to University Safety Office.

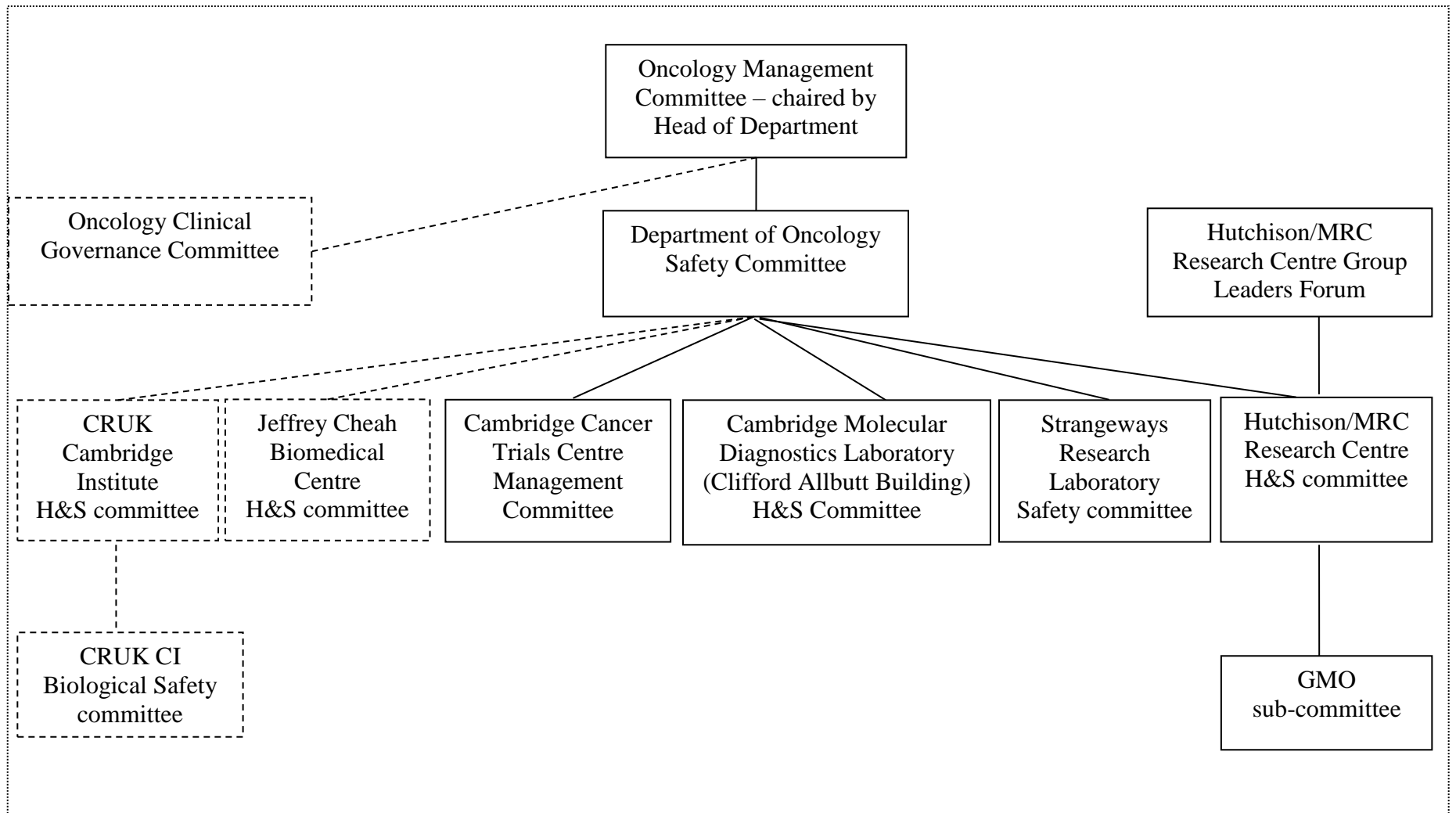
The membership of the committee is intended to be representative of all staffing positions within the department and comprises currently:

The membership of the committee is intended to be representative of all staffing positions within the department and currently comprises:

- Chair
- Departmental Safety Officer & Secretary
- Clinical School Safety Officer
- Cambridge Breast Cancer Research Unit Laboratory and Office Representatives
- Cambridge Molecular Diagnostics Laboratory Representative
- Cambridge Cancer Trials Centre Representative
- Clinical Oncology – R4 Representative
- Hutchison/MRC Research Centre Representative
- Strangeways Research Laboratory Representative

## Appendix XI

### Safety Contacts and Organogram - Reporting structure for safety management



## Department of Oncology Safety Personnel

The Department of Oncology constitutes approximately 140 members of staff and postgraduate students based in 11 geographical sites:

- CBCRU - Cambridge Breast Cancer Research Unit
- CCTC - Cambridge Cancer Trials Centre (S4 Block & Coton House)
- CUTRCT - Cambridge Urology Translational Research & Clinical Trials (Norman Bleehan Offices)
- CMDL - Cancer Molecular Diagnostics Laboratory (Clifford Allbutt Building)
- CRUK CI - Cancer Research UK Cambridge Institute
- Clinical Oncology (R4 Block)
- Hutchison/MRC Research Centre
- JCBC - Jeffrey Cheah Biomedical Centre
- SRL - Strangeways Research Laboratory
- WSI - Wellcome Sanger Institute

Our Departmental Health and Safety Committee acts in an advisory capacity to the Head of Department and is responsible for the production, review, performance and monitoring of the implementation of the Departmental Safety Policy, which is developed in accordance with the University's Safety Policy.

The Committee includes a representative from each of our main sites; it does not include representatives from the CRUK CI Cancer Research UK Cambridge Institute, Jeffrey Cheah Biomedical Centre and the Wellcome Sanger Institute, as health and safety management of our staff located in these sites is formally devolved to their local health managers, due to the very small numbers of Oncology personnel based within these sites.

Details of key health and safety staff are provided in the following tables:

- Table 1 - Departmental Safety Committee & Safety Contacts for devolved sites
- Table 2 - Additional Key Safety Contacts

**Table 1: Departmental Safety Committee and Safety Contacts for each of our sites**

Location	Departmental Safety Committee Role	Name	Email	Telephone
SRL - Strangeways Research Laboratory	Chair	Alison Dunning	<a href="mailto:amd24@medschl.cam.ac.uk">amd24@medschl.cam.ac.uk</a>	761931
SCM – School of Clinical Medicine	Clinical School Safety Officer	Keff Tibbles	<a href="mailto:kt10001@medschl.cam.ac.uk">kt10001@medschl.cam.ac.uk</a>	767124
Hutchison/MRC Research Centre	Departmental Safety Officer & secretary	Laura Turner	<a href="mailto:lt445@cam.ac.uk">lt445@cam.ac.uk</a>	760408
CBCRU - Cambridge Breast Cancer Research Unit	Local Safety Representative (laboratory) Local Safety Representative (Office)	Mark Lucas Anthea Messent	<a href="mailto:ml947@medschl.cam.ac.uk">ml947@medschl.cam.ac.uk</a> <a href="mailto:ajm252@medschl.cam.ac.uk">ajm252@medschl.cam.ac.uk</a>	348931 348928
CCTC - Cambridge Cancer Trials Centre (S4 Block & Coton House)	Local Safety Representative	Bride Foster	<a href="mailto:bride.foster@addenbrookes.nhs.uk">bride.foster@addenbrookes.nhs.uk</a>	256369
CUTRCT - Cambridge Urology Translational Research & Clinical Trials (Norman Bleehan Offices) Shared space with Dept of Neurosciences)	Local Safety Representative	Sarah Burge	<a href="mailto:swb35@cam.ac.uk">swb35@cam.ac.uk</a>	348441
CMDL - Cancer Molecular Diagnostics Laboratory (Clifford Allbutt Building)	Local Safety Representative	Shubha Anand	<a href="mailto:sa263@medschl.cam.ac.uk">sa263@medschl.cam.ac.uk</a>	762045
Clinical Oncology (R4 Block)	Local Safety Representative	Catherine Durance	<a href="mailto:ccd35@medschl.cam.ac.uk">ccd35@medschl.cam.ac.uk</a>	336800
Hutchison/MRC Research Centre	Local Safety Representative	Oana Sadiq	<a href="mailto:ois20@mrc-cu.cam.ac.uk">ois20@mrc-cu.cam.ac.uk</a>	763328
SRL - Strangeways Research Laboratory	Local Safety Representative	Craig Luccarini	<a href="mailto:craig@srl.cam.ac.uk">craig@srl.cam.ac.uk</a>	761941
Contacts for sites where Health & Safety Management of staff is fully devolved locally	Role	Name	Email	Telephone
Cancer Research UK Cambridge Institute	Departmental Safety Officer	Kesh Munbauhal	<a href="mailto:kesh.mun@cruk.cam.ac.uk">kesh.mun@cruk.cam.ac.uk</a>	769669
Jeffrey Cheah Biomedical Centre	Departmental Safety Officer	Stephanie Hall	<a href="mailto:slh60@cam.ac.uk">slh60@cam.ac.uk</a>	760237
Wellcome Sanger Institute	Health & Safety Group Leader	Simon Rice	<a href="mailto:simon.rice@sanger.ac.uk">simon.rice@sanger.ac.uk</a>	834244

**Table 2: Additional Key safety staff**

Role	CBCRU	CCTC (S4 Block & Coton House)	CUTRCT (Norman Bleehan Offices)	CMDL (Clifford Allbutt Building)	Clinical Oncology (R4 Block)	Hutchison/MRC Research Centre	SRL
Safety Representative	Mark Lucas (Lab) Anthea Messent (Office)	Bride Foster	Sarah Burge	Shubha Anand Ross Coates	Catherine Durance	Oana Sadiq	Craig Luccarini
First Aiders	Mark Lucas (Lab) Anthea Messent (Office)	Lesley Bennett (S4) Lucy Bennett (R&D) Sarah Dawson (CH) Sarah Cheung (CH) Sarah Fesco (S4)	To be appointed	Building wide first aid team - contact Ross Coates Lorena Di Lisio	Catherine Durance Deborah Whitehorn	Karen Hebert Stephen Jones Luisa Pedro Laura Turner Hayley Woffendin	Craig Luccarini
Metal Health First Aiders	Catherine Durance	Not appointed	Not appointed	Lorena Di Lisio	Catherine Durance	Oana Sadiq Hayley Woffendin	Not appointed
Fire Safety Warden	To be appointed	Bride Foster (S4) To be appointed (CH) Louise Grybowicz (S4) Stanly Thomas (S4) Lee Mynott (S4) Debbie Blackstone (S4) Sarah Fesco (S4) To be appointed (CH)	Vicky Lupson (Dept of Neurosciences)	Stephen Sawcer	Catherine Durance	Oana Sadiq Francois Meullenet	Julie Jenkins
Biological Safety Officer	N/A	N/A	N/A	To be appointed	N/A	Sakari Vanharanta	Alison Dunning
Chemical Safety Officer	N/A	N/A	N/A	N/A	N/A	Oana Sadiq	Craig Luccarini (lab)



Laser Safety Officer	N/A	N/A	N/A	N/A	N/A	Alessandro Esposito	N/A
Radiation Protection Supervisor	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chair of Safety Committee	Alison Dunning						
Departmental Safety Officer	Laura Turner						
Departmental Fire Safety Manager	Laura Turner						

## Appendix XII

### Food and Social Events

All food safety-related issues are managed for the University by the Operations Manager at the University Centre: <http://www.unicen.cam.ac.uk/food-safety>

Under the Food Safety Act 1990 everyone that supplies food and drink for public consumption must ensure that their products are safe to eat.

Staff wishing to organise social events requiring provision of food and drink must consult their local DSO or Business & Operations Manager first (contact details can be found in Appendix XI), to ensure that they comply with the University Food Safety Policy.

### University Food Safety Policy Statement

1.1 The University of Cambridge is committed to achieving the highest standards of food safety and quality by well-trained staff, operating in clean hygienic premises. This Policy applies to all catering activity on University premises or under the control of the University, whether run by the University (including Departments and Institutions) or by external Catering Providers. All external Catering Providers are also required to comply with this Policy.

1.2 This Policy shall ensure that catering practice meets the University's legal obligations with respect to discrimination, financial regulations and health and safety, including food safety.

1.3 All food production, handling, storage and transportation must meet the requirements of the Food Safety Act 1990 and the Food Hygiene (England) Regulations 2006.

1.4 Except in the case of the provision of solely Low Risk food/drink, it is recommended that Departments use University Catering or one of the Preferred Suppliers listed with Procurement Services. Only Catering Providers who have been awarded a contract with the University following a formal tendering procedure can be used to operate embedded third party outlets.

1.5 Departments are strongly advised to use a Preferred Catering Provider. Should a Department choose to use a non-preferred supplier for hospitality or delivered platters they must write to the Head of Operations, Facilities Management stating that they are taking responsibility for performing appropriate checks to ensure that the catering provider is a reputable supplier and that they comply with this policy (this does not apply to embedded third party outlets as they must be operated by a Catering Provider who has been awarded a contract with the University following a formal tendering

procedure). Departments requiring catering from a specialist supplier e.g. strict kosher, or when using caterers in other parts of the country or abroad should contact the Head of Operations, Estate Management for guidance.

1.6 Only preferred Catering Providers may publicise or promote themselves by reference to their status.

1.7 In general (with the exception of Low Risk food/drink) departments are discouraged from self-catering due to the risks involved. However, for very small numbers (usually less than 15 people) this might be unavoidable, in which case food must be purchased only from a major leading supermarket or fast food outlet and receipts kept for traceability. Strict controls must be implemented during storage, preparation and service to ensure the safety of the food. Where practicable, ingredients should be purchased from a Preferred Supplier.

1.8 This Policy does not apply to food brought onto University premises for personal consumption, including consumption of food purchased and prepared by residents and their guests in self catering accommodation.

## **Departmental responsibilities**

As with other matters of safety, Heads of Departments are responsible for ensuring implementation of this Policy within their domain.

Main tasks:

- co-operate with the University in complying with statutory duties;
- facilitate visits by Enforcement Officers, such as from the Environmental Health Office, Trading Standards Office, Health and Safety Executive, Fire Service, etc;
- ensure that all food handlers, either during their pre-employment health screening process or when a current member of staff transfers to become a food handler, complete the Food Handler's Agreement Form (Occupational Health form OH6: <http://www.oh.admin.cam.ac.uk/oh-forms>), which should be retained by the department and the Supplementary Health Questionnaire for Food Handlers (Occupational Health form OH5: <http://www.oh.admin.cam.ac.uk/oh-forms>), which should be sent to Occupational Health with the completed Pre-employment Health Questionnaire;
- ensure that Food Handlers are trained to a level commensurate with their
- responsibilities;
- ensure that records are kept to prove compliance with due diligence;
- conduct regular food safety inspections within the Department and where appropriate, e.g. large operations such as the University Centre and Madingley Hall undertake food safety audits;
- ensure that products and services are purchased from a preferred catering supplier;

- make sure that any equipment associated with storing, heating, cooking or serving food is of appropriate design and is maintained to adequate hygiene and safety standards.

Further information and guidance about food safety can be found at:

<http://www.food.gov.uk/> and

<http://www.cam.ac.uk/current-students/student-health-and-welfare/health-guidelines>

## Appendix XIII

### **Disinfection Policy**

During your induction, you will be provided with information about the disinfection policy employed in the building in which you are based.

For further information, contact your local DSO, or Laboratory Manager (contact details can be found in Appendix XI).

## Appendix XIV

### **Biological/Clinical Waste**

During your induction, you will be provided with information about the disposal routes for biological/clinical waste in the building in which you are based.

For further information, contact your local DSO, or Laboratory Manager (contact details can be found in Appendix XI).

Refer to the Safety Office website for University policy on disposal of biological/clinical waste:

<http://www.safety.admin.cam.ac.uk/subjects/biologicals/waste-biological>

## Appendix XV

### Asbestos Management

University staff members are not permitted to work with asbestos materials.

Any activity that directly involves working with asbestos, i.e. materials known or presumed, must employ persons competent for the task. University Estate Management (EM) manage an approved list of asbestos specialists that must be used to undertake asbestos work within University controlled buildings.

Note, it is a statutory requirement to use UK Accredited Specialists and/ or specialists licensed by the HSE for many types of asbestos work. Companies on the approved list meet all the necessary requirements. EM has also developed a standard specification for asbestos works, which is available to departments and consultants upon request.

For guidance and information about management of asbestos, contact your local DSO or Laboratory Manager in the first instance; the University EM website: <http://www.em.admin.cam.ac.uk/operating-estate/health-safety/asbestos> also contains the following information:

- Asbestos Register
- Asbestos Procedures & Forms
- Emergency Plan
- Asbestos Training
- Further Information

### Accidental Release of Asbestos

In the case of an uncontrolled release of asbestos fibres into the workplace the *Control of Asbestos Regulations 2012 (CAR2012)* requires that all persons are kept away from the affected area. An adequate assessment is required and an emergency action plan should be followed.

The following must be carried out:

- Step 1:** Immediately clear the area of all personnel and isolate the area, such as a single room, by closing all the doors. Turn off air conditioning/warm air systems if possible.
- Step 2:** Prohibit access to the area.
- Step 3:** Inform the named representative for the building i.e. Departmental Secretary, Administrator, Safety Officer, Chief Technician or Building Manager who will take control of the situation.
- Step 4:** Inform the Asbestos Team or if out of hours, telephone the emergency line:

	Telephone:	Email:
<b>EM Asbestos Team Emergency Team</b>	01223 (3)37784	asbestos.management@admin.cam.ac.uk
<b>Out of hours emergency number</b>	01223 (3)31818	
<b>Address</b>	Asbestos Management Team, Estate Management Laundry Farm, Barton Road, Cambridge, CB3 9LH	

**Step 5:** An EM Asbestos Team member or their agent (such as an EM approved asbestos consultant) will assess the situation, access the area with appropriate personal protective equipment and decide on a further course of action.

Subsequent actions following Steps 1 to 5:

- Relay information of potential exposure to all persons who may have been affected by the uncontrolled release.
- EM (or its agent) will organise the necessary remedial work.
- Keep the area clear of anyone not involved in the remedial action until air monitoring has confirmed that fibre counts are at acceptable levels.
- Following an assessment, the incident may need to be reported under RIDDOR (*Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995*) as directed by the Director of the Health and Safety Office (HSO).
- All incidents should be recorded via the University's '*Accident, Dangerous Occurrence and Incident Report Form*'. The HSO will gather information, make notifications to relevant parties such as Occupational Health, Estate Management, the Department and develop actions in response to the incident.



## Appendix XVI

### **Legionella Management**

For guidance and information about management of Legionella, contact your local DSO or Laboratory Manager in the first instance.

For publications about awareness and University policy re management of Legionella, refer to the Safety Office website:

<http://www.safety.admin.cam.ac.uk/publications/biological/hsd175b-legionella-awareness-faq>

## Appendix XVII

### Occupational Health Arrangements

University Occupational Health provides services that focus on the prevention of ill health and promotion of health at work. These services respond to the University's statutory requirements under health, safety and employment law and are designed to protect health at work and ensure that health related problems are effectively managed.

Through collaborative work with both external and internal disciplines such as the Safety Advisors and Human Resource Business Managers, Occupational Health aims to provide an integrated service to all staff.

Occupational Health offers the following services aimed at reducing ill health at work and supporting those at work with health problems:

- Environment and workplace assessments
- Health assessments
- Health surveillance
- Travel advice

These services may be accessed directly by the individual (self-referral) or through their supervisor, DSO, or Business & Operations Manager (management referral); it is helpful, if individuals can make their Business & Operations Manager aware of any work related health issues.

Refer to the Occupational Health website for information about the services provided and how to make a referral: <http://www.admin.cam.ac.uk/offices/oh/>.

## Appendix XVIII

### Work Experience

The Department accepts individuals wishing to undertake work experience (usually undergraduates who are interested in going on to postgraduate study) under the aegis of a senior member of staff.

Staff wishing to host a work experience individual should inform the Departmental Business & Operations Manager and their local DSO or Laboratory Manager at the earliest opportunity, to allow for necessary safety preparation to be put in place.

Individuals who will be working in laboratories must have permission from the Head of Department, or an authorised Deputy, and are required to follow all departmental safety procedures, which will include a general departmental induction and a local safety induction with the DSO or Laboratory Manager of the building in which they are based.

Supervisors of the individuals undertaking work experience should ensure that their charges are competent and have the necessary training and information to enable them to work safely.

Those undertaking work experience may remain unfamiliar with safety procedures and emergency exits due to their length of stay and therefore ensure that they are not left alone when working.

## Appendix XIX

### **Recycling**

All staff and students should ensure they are familiar with recycling arrangements employed in buildings in which they work; they will be provided with this information at induction.

For further information, contact your local DSO or Laboratory Manager (contact details can be found in Appendix XI).

## Appendix XX

### **EMERGENCY ACTION PLAN/BUSINESS CONTINUITY PLAN (EAP/BCP)**

Gold and Silver response team members hold both an electronic copy and hard copy of the departmental EAP/BCP.

A hard copy of Departmental EAP/BCP is also stored in the Departmental Business & Operation Manager's Office, level 4, Hutchison/MRC Research Centre.

## Appendix XXI

### TRANSPORT OF SAMPLES/MATERIALS

The department abides by the University's policy on 'How to Transport Biological Samples, Cultures and Other Scientific/Research-Related Items', which can be found on the Safety Office website: [www.safety.admin.cam.ac.uk/files/hsd057b.pdf](http://www.safety.admin.cam.ac.uk/files/hsd057b.pdf)

This policy ensures individuals comply with the stringent national and international legislation governing transport of biological samples and materials and covers requirements for the transport by road and air both within the UK and abroad.

Usually it will be possible to determine in advance how a package is going to be transported but senders should bear in mind there is the increasing likelihood that packages sent by post or courier within the UK may be put on an internal flight and it is important to ensure the requirements for such journeys are complied with.

All persons undertaking any role in the transport chain should be properly trained to carry out their responsibilities to the required standards; it is the responsibility of Line Managers to ensure their staff and students are properly trained.

Sometimes it may be more cost-effective to use a specialist dangerous goods courier than to navigate the complexities of the regulations. The University retains the services of a Dangerous Goods Safety Adviser (DGSA); all requests for advice are filtered via the Health and Safety Office.

The policy includes information about:

- Classification of samples, e.g. infectious and non-infectious substances, GM;
- how to correctly label and package samples for safe transport, e.g. on dry ice, in liquid nitrogen;
- required documentation and paperwork;
- transport by various different modes, e.g. by road, air, courier, or in person;
- use of couriers and mail services, e.g. Royal Mail, Parcelforce and International Postal Services;
- associated security considerations; and
- additional useful information, e.g. International agreements, companies that can be used for transport.

## Appendix XXII Travel and Working Away

This procedure covers the travelling and working away from Cambridge within the Department of Oncology. It also can be used in conjunction with the guidance issued by the University of Cambridge Safety Office (HSD056M). During out of hours the normal health and safety networks in the Department's buildings.

A risk assessment must be complete for each trip regardless of the length of travel. The nature and complexity of the assessment should reflect the risks involved in the work

Each form must be signed and approved by the supervisor, DSO or head of department, a copy must be forwarded to the DSO.

All travel abroad for which a Risk assessment has not been completed will not be considered University authorised travel. The University travel insurer may challenge any claims made in this regard.

Links to departmental travel risk assessment forms can be found on the Department of Oncology website: <https://www.oncology.cam.ac.uk/current-members/health-and-safety/travel-work-away/travel-risk-forms>