University of Glasgow

School of Cancer Sciences

Health and Safety Guidelines

November 2022

Issue 3.0

Compiled by: Stacey Hoare SCS Safety Co-Ordinator

Approved for Distribution by SCS Safety Committee: 20th October 2022

Approved for Distribution by SCS Executive Group 5th December 2022

Information updated in new issue – October 2022

Name updated to School of Cancer Sciences – changed from Institute

References to the McGregor Building throughout document removed as no longer occupied.

Safety Committee membership updated

Safety Rep information updated.

New groups added to list with group numbers.

SCS safety policy updated with Professor Christina Halsey added as Head of School.

Exit check list for leavers added in

Defibrillators added in first aid section

Safe zone apt information added in for lone working, and first aid and security.

Links to first aid aps added St John's ambulance and red cross.

Training needs analysis template

Various symbols and images for sections.

Mental Health First Aid section included, and contacts added

Lone work – risk assessed.

Add in that RA for each group should be made know and available to group members.

Extra links to SEPS and extra bodies added in. Defra etc

Travel Safety updated with new HUB self-portal information

Tissue Culture update in process P access training etc

Guidance on cleaning MSC hoods included.

Update on Transport of biological hazards section with table, packaging, labelling and document requirements and flowchart.

C0SHH risk assessments are required to be written up and signed off before work commences for all work using COSHH chemicals and all new procedures

Guidance on storage of Organic and inorganic acids and oxidising chemicals. Link to information on SEPS website added in.

Chemical waste disposal section updated.

New company added for uplift of chemical waste – Tradebe

Updated – Only 1 designated radiation-controlled room in WWCRC room 138.

Laptop mobile phone charger – check correct voltage before plugging in

Addition of use and link to overnight equipment form for unattended equipment left on overnight.

Insertion of containment level I training in competence training form Appendix 3

Blue waste stream removed.

Information updated in new issue – October 2017

Page

8 - Safety Committee membership names updated.

9 – Area Fire Office McGregor Building

10 – First aid Trained staff in buildings updated and contact telephone numbers added.

11-13 - SCS Safety Policy updated, management approval added in and mode of operation.

14 – Travel Policy links added in

15 – Added in section on responsibilities for safety in the Institute, includes Head, PI's, Staff, and student's role in safety.

21 – New SEPS University staff contact details added.

23 – Online Accident and Incident reporting form to SEPS now available for online completion.

26 – Emergency contacts updated, Emergency Spills procedures - Acid / Alkali spills kit available in WWCRC

28 – Updated investigation of Accidents and Incidents procedures

28 – Added in section on Travel Health and Safety with link to Travel Risk assessment Form

30 – General Safety all Workers adequately trained and supervised and until deemed competent will not be allowed to work unsupervised within the building.

32 – Group Responsibilities –High Hazard Chemical register stored j-drive Communal H and S area

33 – Group Responsibilities – All Risk Assessments signed off by PI's

34 – Added in information about work experience for young workers.

35 – Allan McVie now the WWCRC Building Tissue Culture Trainer

39 – Location of Biological RA files in Health and Safety / Building / Group

45 – Allan McVie now the contact for Tissue culture in WWCRC – Mycoplasma testing

46 – Tissue culture waste procedures updated- Locally used disinfectants -check size and times.

47 – Containment level II access and training- RA in place prior to work and access to facility.

50 – Beatson COSSH labelling system removed from Chemical safety all sections.

54 - Chemicals added information on new online reporting form to SEPS for Accidents

64 - Handling liquid Nitrogen – no dispensing out of hours added.

67 – Waste disposal routes -Remove tiger strip waste info as not required.

69 – Electrical Safety -Report building electrical faults to Janitor in WWCRC

73 - Manual Handling Diagram added to section.

76 – Transport of goods -Packing diagram added to section for transporting of goods.

78 - Laboratory check list form removed.

79 – Safety Staff for buildings -Fire Warden list updated.

80 – Group safety officer list updated

85 – Training check list – Safety Induction sign off

86 – Accident and Incident reporting form email to SEPS (or online)

90 – NEW COSHH Form added.

94 – High Hazard form updated

95 – General Risk assessment form added in, and New and Expectant Mothers form removed, link can be located in section.

99 - New Waste supplier information with new bin images

102 – New Biological, chemical and Fire Safety Officers contact details

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School of Cancer Sciences

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Health & Safety Committee

The Convenor for Health & Safety in the School of Cancer Sciences is:

David Vetrie

Room 311 Wolfson Wohl Cancer Research Centre

Tel: 0141 330 7258

e-mail: David.Vetrie@glasgow.ac.uk

Deputy Health and Safety Convenor: Stacey Hoare

Safety Committee Members:

David Vetrie	(Chair)	WWCRC	Principal Investigator
Stacey Hoare	(Safety Co-ordinator)	WWCRC	Chief Technician
Vignir Helgason	(GM Safety)	WWCRC	Principal Investigator
Alan Hair	(Safety Co-ordinator)	Paul O'Gorman	Technician
Jennifer Cassels		Paul O'Gorman	Technician
Scott Kelso		Beatson Institute	Facilities Manager
John Kinsella		Beatson Institute	Health and safety Manager
Julie Galbraith		Polyomics	Technician
Shaun Patterson		Paul O'Gorman	Post-Doctoral Scientist
Sharon Burns	(Biological and Fire safety)	WWCRC	Technician
Allan McVie	(Radiation and LASER Safety)	WWCRC	Technician
Hannah Morgan	(Safety Co-ordinator)	QEUH	Technician
Cheuk Yin Yuen (Tayden)		WWCRC	PHD Student

This safety Manual is designed mainly to cover SCS staff and students working in the University managed Buildings / floors of the **Wolfson Wohl Cancer Research Centre, Paul O'Gorman Leukaemia Research Centre**. Staff and students working in groups based in other buildings such as the **BEATSON INSTITUTE** the Laboratory Medicine Building, QEUH and other **NHS** hospitals managed areas should refer to their local safety manuals for their buildings and management systems, and use this as a guide to University Practices, references, and useful contact information.

Safety Co-ordinators:

Wolfson Wohl Cancer Research Centre (School and Building)	Stacey Hoare Tel 0141 330 8707 e-mail: Stacey.Hoare@Glasgow.ac.uk
Paul O'Gorman LRC	Alan Hair Tel: 0141 301 7883 e-mail: Alan.Hair@glasgow.ac.uk
Laboratory Medicine Building, QEUH	Nicola Small (NHS compliance Manager) e-mail Nicola.Small2@ggc.scot.nhs.uk

School of Cancer Sciences Safety Advisors

Biological Safety Advisor	Sharon Burns	Ext 6897	0141 330 6897
GM Safety Advisor	Dr. Vignir Helgason	Ext 7245	0141 330 7245
Radiation Safety Advisor	Allan McVie	Ext 8124	0141 330 8124
Chemical Safety Advisor	Sarah Buchanan	Ext 2566	0141 330 2566

Area Fire Officers Wolfson Wohl Cancer Research Centre

Sharon Burns	Ext 6897	0141 330 6897
Allan McVie	Ext 8124	0141 330 8124

Other buildings covered by NHS staff

Area Fire Officer Paul O'Gorman Leukaemia Research Centre

Des Keating Ext 211 (5) 3325

Area Fire Officer Laboratory Medicine Building, QEUH
Francis Deacon e-mail: francis.deacon@ggc.scot.nhs.uk

First Aid Trained personnel within the School of Cancer Sciences

Wolfson Wohl Cancer Research Centre	Facility Assistant	Ext 5644	(level 1)
	Alfred Nisbet	Ext 8436	
	Allan McVie	Ext 8124	(level 3)
	Sharon Burns	Ext 6897	
	Garscube Security	Ext 5799/2222	

Paul O' Gorman LRC: -	Gillian Horne Switchboard	(level 3) Ext 1000
Laboratory Medicine Building QEUH	Hannah Morgan	TEL: 0141 354 9437

Mental Health First Aid Trained personnel within the School of Cancer Sciences

Wolfson Wohl

Cancer Research Centre	Anne Best Sharon Burns	Ext 3799 Ext 6897

Emergency Service

Fire, Ambulance, Police	**Internal**	**2222 (Garscube / QEUH)**

Garscube Security	to report problems out of hours	**Ext 2222 or (0141 330) 5799**
Gilmore Hill Security		**Ext 4444 or (0141 330) 4282**
Paul O'Gorman LRC	to report problems out of hours	**Ext 1000 (switchboard)**

Out of Hours Emergency Key holders for WWCRC Building

- Stacey Hoare, Allan McVie, Sharon Burns (SCS)
- Richard Burchmore (polyomics)

Out of Hours Emergency Key holders for ……. Building

……

University of Glasgow

School of Cancer Sciences

Safety Policy

The Health and Safety at Work Act 1974, along with other regulations and approved Codes of Practice, secure the health, safety, and wellbeing of not only employees of the School of Cancer Sciences and the wider University community, but also students and visitors and other Institutions from out with Glasgow. It is recognised that the School of Cancer Sciences spans several buildings namely, the Wolfson Wohl Cancer Research Centre (WWCRC) Garscube, the Beatson Institute, the Paul O'Gorman Leukaemia Research Centre, the Beatson Oncology Centre, and locations within the Queen Elizabeth University Hospital. This policy and subsequent health, safety and wellbeing systems have been put in place to take account of the geography and occupants of all places of work.

The School of Cancer Sciences, in conjunction with the University's Health, Safety and Wellbeing policy (copies of which are available on the University Web Site) is committed to the provision of a safe and healthy workplace and environment. In addition to meeting statutory requirements, this School will strive to continually improve on standards of health, safety, and wellbeing and as such, this document enhances the University's policy by describing the organisational structure in place for safety in the school and indicating potential hazards and the precautions required to prevent accidents and ill health.

The successful management of health and safety at work requires active participation of every member of staff and all students within the school. Although the Head of the School has delegated responsibility through the Head of College and ultimately the University Court for the establishment of suitable and sufficient arrangements for health, safety, and wellbeing for everyone working or visiting within School property, all staff, students, and registered visitors have a duty to ensure that they behave in a manner that will not affect the welfare of colleagues.

Every level of management within the school is accountable through line management, and at the same time responsible for the health, safety, and wellbeing of those reporting to them. Supervisors should visibly lead, motivate, and encourage their staff to report on hazards and to discuss all matters relating to health and safety.

The Safety Policy is developed, and safety performance monitored, under the guidance and advice of the School Safety Committee comprising staff representatives from various locations, plus interested and associated groups.

The school recognises that safety requirements enacted by law set only a minimum standard. It is also recognised that safety standards are dynamic in nature and the school underlines the importance of its commitment by constantly reviewing its own safety standards. As far as conditions and resources permit, the school is committed to continual and progressive improvement in standards of safety.

All staff, students and registered visitors are required to observe the health and safety rules and standards and adhere to the School Health and Safety Policy Statement. Deliberate deviation from the established rules and standards may result in disciplinary action.
This policy statement will be reviewed by the Safety Committee of the School of Cancer Sciences in conjunction with SCS Senior Management annually.

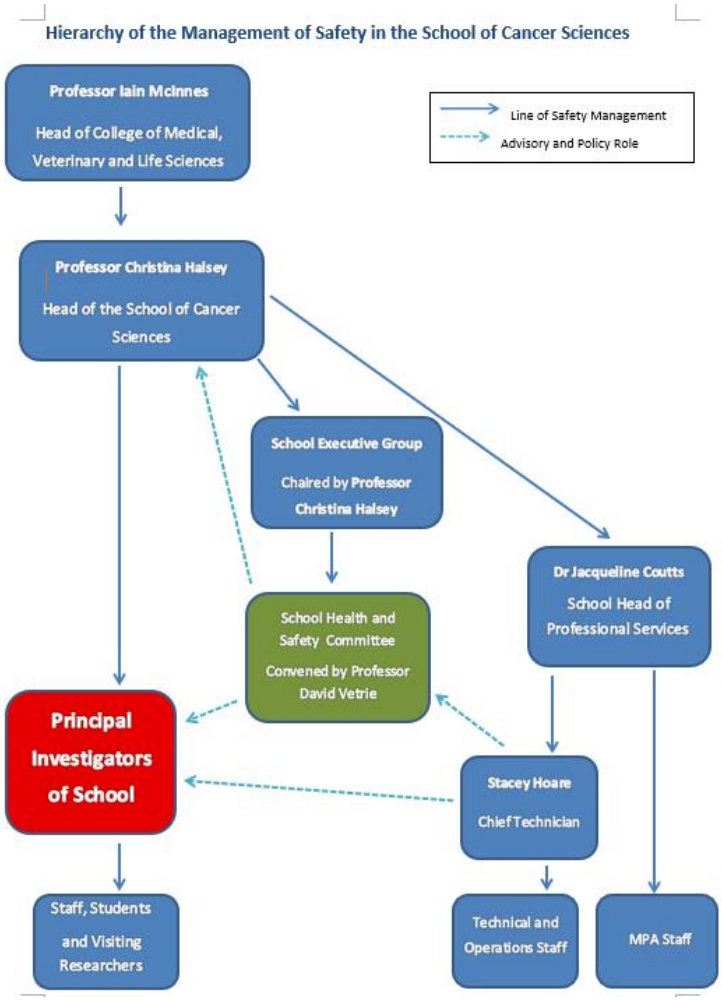
To implement this policy, the School of Cancer Sciences is committed to maintaining and enhancing the health, safety and wellbeing of all staff, students, and registered visitors. This will be achieved by:

1. Maintaining an appropriate framework for the consultation with all School staff and students on effective measures for continual development and the promotion of health, safety, and wellbeing.
2. Continuing to develop and implement procedures and codes of safe working practice.
3 Ensuring effective management of risks by assessment, implementation of systems and review.
4. Providing training in safe working methods with the requirement for all to participate.
5. Forming a health and safety committee with engagement at all levels.
6. Developing School guidelines to ensure adherence to statutory regulations and University of Glasgow policies.

Should any member of staff or student have any suggestion or comments regarding the above Policy Statement, please contact Stacey.Hoare@glasgow.ac.uk, the SCS Safety Co-ordinator.

As part of the School of Cancer Sciences safety policy, all new members of staff and new students are required to read through the School's Health and safety policy and manual and carry out the University e-induction health and safety course and the fire safety induction. Renewal of this fire training is required by all staff every 3 years. Additional training is recommended and encouraged for all staff and students.

Hierarchy of the Management of Safety in the School of Cancer Sciences



Mode of Operation

Principal Investigators have responsibility to ensure that all staff and students working with them are aware of their safety responsibilities within any laboratory in which they work, and ensure that they do not put themselves, other colleagues and other authorised individuals working in the vicinity at risk.

Everybody has a responsibility for safety and any infringements noticed should be brought to the attention of the person in the first instance. After which further safety issues should be reported to group safety representatives and brought to the attention of PI's / line managers. If further input is required, this should be passed onto safety co-ordinators or safety advisors. Any concerns not resolved should then be brought to the attention of the SCS Health and Safety Committee for discussion at the next meeting.

Prior to a safety committee meeting, an e-mail will be sent to the safety representatives of each group asking for items for the agenda, all of whom are encouraged to attend the meetings. The Safety Representatives should then bring any safety issues or concerns within their group to the attention of any safety committee member for discussion at the meeting. Safety items should be discussed at group meetings.

After the safety committee meeting any feedback will be communicated to the individuals and PI's/ Line manager. The minutes will be placed on the communal J-drive Health and Safety area for School distribution and a copy sent to the School's Head for discussion at the next School Executive Group meeting for further authorisation and distribution where required.

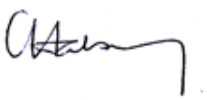
University of Glasgow

School of Cancer Sciences

Safety Policy

This safety Policy has been developed by the School of Cancer Sciences Safety Committee and approved by the School of Cancer Sciences Executive Group.

Signed:



Professor Christina Halsey

Head, School of Cancer Sciences

Date: October 2022

Important Information and University Policies for all staff and links to University Website

Safety Management for HEADS of Management units

University Health and Safety and Well Being Statement

Health and Safety Policy Statement (gla.ac.uk)

School of Cancer Sciences Safety Policy Statement

As on page 12 -14 and SCS website.
http://www.gla.ac.uk/researchinstitutes/cancersciences/guinfo/hs/#/instituteofcancersciencessafetypolicy

University Travel Policy.

http://www.gla.ac.uk/media/media_278348_en.doc

SCS Travel Policy

As on page 29-30 and SCS website.

http://www.gla.ac.uk/researchinstitutes/cancersciences/guinfo/hs/#/travelinformation

University Safety and Environmental Policies can be found on

http://www.gla.ac.uk/services/seps/policies/

University of Glasgow Safety Staff personnel and contact details can be found:

http://www.gla.ac.uk/services/seps/ourstaff/

University Radiation Protection Service

http://www.gla.ac.uk/services/radiationprotection/

Health Surveillance Occupational Health Service

- **Health Surveillance request FORM**

Responsibilities for Safety in the School of Cancer Sciences

Many staff within the University also have in conjunction with their "normal" roles, a health and Safety function to perform. For example

Head, Principal Investigators, Safety Co-ordinators, Local Health and Safety Committee, Chemical/ Biological/ Radiation/ Laser safety Advisors, First Aiders, Area Fire Officers, Fire wardens and Group Safety Representatives.

Head of the School of Cancer Sciences role in Safety within the School.

The Head of School is responsible for the health and safety of staff, students, and visitors in all areas under their control, and is responsible for ensuring compliance with relevant legislation and the application of University safety policy in these areas. **The day-to-day management of safety responsibility is delegated to Principal Investigators or Line Managers.**

1 Ensures the existence of an up-to-date signed SCS Safety Policy statement.
2 A suitable document to reflect Health and Safety in the School is in place and this is regularly updated to reflect any changes in practice and circulated within the School.
3 The roles and responsibilities within the School for Health and Safety are defined in the School's Health and Safety Manual.
4 Appoint a School's Health and Safety Committee and GM Safety Committee.
5 Appoint a safety Co-ordinator for the School and ensure that they are adequately trained.
6 Have local building safety Co-ordinators and specific subject advisers in place as appropriate to assist the Schools Safety Co-ordinator in fulfilling their role. (Biological, Chemical, Radiation, Laser)
7 Ensure that an Area Fire Officer and deputy is appointed within any buildings that the School occupies and that they are supported by fire wardens. (training required)
8 Ensure that all staff receive Fire Safety Training as part of their Induction when starting in the School and that it is renewed every 3 years.
9 Ensure that adequate cover for the buildings is provided by First Aid trained personnel.
10 Ensure the adequate provision of safety information, instruction and training is available and that staff attend.
11 Ensure staff are consulted on matters that may affect Health and Safety, by establishing a Health and Safety Committee and ensuring safety is a regular item on the SCS Executive Group agenda.
12 Make sure all instances of fires, occupational ill health and accidents and incidents within the School are reported to the University SEPS department in a prompt manner, and that this record is reviewed for corrective action and discussed at management level.
13 Ensures that the registration of toxins and pathogens is carried out within the School prior to any being brought in and responsible for approving and reporting any requiring notification and to the counter Terrorism and security advisor @ Police Scotland.
14 Establish a joint H and S policy/ memorandum of understanding for University employees and students when occupying premises in the ownership of another Institution, or, occupying a University building in which workers from another institution are employed.

Principal Investigators role in the School regarding safety.

Principal Investigators and Supervisors have responsibility for the health and safety of staff and students in their research groups. They bear the day-to-day responsibility for Health and Safety management relating to the research projects running in their groups. Line Managers also bear this responsibility for their staff.

1. Ensure that staff and students working in their group are provided with a building and group specific safety induction training when starting in their group.
2. Ensure that staff and students are provided with the necessary training to carry out their role; this should also include attending appropriate safety training courses.
3. Ensure that staff and students are competently trained to undertake risk assessments for the work they are undertaking within the group.
4. Ensure that risk assessments are in place within their group for all their work and of the legally required suitable and sufficient standard.
5. Sign off on all groups risk assessments as correct, sufficient, and fit for purpose.
6. Ensure risk assessments are provided within the group to new staff, and students as common practice, and read and followed.
7. Standard operating procedures for the work are in place within the group.
8. Responsibility to ensure their staff and students conduct their work in the group both legally and safely and should ensure that they comply with the School, University and building safe working practices. This includes wearing appropriate PPE where required and as indicated by the risk assessment.
9. Animal allergens and health surveillance is undertaken where required.
10. Must ensure the competence* of staff and students involved in their projects. In particular, for inexperienced research staff and students, this will include the provision of suitable supervision, instruction, and training, until proficient in the technical aspects of their project. Staff and students not deemed competent should not be allowed to work unsupervised.
11. The PI or supervisor must know and understand the requirements of the University Health and Safety Policy as well as the School's policy and procedures.
12. Ensure GM Risk assessments are in place and approved by GM Safety Committee prior to group starting any GM work.
13. Responsible for notifying and registering any toxins and pathogens used within their group, this must be done prior to them be brought in and used. Also responsible for ensuring records are kept noting the storage location of these items.

***Competence** As far as health and safety is concerned, is defined as the acquisition of knowledge, skills, and ability at a level of expertise suitable to perform certain work. Principle Investigators/ Supervisors must be satisfied of the individual's competence and their understanding of the local safety arrangements.

Local SCS Safety Committee

Appointed by the Director of the School and consists of members from the main group of staff roles, student and safety representatives and covers the different locations within the School.

1 Acts on observations and problems with the standard of health and safety within the school as reported to the committee.
2 Sets remedial measures in motion.
3 Ensure appropriate risk assessments are in place within the School both for individual groups and general risk assessments.
4 Disseminates safety information to staff and students.
5 Refers issues to the Head of the School and senior management.

SCS GM Safety Committee role.

1. To approve GM risk assessments as fit for purpose as submitted by the School's staff.
2. To ensure safe practices and appropriate control measures are agreed with the PI before GM work starts.
3. Refers any issues to the Head of the School and senior management.

Safety Co-Ordinator job role in SCS

Responsible as directed by Head of the School, for creating and maintaining the Health and Safety management systems for the School and buildings.

1. To provide systems and procedures to facilitate the School's safety needs.
2. To review and update the School's Safety Manual under the direction of safety committee and with final approval by the SCS Management board.
3. Set up building and communal Safe Working Inspection schemes.
4. Provide Building safety Induction for new starts, staff and students.
5. To support and advise groups on safety issues.
6. Provide information on the Safety Environmental & Protection Services (SEPS) run safety courses.
7. Direct staff to locations/ websites and contacts for safety Information.
8. Part of the moderating team for uniformity across risk assessments within the school.
9. Help ensure that general risk assessments for the local building and practices are in place.
10. Conduct or co-ordinate laboratory Inspections and accident investigations.
11. Put in place schemes and practices to ensure that accidents or incidents are reported to SEPS in a prompt manner.
12. Disseminating Health and Safety Information and reports to appropriate members of School staff and students and safety committee.
13. Ensure appropriately trained safety staff are in place within the buildings, (First Aid, Area Fire Officers, Fire Wardens).
14. Monitor the buildings to ensure a high standard of housekeeping is maintained; equipment is serviced and inspected as required by relevant statutory processes.
15. Keep a record of toxins and pathogens for the School, information supplied by PI's.

Subject Safety Advisors (Biological, Chemical, Radiation and Laser)

1 Specialised Safety Contact to advise staff and students in the School on matters concerning that area of safety.
2 Role in moderating School's risk assessments as part of a team.
3 Offer advice on their subject areas risk assessments, procedures and any containment levels required.
4 Provide advice on spills and emergency procedures in their field.
5 Highlight any bad practices in their specific area, training need requirements, or any recommendations to the SCS Safety Committee.
6 Liaise with the University Safety Advisors as appropriate for information.
7 Inform users and safety Committee of any related Inspections and their outcomes.
8 Support the School's Safety Co-Ordinator when required.

Radiation

1. To act as Local Radiation Protection Supervisor as detailed by the University Radiation Protection Service
2. Make sure room radiation records are up to date in the containment rooms along with risk assessments (responsibility of the groups using these rooms to comply with this and ensure their groups recorded these correctly)

3. Liaise with the Radiation Protection service as appropriate for requirements, permits and SEPA inspections.
4. Provide training on local rules and regulations and procedures within rooms and ensure that Risk assessments are in place prior to any work commencing.

Laser

1 Ensure records and forms are in place for the groups managing equipment involving lasers.
2 Work with groups to ensure rooms are sufficient for the lasers working in these rooms and safety procedures are in place along with risk assessments.

GM Safety Advisor Role

1 Chair the GM Safety Committee
2 To advise on GM Safety matters regarding procedures and ensure PIs are kept informed of changes to GM safety regulations or HSE guidance.
3 To establish an appropriate membership of the GM safety Committee under the direction of the Head of the School
4 Distribute submitted GM risk assessments to the committee for comments and / or approval.
5 Maintain an up-to-date list of the GM RAs within the School.
6 Notify HSE of any new GM work assessed as Class 2 or above, and any updates or amendments to work previously notified.

Safety Co-ordinators are Safety Advisors. Responsibility for health and safety lies with the head of the School but is delegated to Principal Investigators or Line Managers. It should NOT be assumed to be the responsibility of the Safety Co-Ordinators or Safety Advisors.

Group Safety Representative Role in SCS

1 Group Safety Representatives should be aware of the School and University Safety Policies and procedures that are in place.
2 They are the first point of contact in their own group for safety advice relating to not only their own specific groups research, but also the Schools Safety Policy and guidelines and safety procedures in place.
3 Contact within group to provide group specific safety induction procedures for techniques and equipment specific to their research.
4 Ensure along with the PI that staff and students are appropriately trained and supervised within their group.
5 Disseminate information to and from their group and the SCS Safety committee meetings.
6 Role as directed by PI to ensure that risk assessments for the group are in place for the work being carried out and it is of a legally required and sufficient standard.
7 Review, moderate and ensure groups risk assessments are in place and suitable and sufficient for purpose along with the PI.
8 Ensure that new staff and students are provided with the appropriate risk assessments for their work prior to starting. If none in place, then work along with the new group member to generate a risk assessment for this work.
9 Ensure that the group has Standard Operating Procedures in place for their group under the direction of their PI.
10 Ensure along with their PI that the group follows the local safety procedures for their building.
11 Carry out the group safety Induction using the induction check list for new starts form on p21

First Aiders
Have attended a recognised First Aid course run by the University (and retrain every 3 years). They can provide a skilled treatment to a casualty in the local environment to help save a life or prevent deterioration in the condition until trained medical help arrives.

Area Fire Officer and Fire Wardens duties stated in the University Fire Policy Statement.
http://www.gla.ac.uk/media/media_264405_en.pdf
Staff undertaking these roles have attended a training course with SEPS which requires renewal every 2 years.

STAFF role in Safety

ALL Staff have a role and responsibility for safety.

Staff are responsible for ensuring that they conduct their activities, and those activities over which they have control, in accordance with the University's and School's health and safety policies.

Safety Role includes:

1. Familiarise yourself with relevant University or School policies and safety requirements applicable to your work.
2. Inform your PI's or supervisors of newly identified risks in existing work, or new risks associated with new work and any training requirements.
3. Comply fully with safety requirements and control measures, including the correct use of personal protective equipment, as stipulated in risk assessments or local rules.
4. Take reasonable care in all work activities and consult with PI's, Group Safety Reps or Safety Advisors in case of doubt.
5. Familiarise yourself with relevant emergency procedures.
6. Be aware of potentially unsafe conditions or equipment and report them.
7. Report accidents, incidents, near misses and work-related ill-health promptly so that remedial action can be taken to prevent recurrence. **FORM**
8. Register with the University Occupational Health Service for health surveillance, where required by University policy or risk assessment, and attend appointments and complete and return forms in a timely manner.
9. Attend any training that has been identified as necessary by your PI or Supervisor.

Students' role in Safety

Students are not in the legal sense employed persons; however Students must comply with health and safety instructions, not to misuse or damage equipment provided and may be responsible for the consequences should they neglect to carry out a task required for the health or safety of others.

Visitors/ Honorary or Affiliates status workers

Visiting workers and persons with Honorary or Affiliate status are expected to comply with safety procedures in the same manner as staff.

Safety Induction Guide

SCS Health and Safety Induction Check list for New Starts

Please provide your new starter with access to the SCS website, COSHH and Biological assessments and draw their attention specifically to the following points (where applicable) as part of the Induction process:

TOPIC	TICK
Ensure New Start has a GUID and e-mail address.	
Ensure New Start obtains staff card from HR or a Student card.	
Arrange local Health and Safety Induction with the appropriate person.	
Arrange Door Access to building if required.	
Ensure staff member is given the SCS New Employee Induction Guide.	
Ensure new Student is given SCS New student Induction Guide (in process).	
Ensure New staff knows about the Mandatory Health and Safety e-learning courses for new starts and completion required within 3 months. SEPS E-information: http://www.gla.ac.uk/services/health/e-inductionoverview/	
SEPS Online fire safety training course Fire Safety	
Fire Alarm, evacuation and emergency procedures, including location of first aid kits and fire extinguishers and evacuation procedures.	
University Accident / Incident reporting Procedures.	
Specialist Health and Safety procedures/training; SEPS course, Occupational Health screening and specialist equipment training.	
First aiders.	
Discuss other Health, safety & Wellbeing matters as appropriate (eg lone working, out of hours working).	
Security and safety in building and contact information for local security staff.	
Other sources of safety advice and information.	
Personal Protective Equipment (PPE).	
Waste Disposal Procedures within the building.	

Name ..... Signature .....

Building .....

Line Manager..... Signature .....

Date.....

On-line link to the University Safety and Environmental protection Services (SEPS)

For all guidance and information on Health and Safety Matters

http://www.gla.ac.uk/services/seps/

Safety and Environment Protection Service (SEPS)

- Head of Safety Unit — **David McLean** – Head of Service
- Biological Safety — **Dr. Alice Gallagher** – University Biological Safety Advisor
- Chemical safety — **Dr Phil Rodger** - University Chemical Safety Advisor
- Computers
- Electrical safety
- Fire safety — **Billy Russell** – University senior Fire Safety Advisor
- — **Alan Watson** – University Fire Safety Adviser
- Manual handling
- Office safety
- Risk assessment
- Training and resources
- Waste — **Alex Shearer** – University Environmental Advisor

E-Induction

http://www.gla.ac.uk/services/health/e-inductionoverview/

As part of the School of Cancer Sciences and University policy, all new members of staff are required to read though and complete the E-Induction linked below and our Safety policy document, and this Safety Guide. Enrolment key is– "**safety".**

There are three sections that make up the Health, Safety and Wellbeing E-Induction. Links to these are navigated using the links on the lefthand side of the page. New starts should please read all three sections but note that linked pages are for additional information only, then complete the Moodle Quiz

Contents:

- Safety and Environmental Protection Service (SEPS)
- Occupational Health
- Radiation Protection

Fire

As part of the E-induction the online fire safety course must also be undertaken and completed within 3 months of starting the new job.

All staff should complete the on-line fire safety training hosted within Moodle at least once **every three years.**

On-line training can be accessed by following the instructions below.

Step 1: Select the most appropriate enrolment key for your unit from the list at the following link
Enrolment Key – **Cancer Sciences**

- Step 2: Click on this link: On-line Fire Safety Training.
- Step 3: Log into Moodle with your GUID and password
- Step 4: Click "enrol me" and enter the Enrolment Key chosen at Step 1.
- Step 5: Select Fire Safety Training course.

Once you have completed the E-Induction and read the Safety manual please sign the training form.
Appendix 7

Building Safety Procedures

Fire Safety

Fire represents one of the most significant risks both to the University's buildings and potentially to those within them. The University undertakes fire risk assessment of all its properties and has a range of procedures in place to manage fire safety both at a central level and in individual buildings. This includes procedures for routine testing of fire alarm systems, conducting fire drills and for training of staff.

University Fire Safety Policy

SEPS website link http://www.gla.ac.uk/services/seps/az/firesafety/

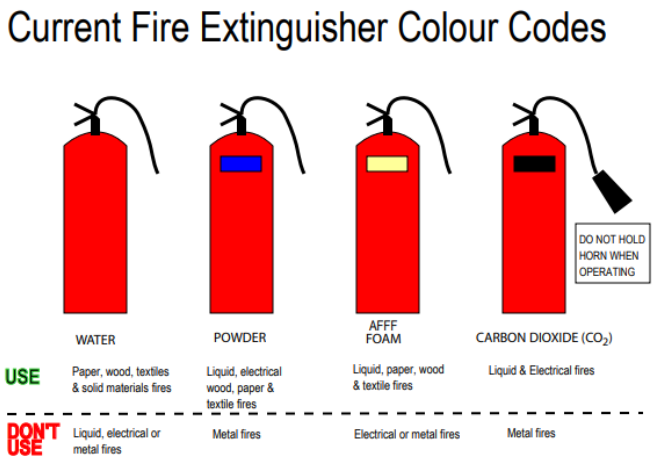
Actions on discovering a fire:

Sound the fire alarm by pressing the nearest fire break glass point;  do not assume that this will automatically be linked to the gatehouse and security.

Phone 2222 (Garscube) 9-999 (Paul O'Gorman LRC) and inform them of your location. Otherwise exit the building via the nearest emergency exit and phone the Gatehouse and Security when at the muster point.

If safe and you are confident to do so, tackle the fire.

Do not attempt to use a fire extinguisher unless you have received appropriate training, you feel confident enough, the fire is small enough to tackle (smaller than a waste-paper bin), and the fire is not between you and the exit.



Actions on hearing a fire Alarm:

The fire Alarm is tested every Week in the University buildings, please see local arrangements for the day and time for this in your building. **(WWCRC 10am Wednesday morning; Paul O'Gorman LRC 11am Wednesday morning)**

If at any time out with the test the fire alarm sounds, everyone must leave the building as quickly as possible using the normal evacuation routes. (These should have been explained to you during induction training). Congregation should occur at the Fire Assembly point, and NO ONE may go back into the building until the alarms are silenced and they are told that it is safe to re-enter.

Assembly points for the WWCRC building are the front and rear car park.

Assembly point for Paul O'Gorman LRC is at entrance to hotel car park, Shelley Road.

If you suspect that you are responsible for the activation of the alarm, please inform one of the Building Fire Officers who will assemble to meet the emergency services. No blame will be apportioned to anyone causing the alarm, but any information you can give will be helpful to the fire services.

First Aid

First Aid in the Wolfson Wohl Cancer Research Centre

- There is an assigned first aider for each floor within the WWCRC names and contact extension numbers can be found on the signs at front and back of building on each floor.
- For minor injuries first aiders can be contacted using these numbers or contact reception on 5644.
- Out of hours contact security **2222** or **5799**.
- Please report incident via the online accident and incident reporting FORM **Appendix 7**

FIRST Aid in Paul O'Gorman LRC

- There is an assigned first aider: Gillian Horne
- For minor injuries, first aiders can be contacted using this number Ext (5) 7890
- Out of hours contact Tel 1000
- Please report incident via the online accident and incident reporting **Appendix 7**

FIRST Aid in QEUH Building

- There is an assigned first aider:
- For minor injuries first aiders can be contacted using these numbers Tel Out of hours contact Tel
- Please report incident via the online accident and incident reporting FORM **Appendix 7**

Defibrillators

These are kept with Security at their bases at Gilmore hill and Garscube and also in the reception at the Beatson, and the Wolfson Wohl Cancer Research Centre, Garscube. Instructions are provided in the box. If use is required, ask a colleague to inform security and summon emergency services or shout for help

First Aid Mobile Phone Apps:

First-aid apps - St John's Ambulance First-aid apps - Red Cross can be downloaded.

Security

- Never leave an open door or window unattended, please close doors and windows at the end of the day.
- Ensure the doors shut behind you on exiting the building (especially any automatic doors)
- If you are suspicious of any person in the Garscube Estate, please notify security on 2222 or Ext 5799. Paul O'Gorman LRC Ext 1000 (Switchboard) or University security can also be called on 0141 330 4282.
- Do not let anybody you do not know into the building. Ask to see identification of unknown staff / visitor with no pass visible

Visitors

- All visitors should report to reception and wear a visitor's pass during their visit which they should sign in and out where door access controls are in place in the building.
- In other areas visitors should be always accompanied, and not left unsupervised.
- The person hosting the visitor is responsible for them during their visit to the building.

Lone Workers

Risk assessment Training is particularly important, as there will be no direct supervision of work out with normal working hours. It needs to be established that lone workers are following safe systems of work. Always assess the risks involved and, if in doubt, do the work within normal working hours. A specific risk assessment may need to be provided for lone workers.

Working early in the morning, in the evening or at weekends, particularly when alone, requires additional precautions. The following rules therefore apply outside normal working hours:

- Only authorised staff are allowed to work in the Laboratories outside normal hours. Staff will only be authorised after they have signed a statement to say they have read the Safety Manual and will follow the guidance and local rules set out in the Manual. Workers who are not authorised (e.g., short-term Visiting Scientists, Summer Students, Honours Project Students, maintenance engineers) and must be supervised by an authorised member of staff when working in the Laboratories outside normal hours.

- Anyone working in or entering the Laboratories before 8am or after 6pm or at any time during weekends, must sign in when they enter (or at 7pm if they stay on after normal hours) and sign out when they leave. Books for this purpose will be placed near the entry doors to the buildings. Or download and use the University **SAFEZONE APP to book in and out**. Security staff, who check the Laboratories, will see from these entries how many people are present in the building. If use the Safe ZONE app they can contact, you directly.

Emergency Contacts

SAFETY AND Environmental protection services	**5532 Daytime.**
Estates and Buildings	**6000 (helpline) / 4457 (helpdesk office)**
Garscube Security	**2222 / 5799**
Paul O'Gorman LRC	**1000 (Switchboard)**
	or 0141 330 4282 (University Security)
QEUH	

Emergency Services

	Garscube	**External Contacts**	
Fire Brigade	**2222/**	**9- 999**	**(Office 0141 302 3111)**
Police	**2222/**	**9-999**	**(Office 0141 532 3500)**
Ambulance	**2222/**	**9-999**	

Building Emergency Contact Details

Wolfson Wohl Cancer Research Centre Emergency Contacts

Office hours

Stacey Hoare	8707	Allan McVie	8124	Sharon Burns	6897
Reception	5644				

Out of hours **Garscube Security** 5799 / 2222 Manned 24 hrs a day.

SAFEZONE APP

From a mobile Phone Tel: 0141 330 ….

Emergency Procedures

Procedures

- Assess the accident or emergency before deciding and taking any action.
- Inform others of accidents and isolate the area or evacuate if required.
- Seek assistance and use PPE if required.
- Seek first aid and medical treatment if required. Call emergency services if required.
- Individuals involved in serious incidents or where there is uncertainty should be referred or sent to hospital for clinical assessment and treatment.
- Decontaminate the work area or laboratory after an accident or emergency.
- Report accidents and emergencies immediately to supervisors, safety officers or managers.
- Report accidents and emergencies immediately practicable to SEPS.

Spillages and Releases

- Emergency spillages and release procedures should be determined in risk assessments and set out in standard operating procedures.
- Spills kits – The Wolfson Wohl Cancer Research Centre has a formaldehyde spill kit with instructions on level 2 of the building, and acid / alkali chemical spill granules kit, also PEG for treatment of Phenol burns located on each floor near the fume hoods. There is also a biological spill kit available on each floor.
- Notify other workers and isolate area (if required).
- Evacuate laboratory if risk of airborne infection.
- Allow aerosols to settle.
- Contain spillages with tissues or granules where required.
- Cover with suitable disinfectant liquid or granules where required.
- Allow sufficient contact time before cleaning up.
- Clean up debris gently and do not use a brush. Wear PPE if required.
- Pick up broken glass carefully (e.g., forceps, swabs or using blutac).
- Put debris in a suitable waste or sharps container for safe disposal.
- Disinfect contaminated surfaces and equipment.

Personal Contamination or Injury

- Remove contaminated clothing as quickly as possible and leave in laboratory.
- Remove contamination from skin, eyes, and mouth by thorough washing with water.
- Minor cuts and small puncture wounds should be encouraged to bleed.
- Wash wounds with soap and water.
- Dress wounds.
- Use PPE if required when helping injured persons.
- Seek help where required including where relevant first aid or hospital.
- Emergencies should be sent straight to hospital and call ambulance if necessary.
- Explain incident and biological agents or hazards or genetically modified organisms to medical staff.
- Report all accidents immediately or as soon as practicable.

Accident/dangerous occurrence reporting

All accidents or dangerous occurrences must be reported to Safety and Environmental Protection Services and the building safety co-ordinator.

These are the following:

- Injury to any person arising out of, or in connection with, work.
- Near-miss incidents and dangerous occurrences (including fires),
- Incidents of violence to staff that are related to their work.
- Diseases and work-related ill Health

Accident and Incident reporting Form **Appendix 6**

http://www.gla.ac.uk/services/seps/reportanincident/

The form must be received by SEPS within a maximum of 5 working days of the occurrence. This is necessary to allow the University to comply with legally prescribed time limits for reporting of certain incidents to the enforcing authorities. Submit the form online or email to safety@glasgow.ac.uk and include Stacey Hoare (as safety co-ordinator), SCS, Wolfson Wohl Building Stacey.hoare@glasgow.ac.uk

A copy will also be retained by the Head of School Professional Services.

In addition, an immediate telephone notification to SEPS **(0141 330 5532)** is required for the following:

- Any injury, arising from an accident, which results in immediate hospital treatment being given.
- Any fracture, other than to the fingers, thumb, or toes.
- Any amputation.
- Loss of sight (whether temporary or permanent).
- A chemical or hot metal burn to the eye or a penetrating injury to the eye.
- Any injury resulting from an electric shock or electrical discharge (including any electrical burn caused by arcing) leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours.
- Loss of consciousness caused by asphyxia or by exposure to a harmful substance or biological agent.
- Either of the following conditions which result from the absorption of any substance by inhalation, ingestion or through the skin-
  (a) acute illness requiring medical treatment (b) loss of consciousness.

- Acute illness which requires medical treatment where there is reason to believe that this resulted from exposure to a biological agent or its toxins or infected material.
- Please notify Stacey Hoare (safety co-ordinator) ext 8707 of any accident or dangerous occurrences.

Investigation of Accidents/Dangerous Occurrences

Each Accident / Dangerous Occurrence will be considered, and any corrective action needed will be recorded. If further investigation is required, this will be undertaken firstly by the building safety co-ordinator and / or the School Safety Co-ordinator (Stacey Hoare) the findings will then be signed off by all relevant parties, injured member of staff, student, and witnesses. Any actions required to avoid a reoccurrence of the Accident / Dangerous Occurrence will be undertaken immediately. The report will then be sent to SEPS and forwarded to School safety convenor for any further Investigations and recommendations regarding the Accident / Dangerous Occurrence. SEPS will inform the School safety coordinator and the School safety convener of any further actions required by the School to avoid a reoccurrence of the Accident / Dangerous Occurrence. The School safety coordinator will circulate to the School students and staff with details of the Accident / Dangerous Occurrence and any safety advice relating to the Accident / Dangerous Occurrences.

Travel

Health & Safety Information

Where travel for work is required out with the UK, this risk should be considered. This can include meetings attending conferences, collaborative work, and training.

Where travel only is involved and the risks are judged to be low and comparable to those encountered during travel within the UK, a specific written risk assessment is unlikely to be necessary for every individual journey but could be dealt with within a generic risk assessment covering travel. A general travel risk assessment can be found on the J-Drive in the communal Health and Safety Area, check that this meets your requirements.
This covers staff using the approved University Travel Service providers, and approved ABTA travel agents. Staff will need to ensure that the appropriate insurance is in place, and any VISAs or immunisations are obtained prior to travel. Notify appropriate staff member(s) of your travel plans.

Where travel is in more hazardous areas, and certainly where practical work is carried out as part of the trip, a more detailed written risk assessment of the activity would generally be needed. Travel RA Form. This should be signed off by the PI and in cases of high or extreme risk the head of College /Chief Operating Officer.

Further Travel Information and links to Useful sites – found on the SCS website.

- Safety and Environmental Protection Services
- Time off to attend conferences/ training events should be booked on the HR core portal for research group members and approved by their PI.
- It is the responsibility of the Principal Investigator /line manager to ensure that their employee / student is well prepared for their travel overseas. Duty of Care Traveling overseas on Business.

Travel Information

- University Travel Policy
- SEPS Travel Safety Information Includes link to the University Travel Risk Assessment form. **Authorisation must be obtained at Head of College, Secretary of Court level before undertaking any travel that is against Foreign and Commonwealth Office advice.**
- University Insurance – Recommendations and who and what is covered
- Finance Office page for Insurance & Risk - with link to request Travel Insurance Cover Note. It is necessary to inform Cash Section and receive an insurance cover note before travelling.
- Electronic System for Travel Authorisation - travel to the United States under the Visa Waiver Program
- Conference & Visitor Services Office - List of University recommended local hotels
- 10% discount for University staff - Airport Parking - Staff - at Glasgow & Edinburgh Airports

University Recommended Travel Agents

- As of August 2022, there is a new travel HUB – Run by Selective Travel
- This enables self-booking for University flights, accommodation, and rail Travel. It will guide you through the steps and processes:
    - Guidance for sustainable Business Travel.
    - Travel Booking Policy
    - Travel Risk- Assessment
    - Booking Travel
    - Downloading SafeZone APP
    - Insurance

University Services Medical Advice

- Reach Pharmacy & Travel Clinic - Fraser Building and Glasgow Airport
  Reach Pharmacy & Travel Clinic provides a range of services, including a free prescription collection and delivery service, a **specialist travel clinic,** and over-the-counter remedies.

University of Glasgow Emergency and Crisis Support Service

- University of Glasgow Crisis Support
- For help and support to deal with accidents or incidents with staff and students.
- UofG SAFEZONE APP

General Safety Regulations and Information

Information: Should be provided to all workers on hazards, risks, control measures, monitoring, health surveillance etc.

Instructions: Should be provided to all workers on actions and precautions to be taken, use, storage, transport, disposal, emergency procedures etc.

Training: Should be provided to all workers on detailed and effective application of control measures etc.

All workers must be adequately trained and supervised, and until deemed competent should not work unsupervised.

Wear appropriate PPE required for the task including laboratory coats, gloves and safety glasses where required for working in the laboratory area as standard practice.

Remove protective clothing before entering non-lab areas. Get your lab coats laundered regularly.

Be tidy. Clutter is a hazard to yourself and others.

Contact lenses are not advisable. Vapours can concentrate in solution under them and in the event of a splash of chemical in the eye it may be difficult to remove a lens, making irrigation impossible and damage severe. Wear Safety glasses!

Disabilities or health problems that might affect your Safety or the Safety of others MUST be made known to the Safety Adviser or your supervisor before starting work. Known carriers of a serious disease should consult the University Occupational Health service who may provide the School or Local Safety Co-Ordinator with confidential advice relating to potential hazards to other workers.

Do NOT eat or drink in laboratories. Smoking is prohibited in all University buildings.

Do not obstruct corridors, fire exits, fire appliances, first-aid boxes.

Babies and young children are not allowed in laboratories.

Keep Fire- and Smoke-stop doors closed whenever possible.

Label cultures, solutions, chemicals etc. clearly and indelibly with your name and their description and date.

Use hazard warning labels where appropriate.

Large bottles (e.g., 2.5 litre) or heavy objects should not be placed on high shelves (i.e. above shoulder height).

Learn how to use fire alarms, extinguishers, etc.

Learn location of fire alarms, emergency exit routes & other emergency equipment. Contact your building fire safety officer if you are unsure.

Potentially hazardous work should never be carried out when alone in the building or laboratory. Risk assessments should be in place and If you must follow a hazardous procedure, make arrangements in advance for someone to be present to help if needed.

Read and follow all relevant safety information provided by the School and SEPS.

Turn OFF gas, water & electricity supplies and apparatus when not required.

Syringe needles – **Never** re-sheath a needle, dispose of in sharps bins and use blunt or semi blunt needles where possible.

Laboratory shut down – It is the responsibility of each person to leave the laboratory in a safe and tidy state and that all equipment is shut off, **unless** it needs to be left running over night.

Wash hands before leaving a laboratory.

Personal Protective Equipment

- Appropriate personal protective equipment (PPE) should be used where required, as outlined in the risk assessment.
- PPE is often essential for many aspects of work but generally only as additional rather than the main method of protection.
- Suitable laboratory coats should be used.
- Suitable gloves should be used where required.
- Suitable spectacles, goggles or face shields should be used where required.
- Specialist gloves can be used for specific biological, chemical, and physical hazards (e.g., cut resistant Kevlar or chain mail gloves).
- Gloves should be worn for all work with hazardous or infectious materials.
- Gloves should be used with care to prevent contamination of materials, surfaces, and equipment.
- Gloves should be removed and disposed if they become contaminated.
- RPE should not be used as an alternative to more effective control measures.
- PPE should be removed before leaving work area and kept apart from normal clothing.

Computers

http://www.gla.ac.uk/services/seps/az/computers/

The University and School recognise that most staff and students use computing equipment extensively. Therefore, it is important to provide a working environment, facilities and information that permit such activities to be carried on with minimal risk to the health and safety of individuals.

The risks

The most common type of complaint associated with computer use includes pain in the arms, hands, neck, and shoulders (known as work related upper limb disorders - WRULDS) as well as back pain.
Possible causes include:

- Sitting for too long in one position particularly if on a badly designed chair or one that is poorly adjusted.
- Insufficient breaks.
- Awkward positioning of hands at keyboards.
- Non work factors (e.g., sports or hobbies).

The controls

All workstations must meet minimum health and safety requirements. Where a workstation is used by someone identified as a "user", further assessment is needed.

Training & Self-Assessment

The University and School encourages a self- assessment approach to computer workstations. The guidance documents in conjunction with the Computer & DSE assessment online training on Moodle can be used as guidance on how to conduct a workstation self-assessment. Once you are logged in select 'Safe Use of Computers' training. This consists of a DSE presentation and interactive guidance. Then you will be able to complete the DSE self-assessment form. (Computer equipment assessment) FORM. This will then enable you to set up your workstation correctly and any put in place any remedial measures required.

Waste disposal

When disposing of computing equipment, you must comply with the Waste Electrical & Electronic Equipment Regulations. The University has developed procedures to help you in this and further information is available in the Waste section of SEPS web site. Waste electrical equipment

The waste Disposal form for CCL north should be filled in with the relevant details and also asset (PAT (Portable Appliance Testing) testing number). Then this should be e-mail to CCL north to arrange a date for the pickup. All personnel details and information should be removed. The asset number and labels should now be removed. The building or assets manager for the building should be notified also that this piece of equipment has gone off site and it can them be removed from the assets list.

WWCRC Stacey Hoare

……Building ……..

Groups responsibilities within the School of Cancer Sciences

Principal Investigators should appoint group safety representatives within their group. They should provide the appropriate training in this area for group members. Training courses are available at the University SEPS department covering some of these areas http://www.gla.ac.uk/services/seps/trainingandresources/ .

The Training Needs Analysis Template document on this page will help managers identify training needs for their staff and students. This can be populated by the group for specific technical skills and courses relevant to their specific work.

The Group Safety Reps will also act as key point of contact for Safety Advisors and Co-ordinators.

Paperwork requirements and responsibilities for each individual lab include:

- Group Safety Induction Training; including techniques risk assessments and safety.
- Risk assessments are in place for ALL work carried out within each building and stored centrally.
- Standard Operating Procedures are in place for their work.
- High Hazard Risk Register - with safe and separate storage of these chemicals. Stored on J-drive – Communal H & S Area.
- GM notifications
- Ensuring staff and students are compliant with the School, University and Local Building rules and policies.
- Ensure staff are competently trained within their group.

Laboratory Safety Files

Every laboratory should have a Laboratory Safety File and all group members made aware of it and its contents. There should be at least an electronic copy of the Laboratory Safety File kept by the Principal Investigator or group safety Rep and a hardcopy (e.g., documents in lever arch folders) placed in the laboratory. All documents should be written electronically so that they can be easily read, revised, and modified and proper records can be kept. The Laboratory Safety File should comprise of general, COSHH, Biological COSHH and GM risk assessments, standard operating procedures (SOP) and any other relevant health and safety documents (e.g., MSDS (Material Safety Data Sheet), list of authorised persons etc). A copy of these should also be kept on the J-drive in the groups' health and safety area so they are easily accessible to all the group members. Make sure that ALL the Risk assessments are signed off by the PI, as fit for purpose and of the legally required suitable and sufficient standard for the work undertaken in their group.

Laboratory Inspection Systems in buildings

http://www.gla.ac.uk/services/seps/safetymanagementforheadsofmanagementunit/section8-compliancemonitoringandreview/

Safety Advisors from the building will carry out a safety inspection of each floor area including office and laboratory once or twice a year. Groups will then be advised of any recommendations or requirements to address any local issues in these areas. Areas of high risk or problem areas will be visited 3-4 times a year. A more in-depth Inspection will be carried out annually and a report made on any non-compliant area. The check list for points covered in the inspection can be found **on the J-Drive Communal Health and Safety Area.**

SEPS will at approximately 4 yearly intervals also carry out safety inspection audits for each School on a more formal basis; however, they will provide several months' notice before this happens.

Making sure YOUR laboratory area is safe for cleaning staff.

You have a duty of care for those who come into your lab but who don't necessarily know what goes on there, this includes cleaning staff. They have a reasonable right to expect that you will take steps to ensure that they do not come to harm from your work. So please make them aware of any known hazards or risks in your laboratory area.

- Cleaning staff will clean wash-hand basins but are not expected to clean laboratory sinks.
- Cleaning staff are generally not expected to clean laboratory benches. An exception to this may be where the benches have been completely cleared of all hazardous substances, materials and equipment specifically for the purpose of periodic deep cleaning of the laboratory, but this is subject to special prior arrangements with cleaning supervisors.
- Corrosive, flammable, and hazardous chemicals should not be left on the open bench when not in use.
- Chemicals should be placed to the rear of the bench when not in use.
- All apparatus left running overnight must be clearly labelled with information describing actions to be taken, and the person(s) to be contacted, in the event of an accident involving the equipment. **Use the University Overnight experiment** Form to record this information and display.

- Cleaning staff should be excluded from certain areas, where, because of special local hazards, cleaning should be undertaken instead by laboratory staff. Ie controlled Isotope rooms. These should be clearly signposted to make perfectly clear that access is restricted specifically to authorised personnel only, and by controlled door access systems.
- Pressurised gas cylinders must be securely fastened, usually in an upright position, using purpose-designed brackets and clamps, chains or belts, and care should be taken to ensure that there is no risk of cleaners becoming snagged up in connecting pipework.

Work Experience for Young Workers

Work Experience information and requirements.

Young people (under 18 years of age) may be at particular risk in the workplace due to their lack of experience, possible lack of maturity and because of other physical factors associated with their age.

A Risk Assessment Form should be filled in for any young workers prior to them starting work in the group. Must be fully supervised at all times.

Staff Training –

Safety Induction

PIs or designated supervisory staff should arrange for all new staff and students to receive Induction Training by contacting the relative Safety Co-Ordinator for their building. Please inform these staff prior to their arrival so a suitable time can be arranged for this induction. Staff should not start any practical work before they receive basic Safety Induction training.

All staff will then be required to sign an induction training form for the building, which must be then signed off by the appropriate PIs. In some buildings this will be a requirement to enable activation of a pass for door entry to that building.

Laboratory Procedures

PIs are responsible for identifying and providing appropriate training and ensuring general competence to work safely within the local rules of the buildings they are working in.

Specialist equipment use

DO NOT use any specialist equipment without receiving appropriate training from staff responsible for this equipment within the building, otherwise insurance cover will not be applicable in the event of equipment damage; Insurers will classify damage by untrained personnel as due to negligence.

Experienced personnel will provide the necessary training in the correct use of equipment, if you are unsure who to contact for this please contact a group member or technical staff within your building.

Training in Use of high-risk Laboratory areas

Additional training by experienced personnel is required for use of high-risk restricted areas such as Controlled Radiation Laboratories and Containment level II Tissue Culture and other facilities. In each case a Formal Competence Assurance form (**see Appendix 5**) should be completed by the trainer after which the trainee's entry card will be reprogrammed to allow access. Radiation and Tissue Culture / Biological Safety advisors for the building should be contacted for this training.

WWCRC Building Trainers

Containment level II Tissue Culture facilities	: Allan McVie
Radiation Safety	: Allan McVie

Paul O'Gorman LRC

Containment level II Tissue Culture facilities	: Alan Hair / Group leaders
Radiation Safety	: Not used within Building

Occupational Health Provision

The University has an Occupational Health Service which is able to advise and monitor on all aspects of staff health related to their work.

All staff and students planning to work in any laboratory that uses human derived material (blood samples, urine samples, primary cells in tissue culture, etc.) are strongly advised to undergo a **Hep B immunisation programme**. The need for this should be determined by Health Surveillance **HS** Risk Assessment.

PIs should fill in the Health Surveillance Request form for staff and students and return this to the Occupational Health Service along with the completed Health Surveillance risk assessment form for this to be arranged. Booster injections are no longer routinely offered, however if an individual is uncertain as to their immunisation status, contact the appropriate Occupational Health Unit, with the appropriate risk assessment for this work.

Staff engaged in working with animals should undergo routine **Respiratory surveillance**. This will be initiated by the PI sending in the appropriate Health Surveillance RISK assessment for this work along with the names of staff involved, and a Health Surveillance Request form. Occupational Health will arrange to carry out examinations in appropriate cases. Staff attendance for health surveillance will be recorded within the individual's CoreHR record. Health Surveillance process. Please inform staff responsible for managing this list for the SCS of any additions or removals to keep this up to date.
This should be done prior to starting animal or other respiratory sensitive work.

Mental Health First Aid

Mental Health First Aid (SMHFA) is like any other type of first aid – it is the help given to a person before appropriate professional help or treatment can be obtained. The main difference is that the initial support is for someone with mental health issue, rather than a physical health one.

http://www.smhfa.com/

Mental health first aiders aim to:

Preserve life.
Prevent deterioration of mental health – by providing help.
Promote recovery – i.e., support the first steps to regaining good mental health.
Provide comfort to a person in distress.

As well as: Promoting understanding of mental health issues.

It is important to appreciate that mental health first aid is not designed to treat or offer long term support for mental health issues, but to help an individual through the immediate distress and assist and guide them to appropriate professional help.

Mental health First Aiders in SCS are both based at the WWCRC and can be contacted at:

Anne Best	anne.best@glasgow.ac.uk	(ext. 3799)
Sharon Burns	sharon.burns@glasgow.ac.uk	(ext. 6897)

Or you can find a list you of all trained mental health first aiders who have volunteered to join the SMHFA Network here.

The University Employee counselling service (Health Assured) can be accessed via the University Wellbeing HUB

Togetherall is an online community where members can support each other with 24h a day access, 365 days a year.

And remember, it's ok not to be ok.

New and Expectant Mothers at Work

http://www.gla.ac.uk/services/seps/az/newandexpectantmothers/

New or expectant mothers can be at risk from common work hazards. There is a legal requirement to assess such risks and to ensure that suitable control measures are in place to protect women who may be at risk.

A risk assessment template is contained within the guidance notes on the University website and can also be downloaded from the Forms section of SEPS website.

This form should then be discussed with the Safety Co-Ordinator for the building and the appropriate controls put in place for working safely. This form requires to also be signed by the PI / Line Manager.

When a member of staff has provided notice that they are pregnant or breastfeeding, a specific individual assessment must be made of the work of carried out by that person to ensure that they are not put at risk during and immediately after their pregnancy. Particular attention should be paid to the actual tasks that

they have to perform during their work to ensure that any risks associated with these are adequately controlled.

Potential Hazards for Risk Assessment for new and expectant mothers.

Physical hazards

Manual handling of loads
Manual handling should be avoided by pregnant women unless the risks are judged to be low.

Work with computers
Women who are working with computers may experience difficulties achieving a comfortable working posture as the pregnancy progresses and difficulties in sitting for long periods.

Ionising radiation

As soon as their pregnancy is confirmed staff working with ionising radiation should inform their Radiation Supervisor who must make arrangements to minimise their exposure to radiation.
Further advice is available from the Radiation Protection Service (RPS).RPS

Chemical hazards

Users should note that correctly managed work with a chemical should entail very little exposure to hazardous chemical substances and that use is NOT necessarily the same as exposure.
During pregnancy particular care should be taken to guard against skin absorption by using control measures, where possible (e.g., fume cupboards, enclosed processes etc.) and by using personal protection as an additional precaution (e.g., gloves, lab coats, face shields etc.).

Carcinogens, teratogens, and mutagens. Substances will be labelled with the hazard control phrases which indicate that a particular hazard is associated with this material.

H340: May cause genetic defects *
H341: Suspected of causing genetic defects *
H350: May cause cancer
H351: Suspected of causing cancer *
H360: May damage fertility or the unborn child
H361: Suspected of damaging fertility or the unborn child*
H362: May cause harm to breast-fed children

*(State route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

These materials are particularly hazardous to those trying to conceive a child or to new or expectant mothers and exposure to them should be avoided by these groups of workers.

Biological hazards

Normally the precautions taken in biological laboratories are such as to minimise the risk of accidental exposure of any staff to the agents handled. In many cases such "good laboratory practice" will be sufficient to adequately control the risks to new or expectant mothers. However, where there are particular risks associated with some biological agents, additional precautions may be appropriate. This may include ceasing work with such agents for the duration of the pregnancy and for a period after the birth.

Biological Safety

Health and safety, animal health, plant health and environmental legislation require the University to have effective controls in place to protect people and the environment against the risks created by our work. Please read this guidance on biological safety which is provided to help PIs and researchers to safely carry out your work.

SEPS website for biological safety information

http://www.gla.ac.uk/services/seps/az/biological%20safety/

Biological COSHH risk Assessment must be in place prior to any work commencing.

Information on the following subjects can be found in detail on the SEPS website to help with risk assessments:

- HSE
- HSE Biological Safety
- Scottish Government Animal Health
- DEFRA
- Animal and Plant Health Agency
- SEPA
- Health Protection Scotland
- World Health Organization Biological Safety

There is extensive guidance for work with biological hazards, biological COSHH risk assessment and controls for protection of people and the environment. Please read this guidance since they will help you understand how to best do your risk assessments and safely carry out the work.

You may need to use guidance on specific hazards on other websites. Please contact your biological safety advisor or Safety coordinator if you need advice on biological COSHH risk assessments and controls.

Essentials for Biological COSHH Risk Assessment

Biological COSHH Risk Assessment information can be found on the SEPS Biological safety website.

http://www.gla.ac.uk/services/seps/az/biological%20safety/biologicalcoshhriskassessment/

Some Important Excerpts from these pages:

Biological COSHH risk assessments are required before work commences for all work involving the possession or use of biological agents and hazards or where there is a risk of exposure to biological agents or hazards. PIs are responsible for ensuring that the risk assessment and controls are carried out, adequate for the work, regularly monitored and that the assessment and controls are reviewed and revised.

Important steps in biological risk assessment:

1. Biological COSHH risk assessment is used to assess and control risks to humans, animals, plants, and other aspects of the environment arising from the use of the biological hazards in the work.
2. Biological COSHH risk assessments must be done in advance and by competent persons.
3. Consult and communicate with researchers, Safety Advisers and those doing the work.
4. Biological COSHH risk assessments and controls must be suitable and sufficient and proportionate to the risks.
5. Consider the biological hazards and the work activity.
6. Decide who or what might be harmed and how.
7. Assess risks relating to biological agents and hazards. Biosafety
8. Decide on the hazard group (1 - 3). HSE path list
9. Decide on the containment level (1 - 3). Containment
10. Decide what control measures are necessary to prevent or adequately control exposure and minimise the risks. E.g., MSc cabinets, immunisation, sharps controls, PPE.
11. Control measures must be implemented, monitored, and maintained by person carry out risk assessment.
12. Decide whether health surveillance and monitoring of exposure is required.
13. Ensure biological agents and hazards are safely handled, stored, transported, inactivated, and disposed.
14. Ensure there are plans and procedures to deal with emergencies.
15. Ensure workers are properly informed, trained and supervised to enable them to perform the work safely and competently.
16. HSE notification and consent is required for hazard group 3 and several hazard group 2 biological agents. HSE path list
17. Scottish Government Animal Health licences are required for work with certain animal pathogens. SAPO
18. Biological COSHH risk assessments and other relevant records must be kept by the relevant PIs.
19. Biological COSHH risk assessments must be reviewed and revised where they are no longer valid or where there are significant changes to the activity or risks.

Basic Requirements for Work with Biological Agents and Hazards

Hazard Group 1

The possession or use of hazard group 1 biological agents and hazards is subject to the following requirements.

1. **Biological COSHH risk assessment**
   A biological COSHH risk assessment is required for hazard group 1 biological agents and hazards. Complete the University biological COSHH risk assessment form. Electronic and hard copies must be retained, and their location made available to staff.
2. **Monitoring**
   The PI must monitor the work to ensure that the controls are effective and used by all group members.
3. **Review**
   Biological COSHH risk assessments must be reviewed and amended immediately where there are any changes to the activity or the risks.
4. **Records**
   The PI must keep all biological COSHH risk assessments including all revised versions and other relevant records. Please keep electronic versions of all records, these should be added to the SCS safety Files on the J drive /Health and safety / Building location/ Group number by the group's safety Representative. These files will be reviewed by an Annual Audit.

Hazard Group 2

The possession or use of hazard group 2 biological agents and hazards is subject to the following requirements.

1. **Biological COSHH risk assessment**
   A biological COSHH risk assessment is required for hazard group 2 biological agents and hazards. Complete the biological COSHH risk assessment form.
2. **Pathogen and toxin registration**
   Hazard group 2 biological agents and hazards must be registered with the management unit and the Safety and Environmental Protection Service (SEPS) using the pathogen and toxin registration form. The registration of pathogens and toxins must be done before any biological agents or hazards are brought into the university.
3. **Monitoring**
   The PI must monitor the work to ensure that the controls are effective and used by all group members.
4. **Review**
   Biological COSHH risk assessments must be reviewed and amended immediately where there are any changes to the activity or the risks.
5. **Records**
   The PI must keep all biological COSHH risk assessments including all revised versions and other relevant records. Please keep electronic versions of all records, these should be added to the SCS safety Files on the J drive /Health and safety / Biological/ Group number by the group's safety Representative. These files will be reviewed by an Annual Audit.

University Biological Risk Assessment form

This can be found on the SEPS website page and also the School of Cancer Science Website under Health and Safety Forms **Appendix 7** **Forms**

Approval of Biological COSHH Risk Assessments

The assessor and PI must sign and date the form to state that they have assessed the risks and reviewed and approved the risk assessment. You should consult with other people who might be adversely affected by the work where it is necessary including other groups and workers.

This form should be filled in prior to starting any new work and agreed by the group safety representative, who should then file them centrally on their group's space in the Health and Safety folder on the J-Drive for Biological safety. These files will then be reviewed by annual audit.

GM Risk Assessment

SEPS Website link - http://www.gla.ac.uk/services/seps/az/biological%20safety/gmriskassessment/

Safety Regulations and Information for Research on Genetically Modified Organisms

Staff are reminded that ALL work involving Genetically Modified Organisms must, by law, be registered with and approved by the appropriate GM Safety Committee within the University.

To ensure that the University meets its legal obligations, please check your records, and ensure that all current work involving GMOs is covered by an up-to-date registration. If you are unsure of the current status of your registered projects, please contact Dr Vignir Helgason Vignir.Helgason@glasgow.ac.uk Appropriate forms for new proposals and for amendments to existing projects can be found at http://www.gla.ac.uk/services/seps/forms/

Essentials of GM Risk Assessments

GM risk assessments are required before work commences for all work involving the possession or use of genetically modified organisms. Principal investigators are responsible for ensuring that the risk assessment and controls are carried out, adequate for the work, regularly monitored and that the assessment and controls are reviewed and revised.

There is a legal requirement for GM risk assessments to be reviewed and advised on by a Genetic Modification Safety Committee (GMSC). Genetically modified organisms must not be brought into the University, obtained or any work conducted until GMSC permission is given for the GM risk assessment.

Guidance like steps in Biological risk assessment with the following requirements:

GM Safety Committee advice and permission is required for all Class 1, 2 and 3 genetically modified organisms.

1. HSE notification is required for Class 2 and 3 activities.
2. HSE consent required for Class 3 activities.
3. Scottish Government Animal Health licences are required for work with certain animal pathogens.

Approval of GM Risk Assessments

The assessor and principal investigator must sign and date the form to state that they have assessed the risks and reviewed and approved the risk assessment. You should consult with other people who might be adversely affected by the work where it is necessary including other groups and workers. Please note that all GM risk assessments require advice from the GMSC and approval from your GMBSO - **Dr Vignir Helgason** Vignir.Helgason@glasgow.ac.uk

The GM risk assessment forms and guidance on how to carry out the risk assessments can be obtained from your GMBSO and GM Safety Committee.

Dr Vignir Helgason is the School's GM Biological safety Officer and would be able to provide further details and information on procedures for the School.

Pathogens and Toxins

Pathogen and Toxin Registration

The possession or use of certain pathogens and toxins is controlled under health and safety, animal health, plant health, environmental and terrorism legislation and requires registration with the School

and the Safety and Environmental Protection Service (SEPS). The purpose of this registration process is to ensure that the University and Schools can comply with legal requirements for work with pathogens and toxins by maintaining a complete list of certain pathogens, pathogen infected materials and toxins. The PI has the primary responsibility for work with their pathogens and toxins and must ensure that the registration form is completed and submitted by providing information on the possession or proposed possession or use in advance of starting work.

Pathogen and Toxin Registration Form

Please register your pathogens, pathogen infected materials and toxins using this form but first read the guidance on this page to help you understand what does and does not need to be registered.

- Pathogen and toxin registration form

Once you have completed the registration form then a copy should be sent by email to the PI, safety coordinator and university biological safety adviser in SEPS. The PI should keep a copy of the registration form for their records. The safety coordinator should keep a copy of all registration forms and a full list of all pathogens and toxins for the School records. SEPS will keep a copy of each registration form and a list of registered pathogens and toxins for records. In addition to registration, PIs are required to keep detailed records of the pathogens and toxins, strains, types, origin, or other identification of the pathogens or toxins and persons who have access to or use the pathogens or toxins. These records must also include all pathogens and toxins held or worked with by each individual. Their location must be made known and must be kept readily available for inspection and use in an emergency. Please contact your safety coordinator/ Safety Advisor if you have any questions about how to register and whether your particular pathogen or toxin should be registered.

Do Not Register These Pathogens and Toxins :

Standard biological or clinical materials which may or may not be contaminated with listed biological agents, pathogens, or microorganisms unless there is a known or suspected higher risk of their presence in the materials. Do not register any toxins other than those on Schedule 5 list of pathogens and toxins. Schedule 5 Pathogens

Register These Pathogens and Toxins

Register any biological agents or pathogens classified in hazard group 2, 3 or 4 by the HSE Advisory Committee on Dangerous Pathogens (ACDP), the Scottish Government or DEFRA. HSE path list. Register any animal pathogens which require an animal health licence. Register any pathogen, toxin or relevant genetic material listed on Schedule 5 of the Anti-Terrorism, Crime and Security Act (ACTSA). All genetic materials which are subject to ACTSA whether they are subject to the Genetically Modified Organisms (Contained Use) Regulations need to be registered using the pathogen and toxin registration forms.

Biological Security for Pathogens and Toxins

To prevent terrorism certain pathogens, toxins and their genetic materials are controlled under the Anti-Terrorism, Crime and Security Act (ATCSA). PIs who wish to acquire, possess, or use any of these pathogens, toxins or relevant genetic materials must obtain prior permission from the Head of the School and ensure that they are registered before they are brought into the University. PIs must notify their School and the Safety and Environmental Protection Service (SEPS) by registering the pathogens, toxins and relevant genetic materials using the pathogen and toxin registration form. The Head of the

School must ensure that the possession of any of these pathogens or toxins is immediately notified by their unit to the Counter Terrorism Security Adviser (CTSA) at Police Scotland.

Anti-Terrorism, Crime and Security Act Schedule 5 List of Pathogens and Toxins can be found on the SEPS website. And also details on how to How to Notify the Police of Possession of Schedule 5 Pathogens and Toxins. Pathogen Security

General information and requirements for working in Hazard Category 1 and 2 Containment Laboratories

Local Rules and Risk Assessments

- All workers and visitors have health and safety responsibilities to themselves and other building users. These are outlined earlier p20
- Risk assessments must be carried out where they are required including general risk assessments, COSHH, Biological COSHH and GM risk assessments. Forms
- Biological COSHH risk assessments will help you identify the biological hazards, evaluate the risks, and decide on appropriate control measures to enable you to do the work safely and reduce the risks of accidents.
- All workers and visitors must have adequate information, instructions, training, and supervision.
- Risk assessments, controls and standard operating procedures must be reviewed and amended where there are significant changes to the activity or risks.
- Managers and PIs must keep risk assessments, standard operating procedures, and other important records. Staff must be made aware of their location.
- There should be adequate communication and cooperation between users of shared laboratories and facilities in relation to the hazards, risks and control measures required to protect health and safety.
- Safety Coordinators and Safety Advisers are available to provide advice and support on health and safety management.

General

- Procedures that produce hazardous or infectious aerosols must be adequately contained (e.g., equipment, safety cabinets, centrifuges, shakers etc).
- Microbiological safety cabinets should be used for work where hazardous or infectious materials aerosols could be produced.
- Centrifuges should have sealed buckets or rotor which can be opened inside safety cabinets.
- Avoid use of sharps unless really required and then adequate risk controls should be used.
- Avoid generating aerosols.
- Disinfect equipment and working surfaces after use where required.
- Wash hands after completion of work activities and immediately after any contamination is suspected or handling hazardous materials.

Security and Signs

- Relevant safety signs should be placed on laboratory doors (e.g., biological hazards, chemical hazards, radiation hazards, containment level and gas cylinders).
- Access should be restricted to only authorised persons.
- Visitors and contractors must be adequately supervised.

- Access to laboratories must be controlled using suitable means (e.g., lock and key, swipe card, digital lock etc).

Containment Laboratories and Facilities

http://www.gla.ac.uk/services/seps/az/biological%20safety/containmentlaboratoriesandfacilities/

Containment Level 1
Low risk work with normally non-hazardous hazard group 1 biological agents and hazards, activity class 1 genetically modified organisms, animals, and plants on the bench. HSE path list see section on p40 for classification

Containment Level 2

Medium risk work with hazard group 2 biological agents and hazards, activity class 2 genetically modified organisms, animals, and plants on bench and in safety cabinets.

The Wolfson Wohl Cancer Research Building has 6 Containment level 2 rooms. Tissue culture rooms on level 1, 2 and 4; the level 2 FACS room due to the CAT II samples processed on the FACS machines in this room and a sample preparation room in the Translational Pharmacology Laboratory suite are also containment level 2; The other laboratories and tissue culture rooms in the building are containment level 1.

Paul O' Gorman LRC laboratory is Containment level 2 due to the CAT II samples processed there; this includes the tissue culture rooms, and the FACS machines.

Containment Level 3
None of the School of Cancer Science laboratories have containment level 3 facilities or requirements.

Working with Human Material

Particular precautions must be taken when handling any biological materials of human origin. Staff working with such materials should be familiar with the recommendations contained in the HSAC and ACDP guidance documents. A risk assessment of the health risks before starting work with human blood, tissue and other specimens must be completed by the PI, safety rep and staff undertaking the work and signed by the PI. Advice can be sought from Group Safety Rep. or School Safety Advisors. The risk assessment should then be filed in the communal J-drive health and safety risk assessment folder for the group. This risk assessment must be specific for the procedures involved in the work and take account of the nature and source of the samples to be handled. In many cases the risk assessment will identify the potential of a fatal infection arising from the work; fortunately, the consistent application of good working practices as outlined in groups SOP, and **avoiding the use of sharps** will eliminate, or at least substantially reduce, the risk of serious illness.

Vaccinations against Hepatitis B should be offered to all Staff and students working with Human Tissues. *This is available via the Occupational Health Service see page 36 for information on this.*

Cover all cuts and abrasions prior to commencing work. Always wear lab coat and gloves, and work in the Class II safety cabinet.

Measures that should be used:

- The use of sharps should be avoided wherever possible, (blunt/semi-blunt needles are now readily available)
- Generation of aerosols must be avoided. E.g., Vigorous pipetting, sonication, vortexing, grinding samples, centrifugation. Opening of flip top tubes.
  Exposure
- In the event of skin exposure to clinical material wash with copious amounts of water with anti-bacterial soap.
- If mucous membranes are contaminated flush with water/ eyewash and seek medical advice.
- In the event of Needle stick or similar injury encourage the wound to bleed under running water for 10 minutes. Seek medical advice. Fill in an accident report FORM online. The form is automatically sent to SEPS on completion, along with a copy to your line manager and school safety coordinator.

To obtain urgent advice: Contact the A&E Department of your nearest hospital. Then, at the earliest opportunity, report the incident to the University Safety &Environmental Protection Service with all the available details on the next working day.

All fresh human material must be handled using containment Level 2 practices as a minimum. Do not work with such material if you are unfamiliar with what is required and seek training.

NOTE: human blood and tissues which are not being used for establishing cell cultures must also be handled with special care until a stage is reached where infectious agents will no longer survive (e.g., addition of guanidine hydrochloride, RNAzol or TRIZOL, in RNA preparations)

Microbiological Safety Cabinets

For experiments with pathogens in ACDP hazard group 2 which involve risk of aerosol production, a Class 2 microbiological safety cabinet or equipment designed to contain aerosols must be used.

Tissue Culture

All workers involved in any form of tissue culture must observe the rules of good laboratory practice plus any extra safety rules associated with handling potentially hazardous cell cultures, viruses, eukaryotic viral vectors, hazardous chemicals, and radioactivity.

All new workers should receive instruction and training on the local rules of the facility and waste procedures in these rooms from their group's tissue culture representative or the curator of the facility.

NEW Cell lines.

All new cell lines introduced into the laboratories must be tested before experimental work is started for the presence of mycoplasma and if positive must be disposed of or subject to special containment.
Kit recommended for Mycoplasma testing from Lonza MycoAlert PLUS Mycoplasma Detection Kit. Building service for this in WWCRC contact Allan McVie

Existing Cell lines

Existing cell lines should be tested regularly for mycoplasma using the above-named kit. Cell lines should be discarded and replaced from frozen stocks at least every 3 months or, if not tested for mycoplasma every 3 months. The test results for your group should be recorded and records kept for each individual group within the building using these shared facilities.

For mycoplasma testing please contact: WWCRC Allan McVie ext. 8124

…… Building to ……..

Containment level I Tissue Culture Procedures for access

- Read the Biological Safety section of the SCS Health and Safety Guidelines.
- Read the SCS Tissue culture guidelines.
- Read, sign, and understand the relevant COSHH forms, and the relevant risk assessment forms from their group (speak to your group safety rep).
- Have been introduced to the TC suites curator by their group supervisor.
- Receive training from their group in the techniques used in standard tissue culture and the use and operation of the equipment in the tissue culture suite.

Door Access

- Access is not restricted during the day, but you will need to have your card activated to access the Containment Level 1 TC suites out of hours. Cards will only be activated for competent, trained staff, who do not require supervision, at the request of their group leader.

Lab Coats

A clean laboratory lab coat must be always worn when working in tissue culture facilities. These can be found on level 1. Dirty lab coats can be places for laundry in the dedicated bin on level 1.

Microbiological Safety Cabinet (MSC)

- Regularly give the Microbiological Safety Cabinet (MSC) the “hood” a good deep clean.
- Clean all the internal hood surfaces with 70% ethanol before and after use.
- Allow the MSC to run for at least 15 minutes before using for aseptic techniques.
- Ensure all items placed into the MSC are sterile - wipe with a cloth soaked in 70% ethanol.
- Keep the MSC free from clutter and do not place anything on the front grill.
- Keep movement in and out of the MSC to a minimum.
- Movement within the MSC must not be rapid as this may disrupt the air flow and may allow contamination to enter the MSC.
- Clean your gloves by spraying with 70% ethanol and allow to air dry for around 30 seconds before putting your hands into the MSC.
- While working if you touch anything outside the MSC with your gloved hands, respray your gloves with 70% ethanol.
- Deal with any spills within the MSC, this may require lifting the work surface after you finish working and cleaning under the work surface.

Samples

- Incubate dishes on labelled plastic trays or in boxes in the incubator to minimise spills of any hazardous material and contamination spread, also can identify user if problem occurs.

Waste

- Dispose of all sharps in Sharps bins.
- Aspirate off all media before disposing of plastics in autoclave bags.
- Liquid waste container should have enough chlorine tablets added to the aspirator container to give a final concentration of 10,000ppm free chlorine at the end of the day by the last user of the hood, (amount determined by the volume of aspirated fluid then removed from the aspirator and left to soak overnight by the sink. (Minimum soak time 12 hours) Prior to use the next morning this should then be disposed of down the sink and then reattached to the aspirator.
- Solid hazardous waste Ie flasks, pipettes and universals should be put in the autoclave bags containing also the thick bag insert. These bags should then be taped (not tightly) with a cotton wool bung in the top to allow steam penetration during autoclaving and left in the waste container to be picked up.
- **In buildings with no autoclave facilities these items should be soaked overnight with a suitable disinfectant to inactivate prior to disposal the next day using the buildings agreed waste route. See local disinfectant MSDS for concentration and times required for inactivation.**
- Double bag all waste in autoclave bags and thick lining bag.
- Place cotton wool in the neck of bags before taping and putting in bin for autoclaving.
- Non-hazardous waste such as empty media bottles or plastics just used for water, PBS or ethanol can be placed in the black general waste bins if deemed non-hazardous. Plastic wrappers and tip boxes can be placed in the black general waste stream as in general they do not require to be autoclaved. Non-hazardous tip boxes can go for recycling if compatible.

Spillages

- All spillages must be disinfected and cleared immediately, inside the cabinet with 70% ethanol and outside the cabinet enough chlorine tablets added to the aspirator container to give a final concentration of 10,000ppm free chlorine.

Water baths

- Lids on the water baths should be replaced after use, and kept on O/N.
- Media should not be left in the water baths O/N.
- The water in the water bath should be replaced regularly and Prothermal added to the water to prevent contamination. The Prothermal solution is used at a concentration of 0.2% (2ml per 1000ml of water)

Containment level II Tissue Culture Labs Use

Over and above the rules that apply to the use of Containment level I tissue culture facilities the following additional rules apply to containment Level II laboratories.

Door Control and Access

Access is limited to staff and students that have shown themselves to be competent in basic tissue culture techniques within the Containment level 1 rooms or have previous experience in TC. This should be confirmed by their PI.

- All staff should undergo an induction to Containment Level 2 work from designated staff prior to using the Containment level II facility. When this is confirmed as complete (competence training sign off sheet). The Risk Assessment for the proposed work in this facility should be submitted and signed off prior to the work going ahead. Door card access will be activated.
- Please ensure that the door is completely closed to comply with HSE regulations and maintain correct air pressure.

Lab Coats

- All staff entering the Containment level II room MUST wear BLUE lab coats. White coats should be left outside on the pegs outside the room.
- Remove Blue Lab Coats before leaving the room and store on pegs provided for the coats within these rooms; - **THEY SHOULD NOT BE WORN OUTWITH THIS ROOM FOR ANY REASON.**
- Do not put blue lab coats in the general department washing they should be sent for autoclaving sealed in bags prior to washing.

Microbiological Safety Cabinets

- Should be used when there is the possibility of the production of aerosol.

Samples

- All procedures must be performed as to minimise the production of aerosol. Which can be generated for example E.g., Vigorous pipetting, sonication, vortexing, grinding samples, centrifugation. Opening of flip top tubes.
- Open cultures must only be handled in the class II safety cabinets within these labs.
- All cultures should be kept in sealed containers in incubators, as explained above in Containment 1 section.
- Any cultures taken from the containment level II laboratories must be transported and kept in sealed containers. The RA for the work will detail transport method and contingency plans in case of spillage.

Waste

- All waste materials must be made safe before disposal, either by autoclaving or disinfection.
- For virus work, all liquid waste is collected in a beaker or similar vessel and decontaminated with 1% (final concentration) Virkon overnight; all plastic must be decontaminated with 1% Virkon overnight before being placed in the waste bags for autoclaving and all glassware must be treated similarly before being placed for washing.
- All waste bags should be placed in the grey bins for autoclaving.
- Materials for autoclaving should be transported to the autoclave in robust, leak proof containers.

Spills

- Spills inside the cabinet disinfect and clean immediately using with 70% alcohol, for virus spillage use 1% Virkon solution.
    - Spills outside the cabinet, clean with. enough chlorine tablets added to solution to give a final concentration of 10,000ppm free chlorine.
- (There is also a biological spills kit in the WWCRC available on each level containing granules)

All accidents and Incidents involving HG2 Biological agents must be recorded by the person responsible for the work using the University online reporting system. Also reported to the School / Building Safety Coordinator.

Animal Work

Special authorization and training is required for any experiments with animals, and the work must be carried out in licensed facilities. Academic staff supervising animal work are responsible for training and safety of their research workers. No information about animal research work in the University should be given to casual enquirers. Press and other enquiries should be referred to the Head of the School. Respiratory Health Surveillance should also be undertaken by staff involved in animal experiments. Information is available on the SEPS website and forms submitted to the Occupational Health unit **prior** to starting the work. Please inform staff responsible for manging this list for the SCS of any additions or removals to keep this up to date. This list will be checked and updated in January each year to maintain the Schools records are correct. See also page 36 Occupational Health for this procedure.

Transport of Biological Hazards

http://www.gla.ac.uk/services/seps/az/biological%20safety/transport%20of%20biological%20hazards/

Any groups transporting any biological goods out with the University should be aware of these points and requirements.

- It is the sender's responsibility to ensure that:
- the correct classification is identified
- the goods are packaged appropriately
- the package is labelled and marked with Proper Shipping Names and UN number
- the required documentation has been completed

National and international health and safety, animal health and environmental legislation require employers to protect people and the environment against risks from transport of dangerous goods. There are complex national and international regulations on the control of transport by road, rail, sea, and air as well as import and export of dangerous goods. Biological hazards are dangerous goods which include substances or the articles containing them for the purposes of the safe carriage of dangerous goods.

Classification

Dangerous goods for transport are any substance or material which can pose a risk to health, safety, property, or the environment in the event of release. These are categorised into 9 classes, some of which are further sub-divided into divisions. Biological samples are either hazardous, non-hazardous, or exempt patient specimens, and are allocated to UN class 6.2 – Toxic and Infectious Substances, and include biological products, cultures, genetically modified micro-organisms (GMMs), genetically modified organisms (GMOs) and medical/clinical waste. Class 6.2 is further split into Categories A and B.

A **Category A** infectious substance is in a form that can cause:

- permanent disability, or

- life-threatening or fatal disease in otherwise healthy humans or animals when exposure occurs

The infectious substance may take the form of a culture or patient specimen. Cultured pathogens present a higher risk than those contained within a patient specimen.

Category B infectious substances are those which do not meet the criteria for inclusion in category A. e.g.:

- Known not to contain infectious substances e.g. Cell lines that do not contain any infectious agents.
- Only contains micro-organisms which are non-pathogenic to humans or animals or those which are unlikely to cause disease in humans or animals e.g. genetically modified micro-organisms (GMMs) which can be handled at containment level 1 and are not viral vectors.
- If it has been treated such that any pathogens present have been neutralised or inactivated such that they no longer pose a risk to health
-

Exempt Patient Specimens – many biological materials are not infectious and are not dangerous goods for transport. Patient specimens that are unlikely to contain pathogens are transported as **Exempt Patient Specimens.** These samples include blood or urine tests and human or animal tissues. To classify a sample as 'Exempt Patient Specimen' two requirements must be fulfilled:

- The specimen must have been taken directly from the patient. It MUST NOT have been cultured.
- Professional judgement must be made that the sample does not contain infectious substances. This is based on:
    - Known medical history
    - symptoms
    - Individual circumstances of the source material
    - Endemic local conditions
    -

Genetically Modified Micro-organisms that are also infectious substances are transported as Class 6.2 and either Category A or Category B according to the above criteria. Genetically Modified Micro-Organisms that are NOT infectious but can modify animal, plants microbiological substances or ecosystems in way that is not normally the result of natural reproduction, are assigned to **Class 9, Miscellaneous Dangerous Goods.**

Biological Substances which are not Dangerous Goods for Transport, such antibodies, cell extracts, protein samples and formalin fixed sections, are not subject to the transport regulations, as long as they are not packaged with other dangerous goods, such as dry ice. Also exempt from the transport regulations are non-infectious naked DNA and non-infectious GM micro-organisms which do not affect the environment.

Biological and Medical wastes are not considered dangerous goods and are exempt from the transport regulations, as long as they do not meet the criteria for inclusion for another class of dangerous goods.

Refrigerants, such as dry ice are classified as dangerous goods for transport. Dry ice must always be placed in a container which permits the release of gas. Dry ice is a Class 9 dangerous good and has been assigned the proper shipping name 'Dry Ice' or 'Carbon Dioxide, Solid'. Wet ice is not classified as dangerous goods, but it must be packaged in a leak proof container, as a leak could affect the packaging integrity.

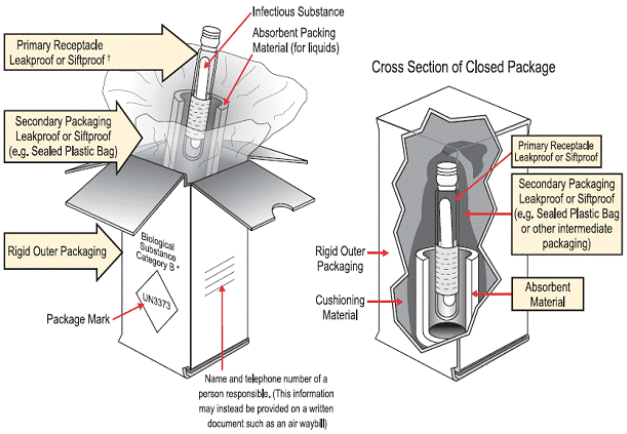
Category A	Category B	Exempt Patient Specimens
Listed on Dangerous Goods Indicative list	All human and animal pathogens not classified as Category A	Specimens taken directly from an animal or human that is unlikely to contain pathogens
Causes severe disease in humans or animals	Patient sample for diagnostic testing of pathogens	Medical history indicated no pre-existing pathogens
Easily transmitted	Patient sample with unknown medical history	Patient does not display symptoms of disease
Could be used for bioterrorism	Patient sample of unknown origin	No local outbreak of disease in area where sample is taken

Packaging

Triple packaging is required for all shipments of infectious and biological substances:

- Leak-proof primary receptacle
- Leak-proof secondary packaging
- Rigid outer packaging

For liquid specimens, there should be absorbent material placed between the primary and secondary packaging, and this should be sufficient to absorb the entire contents.



Labelling

Packages of dangerous goods must have appropriate labels and marks to identify the type of hazardous substance contained within the package. Hazard labels indicate the class or division of the material inside the package, and all are diamond shaped. These must be accompanied by the Proper Shipping Name and UN number for the appropriate dangerous good. The package may also require handling labels which specify handling instructions, such as package orientation.

All markings and labels must be durable and placed where they are always visible. The sender is responsible for ensuring these labels and marks meet the regulatory requirements and are correct and legible.

Substance	Proper Shipping Name	UN Number	Packaging Instruction Road/Air	Label
Category A	Infectious Substance Affecting Humans	UN 2814	620/620	
Category A	Infectious Substance Affecting Animals Only	UN 2900	620/620	
Category B	Biological substance, Category B	UN 3373	650/650	
Genetically Modified Micro-Organisms	Genetically Modified Micro-organisms	UN 3245	904/959	
Dry Ice	Dry Ice or Carbon Dioxide, Solid	UN 1845	*/954	
Biological and Biomedical Waste	Biomedical waste no's, Clinical Waste no's, Medical waste no's, Regulated Medical Waste	UN 3291	621/622	

*not subject to ADR when used as a coolant

Documentation

The dangerous goods transport regulations require the sender to complete a legal document for each consignment of dangerous goods. The sender must prepare at least three original copies. One for their records and two for the operator, who must deliver a copy to the receiver. Another document is also required for air transport, which is called the Air Waybill, and can be completed by the sender or the operator. If the Air Waybill contains information on both dangerous and non-dangerous goods, the dangerous goods must be listed first.

The vender must also ensure that any other legal documentation is in place before international transport, such as import or export licenses.

Sending goods by post

International service X ALL Dangerous goods prohibited.

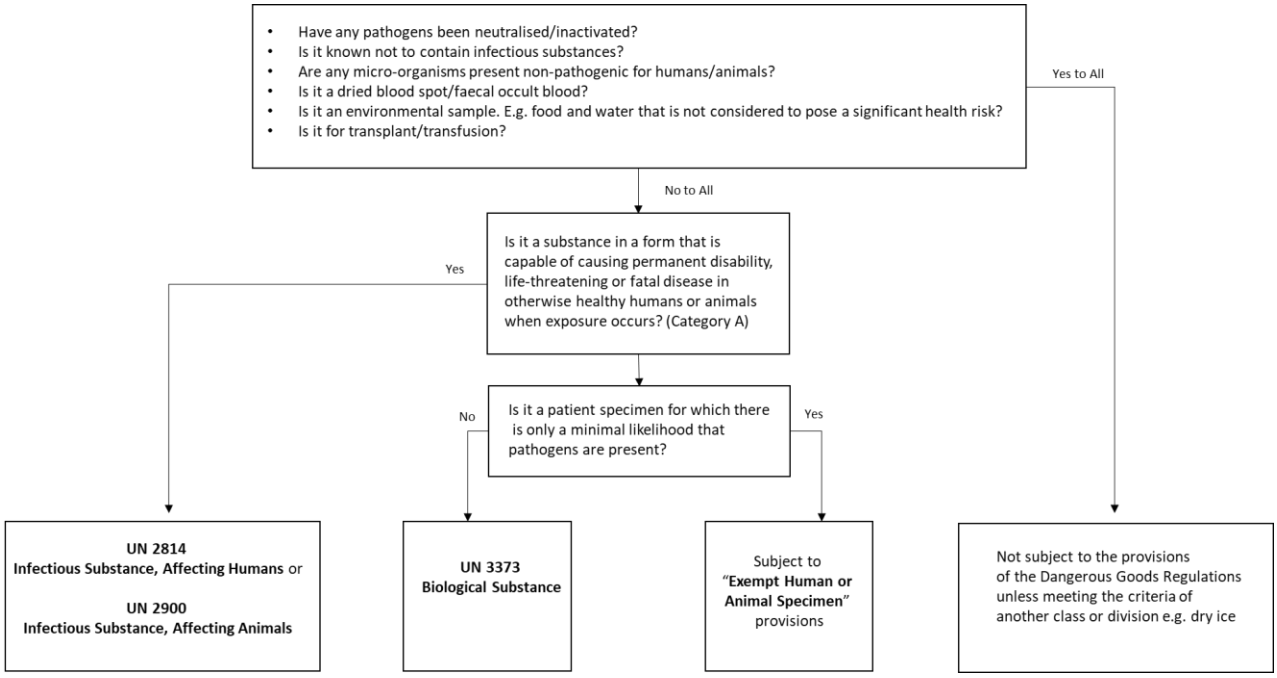
Domestic service X Category A and dry ice prohibited.

√ Category B permitted (max amount 50g/50ml)

Can use Safebox ™ from the royal mail.

Purpose designed secure packaging Pre-paid Suitable for: Category B materials

Summary Flow Chart



COSHH RISK assessment and Chemical Safety

COSHH – Control of Substances Hazardous to Health (2002) Legislation, covers the purchase, handling, use, storage and disposal of chemicals recognised as being potentially hazardous to health. This legislation requires that: C0SHH risk assessments are required to be written up and signed off before work commences for all work using COSHH chemicals and all new procedures.

A COSHH Risk Assessment form: http://www.gla.ac.uk/services/seps/forms/ should be completed and copied to the group's J drive and held in the Laboratory **Appendix 8**

Examples of COSHH Risk assessments, forms and advice can be found at: SEPS website link http://www.gla.ac.uk/services/seps/az/chemicalsafety/

COSHH 2002 requires certain factors to be taken into consideration when compiling a risk assessment. These are:

- The hazardous properties of the substances (i.e., the intrinsic property of that substance to cause harm.
- How it will be used.
- The amount of the substance to be used.
- Information on health effects provided by the supplier (e.g., the material safety data sheet).
- The level, type, and duration of exposure (note particularly if the initial exposure is to a higher quantity of the substance prior to extracting a smaller quantity for use); I.e., stock to working solution.
- Activities such as maintenance where there is the potential for a high level of exposure.
- Any relevant occupational exposure standard.
- The results of monitoring of exposures.
- The risks presented by combinations of exposures to substances.

Remember, however, that not all work needs to be assessed in such detail. Only that which poses a **realistic foreseeable risk** to people needs to be assessed. If the quantities of a substance are tiny (i.e., even from the first moment of collecting the chemical), the hazard is small and therefore the risk negligible the assessment need only record the substances involved, that they will be used in accordance with the supplier's Material Safety Data Sheet and the conclusion that because the substances pose little or no risk, no further detailed risk assessment is warranted.

COSHH Hazard Categories

Can be classed into 4 main groups these can be numbered (0-3) or by descriptors of Hazard level.

Non-Hazardous (0) Substances

Low Hazard (1) Substances which can be handled in the general laboratory using accepted procedures.

Medium (2) Hazard Substances which are potentially hazardous but can be handled in the general laboratory using accepted procedures with extra precautions to avoid inhalation of and contamination by powder or aerosol.

High (3) Hazard Substances which can only be handled in restricted areas according to written procedures which are agreed in advance. Chemical Carcinogen, mutagens, teratogens and "highly toxic" are included in this category.

Ordering of High Hazard Chemicals

Any new chemicals that have not previously been used in the building, should have been risk assessed before ordering, and if flagged up as High Hazard Risk. Safety measures should be discussed with the Chemical Safety Advisor and set in place **before** this chemical is ordered into the building. Do not order more of these chemicals than you need, as sometimes disposal can cost more than the purchase.

High Hazard Register **for carcinogens, mutagens, teratogens, and Highly Toxic chemicals**

After completing the COSHH risk assessment any High Hazard chemicals need to be added to the High Hazard register for each building, this can be found online in the SCS Health and safety folder for each building in the communal SCS folder on the J- Drive.

J-Drive WWCRC High Hazard Register. J-Drive POG High Hazard Register

It should include name of chemical, catalogue number and company ordered from, amount ordered, the date chemical arrived. Names of individuals who will be using the chemical, the risk assessment associated with this chemical (i.e., ref number). This should then be updated when the substance is disposed of. Risk assessments should be added to your groups risk assessment folder in the Health and Safety section of the J-drive for your building. A note of the High Hazard chemicals in your lab should be maintained. These will be audited by safety staff periodically. **Appendix 10**

High Hazard Chemical Storage

High Hazard chemicals must be stored by each group in separate, clearly marked storage places (dedicated cupboard, dedicated boxes in fridges or freezers). Chemicals should be clearly labelled with their associated hazards and group name. Storage must be appropriate to the chemical properties e.g., strong oxidisers must not be stored with flammable substances.

A record must be kept of all incoming stocks showing date and amount (on the High Hazard chemical register on the SCS Health and safety folder for each building in the J- drive). This record must also be kept updated with the disposal of this chemical showing the date the chemical was completely disposed of by the method described in the written procedures.

Using Chemicals

We have 2 balances on level 2 in the WWCRC that are contained in fume cabinets. It is also possible to weigh out cytotoxic chemicals in these hoods as we have extra HEPA filters in place for this purpose.

Balances can be moved into fume hoods on other levels when required for weighing chemicals.

Please make sure any chemicals left in the fume hoods for future disposal are **CLEARLY** labelled with chemical and name of person and group responsible.

Common Chemical Warning Symbols

Toxic **H301, H311**

- General: wear gloves
- Weighing: If possible, avoid weighing fine powders and volatile chemicals on an open balance. Wherever possible open bottle in fumehood and add water directly to it. Protect third parties by clearing up any spills after yourself. Organic waste should be accumulated in a glass container (Winchester) - These should be filled to a maximum or 2/3 capacity and not overfilled) and should be regularly emptied into the appropriate waste container in the outdoor chemical store. Chlorinated solvents should be kept separate from other liquids. Or stored until a chemical waste pick up can be arranged through the through the chemical safety advisor for the building.

Toxic by inhalation H330, H331

- General. Precautions should be taken depending on quantities and toxicity of the compound. Small amounts may be handled on the bench. Larger amounts or more toxic should be used in a fumehood.
- Weighing: Avoid, if possible, because of the dangers of spills in opened containers. Instead add a measured volume of solvent to a bottle containing pre-weighed contents in a fumehood
- Solutions: Not generally hazardous, use in a well-ventilated room.

Highly toxic

- General: You must handle only over impervious surface which should be cleaned after any spills, as defined in your risk assessment. Work can be carried out in trays or secondary containers lined with Benchkote to contain any spills.

Carcinogens/Mutagens/Teratogens

H340, H341, H350, H351, H360, H361, H370, H372

- General: Is your experiment necessary? If so, purchase the minimum quantities required and use the smallest amount you can. Take precautions as for highly toxic. In addition, teratogens should not be handled by any woman who is or believes that she might be pregnant.

Caustic 

H311 – H313

- General: wear eye protection when handling concentrated solutions. Always add to water not the other way round

Very Caustic 

H310, H314

- General: Wear eye protection always. Do not store more in the laboratory than you need.

Flammable 

H220 – H228, H240-H242, H250-H252, H260, H261, H270-H272

- General: Beware of volatile substances with heavy vapours (e.g., ether or acetone) which can flash back. Make sure the room is well ventilated; use a fume hood wherever possible. Do not work with naked flames.

Oxidising Agent 
H272

May intensify Fire.

Explosive 

H200, H201, H202, H203, H205, H280

- General: You must understand the nature of the hazard and take the appropriate steps to counter it. Read the manufacturer's instructions and consult your chemical safety advisor if required. **Explosive chemicals need to be reported and recorded for the School and University Annual Explosive returns for submission to Police Scotland.**

Storing Chemicals

- Store chemicals as described by the supplier.
- Store hazardous and volatile chemicals in a fire-proof cabinet.
- Store acids separate from flammable solvents where feasible. Organic and inorganic acids should be segregated where possible. INCOMPATIBLE CHEMICALS
- Oxidising chemicals should not be stored next to flammables.
- Winchesters glass 2.5l bottles should always be transported using suitable carriers and never picked up solely by the neck. Found by fume hoods
- Check your stocks of chemicals regularly and properly dispose of any that are out of date or no longer required.
- There is an outdoor chemical solvents storage facility at the back of the Beatson stores for use of WWCRC building users. This can be used for large amounts of solvent storage. (The key for this is obtained in the Beatson Store)

  ……Building……..
- Please make sure any stored chemicals are clearly labelled with their name appropriate hazard warning clearly identified and also your group number. Do not leave chemical amounts to build up before disposal. STORAGE GUIDELINES

Chemical Spills

There are a number of chemical spills kits available that can be used for chemical spills as appropriate. Staff should make themselves aware of their locations and use prior to working.

Chemisorb spill kit granules for acids and alkalis spills available in the cabinets under the fume hoods on each floor (WWCRC). Spill kits in the POG are also available under the fume hood.

Formaldehyde and solvent granules spill kit (large green box) on level 2 room 232 next to the fume hoods.

In the external solvents waste store sand and granules are also available.

Large spill kit located on level 1 – instruction inside

Chemical Accidents

The chemical safety Advisor for the building must be notified of any accident involving a chemical carcinogen or other High Hazard chemical. This must also be reported to SEPS via online reporting incident form. REPORTING FORM

If a solution is spilled on an impervious surface, wipe up the liquid carefully with paper tissues, always working from the edge inwards. Place the tissue in a yellow sack for disposal. A chemical spill on a porous surface will generally necessitate destruction by incineration. Therefore, always carry out operation on trays lined with paper or Benchkote.

If clothes or shoes become contaminated with a chemical they must be removed at once and disposed of, hence the reason for wearing protective clothing.

Skin contamination with a chemical carcinogen is serious and should never occur if appropriate protective clothing is worn. If it does occur immediately absorb as much of the contamination as possible on paper tissues, taking care not to spread further. Wash the skin with cold running water, for a minimum of 10 mins, then repeatedly with soap and water. Never use organic solvents, these spread the contamination and promote absorption. Seek medical advice and make certain the accident is reported to SEPS and the Safety coordinator.

PEG treatment kit for phenol burns is available on each floor in the WWCRC near the ice machine.

Chemical waste disposal

http://www.gla.ac.uk/services/seps/waste/chemicals/

Most general laboratory waste which is uncontaminated or has only been exposed to very small quantities of chemicals can be considered non-hazardous for example:

- Paper towels, cloths, and tissues
- Packaging
- Disposable gloves
- Plastic items and glassware (including chemical bottles) that have been emptied and rinsed thoroughly*

Note: Prior to disposal any bottles or containers that originally contained chemicals must be thoroughly rinsed out three times with water or a suitable solvent, any solvent residue should be allowed to evaporate in a fume cupboard and labels should be defaced or clearly and unambiguously marked as empty.

Water soluble Chemicals

SEPS advice is now:

While the University of Glasgow is working towards a “zero to drain” policy it is recognised that for small quantities (typically 500ml or less) of low-hazard, water soluble substances it may be acceptable to wash waste to drain if copious quantities of running water accompany the waste to ensure adequate dilution. The judgement of what constitutes a low hazard substance, or an appropriate amount relies on the professional judgement of the individual bearing in mind that different thresholds may apply to different substances that even some seemingly innocuous chemicals can have adverse effects on the environment. Large quantities or highly concentrated substances should always be disposed of properly via an approved contractor. The list below gives some guidance as to the classes of chemical which may be disposed of via the drainage system in small quantities with dilution. This list is not intended to be exhaustive but in the event that a substance is not listed then further advice should be sought.

- Dilute acid solutions (not including HF)
- Dilute alkaline solutions (not including ammonia)
- Non-toxic, water-soluble alcohols
- Non-toxic, water-soluble inorganic salts (e.g. sodium chloride, sodium citrate)
- Small quantities of detergent used for cleaning
- Disinfectant solutions at the working concentration only (i.e., 2% Virkon)
- Hypochlorite (bleach) solutions at the working concentration only

• Dilute, aqueous chemical solutions (below the relevant threshold levels)
• TAE / TBE buffer at the working concentration only (not including stock / concentrated solutions)

Note: Although it may be acceptable to wash small quantities of the above substances to drain with copious quantities of water it is not acceptable to deliberately dilute bulk waste chemicals for the purposes of disposal. Any large quantity of waste should be retained safely for disposal via an approved contractor.

Note: Remember that even dilute solutions of incompatible substances may react violently if they come into contact within the drainage system potentially producing flammable or toxic products (e.g., **Virkon will react with bleach to produce toxic chlorine gas**). Care should be taken to ensure that the risks are properly assessed before disposing of any substance via the drainage system.

Organic Solvents

Non-hazardous water miscible ones can be treated as described as above for water soluble compounds.

Water Insoluble chemicals

Should be disposed by placing in the chemical solvents store for disposal via an external contractor and the chemical and amounts recorded. The chemical store is located at the back of the Beatson Stores and the key for the store can be obtained there **(key 5)** or arranged via your chemical safety advisor. Please label any chemicals left for disposal and fill out the inventory sheet with amount. their hazards and your name and group and inform your chemical safety officer.

Hazardous Chemicals

- Hazardous chemical waste may include oils, solvent waste, reaction by-products, washings, chemicals that are obsolete / out of date chemicals, water treatment chemicals, biocides, unknown substances, and novel compounds. It may also include any chemically contaminated equipment, containers or sharps which cannot be safely decontaminated including filters, contaminated spill absorption media and needles (whether contaminated or not).
- Use the documented route in the risk assessment, MOST will require disposal via an external contractor.
- DO NOT dispose of volatile toxic substances by evaporation in a fume hood. They should be disposed of via an external contractor.
- Any tubes / containers containing formaldehyde should **NOT** be sent for autoclaving, formaldehyde in small mounts can be disposed of by pouring down the fume hood sinks with copious amounts of water.
- The solvent store is also used to dispose of any waste solvents that require specialist disposal. There are various containers for designated disposal of chemicals. Please use the appropriate container and note the amount of chemical and what it is you have left for disposal for the records and to inform the chemical pick up company the types of waste for disposal. Chlorinate solvents should be kept separate from non-Chlorinated ones. Items for disposal should be itemised with amounts, form and chemical properties, entered on the inventory list in the store (on the shelves on the rhs) and the chemical safety officer informed.
- There is also an area for miscellaneous waste disposal, again note what you are leaving for disposal on the form in the store, and amount.

- Forms to arrange a chemical waste disposal available on the SEPS website. https://www.gla.ac.uk/myglasgow/seps/wastemanagement/chemicals/ This

- this is currently carried out by Tradebe who the University approved company for this service are.
- Forms for the disposal of unknown substances can also be found here. CHEMICAL WASTE

Tradebe provide chemical waste collections on request but will also visit the University regularly every 28 days to pick up chemical waste. If you would like to have your waste picked up as a part of this collection round, please fill in the usual paperwork and submit to Tradebe (uk.mts@tradebe.com) 5 working days before the collection date. Ask Chemical safety officer for pick up dates.

Further guidance on waste disposal from SEPS and form can be found at CHEMICAL WASTE:

Radiation

SEPS website http://www.gla.ac.uk/services/radiationprotection/

Local Radiation Protection Supervisors

Wolfson Wohl Cancer Research Centre	–	**Allan McVie**
Paul O'Gorman Building	-	No Radiation work carried out in building.

Registering to use radioisotopes

Before beginning laboratory work, all users of radioisotopes must complete a registration form. Forms found on RPS website RPS The completed form must be returned to your local Radiation Supervisor who will countersign and forward it to the University's Radiation Protection Service. All new radioisotope users must complete the training course run by Radiation Protection Services, and pass the associated examination, prior to starting radiation work. Where a worker has passed a course at another institution, a certificate of satisfactory completion at their former institution must be presented with the completed registration form.

Course information

http://www.gla.ac.uk/services/radiationprotection/radiationprotectioncourse/

Personnel who handle significant amounts of gamma emitters (including ^{123}I, ^{125}I, ^{131}I and ^{177}Lu), or who regularly exceed the laboratory handling limit for beta emitters (see handling limits below), will need to be registered as a classified radiation worker. However, most staff within the SCS are unclassified radiation workers.

Both classified and unclassified radiation workers are treated in the same way, in that all radiation workers are provided with a dosimeter to record their radiation dose. The only difference is that classified workers are permitted to use larger doses of radioactivity in Controlled Radiation Areas and are subjected to an annual radiation medical. Unclassified radiation workers are permitted to work in Controlled Radiation Areas also, providing they adhere to the handling limits displayed in the 'Systems of Work' found on the entrances to Controlled Radiation Areas.

Dosimeters

All people handling radioactivity or working in the vicinity of radioactivity will be issued with a badge dosimeter. It is a requirement of legislation that the dosimeter is worn and returned in accordance with the current University policy. It should be worn at chest level for best effect. The dosimeters are changed every 2 months. Supplied by RPS via advisor.

Finger dosimeters are available for staff that regularly dispense higher levels of radioactivity; contact your local Radiation Protection Supervisor if you think you may need one.

Pregnant and Breast-Feeding Female Workers

Female workers who become pregnant should inform the University Radiation Protection Adviser (URPA) in writing after becoming aware of their pregnancy. Likewise, workers who are breast feeding should inform the URPA. (THIS INFORMATION IS TREATED IN STRICTEST CONFIDENCE; DETAILS WILL NOT BE DIVULGED WITHOUT PRIOR WRITTEN CONSENT).

All efforts must be made to ensure that the dose to the foetus is <1mSv for the remaining period after pregnancy has been confirmed. Women who are breast feeding should make every effort to ensure that their exposure to radiation is minimal.

Risk Assessment

A risk assessment must be carried out for any new procedure involving the use of radioactivity prior to the work commencing. The assessment form can be found on the RPS website and must be reviewed and updated regularly. The risk assessment must identify the hazards, evaluate the nature and magnitude of the risks to which workers and other people could be subjected, and describe the measures that must be taken to minimize the risk. All new procedures must be registered with the local Radiation Protection Supervisor.

The Wolfson Wohl Cancer Research Centre has 1 Controlled Radiation room on level 1 (room 138) controlled by secure access. Access to this is obtained by undergoing the correct training and registration from Allan McVie the local Radiation protection supervisor for the building. Allan.McVie@glasgow.ac.uk

……..Building contact ……

Both classified and unclassified radiation workers have access to this area. Radiation Room 138 has a tissue culture hood, fume hood and 37 °C incubator.

Good Laboratory Practice

- Know the physical and chemical properties of the radiochemical you are using.
- When using radioactivity, always wear appropriate protective clothing, including lab coat, double gloved hands, dosimeter, and finger badge.
- Be sure not to exceed the maximum storage and handling limits; and adhere to the ALARP (as low as reasonably practicable), least time and distance principles.
- Ensure radioisotope stock cards are constantly kept up to date so they accurately reflect what activity has been used, radioisotope stock remaining, and the total waste disposal down the sink or into solid waste bins.
- Radioactive solid and liquid waste to be disposed of according to Local Rules (see below). Disposed waste is then to be logged on the appropriate disposal forms.
- Work area should be clearly marked using radioactive warning tape, and work should be conducted on plastic trays to contain any possible spills.
- Radioactive work is strictly to be conducted in Supervised or Controlled Radiation Areas only.

- Appropriate shielding (Perspex or lead screens, lead apron etc) should be used depending on the isotope and decay energy and should be determined following completion of a detailed risk assessment. If in doubt, seek advice from your local Radiation Safety Officer.
- Monitor work area continually using a Geiger-Muller counter. Especially your gloves, Gilson pipettes and bench area etc. Spills must be mopped up using Decon and blue roll, contaminated gloves should be disposed of and replaced. If contamination persists, clean again with Decon until no longer detectable. All contaminated gloves/blue roll to be disposed of as solid radioactive waste.
- In the event of radioactive spillage, don't panic! Try to contain any spills using blue roll and monitor yourself for possible contamination, removing any contaminated gloves/lab coat/clothing. Should you require help, be sure to monitor the soles of your shoes and the surrounding floor, to prevent the spread of contamination beyond the spill area. In the event of a large spill, the Radiation Safety Officer should be informed, they can also give advice on dealing with spill.
- Spills to be reported to Radiation advisor and then RPS if required.
- Transport of radioactive between rooms/buildings should be conducted using appropriate shielded containers (Perspex or lead boxes) to protect yourself and others and avoid the possible spread of contamination.
- Be especially aware of the danger of contamination of micro centrifuges. Always monitor after each spin. If a rotor is contaminated, do not remove it from the isotope room (WWCRC 138), wash it with water in the sink used for liquid waste disposal (note that most rotors will be damaged by strong detergents). The waste water from this is flushed down the waste disposal sink. If contamination cannot be removed, you may have to keep the rotor in a safe place with suitable shielding until the activity has decayed.

Storage and Handling limits

The storage and handling limits for common laboratory use isotopes within the University of Glasgow can be found in note 8 of the RPS Radiation Protection Notes (which can be found at: http://www.gla.ac.uk/services/radiationprotection/radiationprotectioncourse/coursenotes/).

The Wolfson-Wohl Cancer Research Centre is registered to use and store the following radioisotopes in Controlled Radiation Areas:

Radionuclides	Maximum quantity	Purpose
Tritium	1 Gigabecquerel	Teaching and research
Iodine 125	250 Megabecquerels	Teaching and research
Iodine 131	1300 Megabecquerels	Teaching and research
Iodine 123	800 Megabecquerels	Teaching and research
Phosphorous 32	200 Megabecquerels	Teaching and research
Yttrium 90	2000 Megabecquerels	Teaching and research
Lutetium 177	2000 Megabecquerels	Teaching and research
Any other beta / gamma taken together	400 Megabecquerels	Teaching and research

Unclassified radiation workers are permitted to work in the Controlled Radiation Areas in the Wolfson-Wohl Cancer Research Centre, providing the following handling limits are abided, and manipulations are carried out in accordance with the Local Rules.

Radioisotope	^{3}H	^{14}C	^{35}S	^{33}P	^{32}P	^{125}I	^{131}I
Stock solution maximum activity (MBq)	500	250	250	250	50	5	5
Dispensed aliquot maximum activity (MBq)	500	50	50	50	5	5	5

Use of Iodine Isotopes

Chemical compounds containing radioactive iodine are particularly hazardous since there is a possibility of a release of volatile free iodine which will create an airborne contamination hazard. Moreover, an intake of radioiodine will concentrate in the thyroid gland, irradiating the gland at a high level. An information sheet giving details of the precautions which should be observed in the use of radioiodine is available from the Radiation Protection Service website.

Maintaining Laboratory Records

Record Card

Record cards should be obtained from Allan McVie upon receipt of radioisotope delivery and should be kept in the record card tray in Controlled Radiation Room 138. The radiation worker responsible for the isotope must make sure that the record card is accurate and fully up to date, so they accurately reflect what activity has been used, radioisotope stock remaining, and the total waste disposal down the sink or into solid waste bins. Upon source disposal, completed record cards should then be returned to Allan McVie. Allan.McVie@glasgow.ac.uk WWCRC

Waste Disposal Forms

It is the responsibility of the radiation user to log each solid and liquid waste disposal on the forms located in Controlled Radiation Rooms. This information should mirror what is detailed on the record card.

Radiation Room Monitor Form

Radiation rooms are to be monitored before and after use with a Geiger-Muller counter. Areas to be frequently monitored include work area, fume hoods, disposal sinks, hand wash sinks, door handles. Readings are to be recorded on the room monitor form.

All radioisotopes are delivered to the Radiation Protection Service; it is then delivered to the appointed radiation representatives for the building. They will then record this into the local system and a Radiochemical Stock card generated with a source code, which will be then given to the end user who will complete it each time stock is used. Once the source has been discarded, the date and total sink disposals are recorded, the card is returned to the local radiation representative for the building, and these details are then forwarded to the RPS.

Storage

All radioisotopes to be stored in the fridges and freezers situated in Controlled Radiation Rooms. Radioisotopes, both stock solutions and dilutions, should be clearly labelled with source code, name and date. Sources should be shielded in lead pots/boxes within the fridges and freezers.

Disposal of Radioactive Waste

Sharps

To be disposed of in a sealable plastic bottle (old media bottles are ideal) before being placed in solids waste bag.

Solids

Must be discarded in a double black bag, which is then sealed with radioactive tape and placed in red metal bin in Radiation Rooms (see below).

Liquids

Discard into a glass Duran bottle containing 5-10 ml Decon, leave overnight in acid cupboard under fume hood (shielded) to allow neutralisation of biological hazards (ensure bottle labelled with radioactive tape, isotope, source code and date). Discard down radiation waste sink in Radiation Rooms, running tap to ensure waste is properly flushed down the sink, monitor sink for possible contamination - leave tap running if counts are still detected (>5cps). Liquid waste is to be stored if monthly sink disposal limit has been reached.

Metal Bins

Solid waste bags are to be disposed of in the red metal bins, which are lined with a large black plastic bag, and sealed using radioactive warning tape once full. The bin lid is then secured, and a disposal label is completed which includes details of the radioisotope, total activity disposed, radiation user, date, bin number and location. The bin is then taken to Radiation Waste Room, which is located at the back of the Beatson Stores, (WWCRC) where it is exchanged for a new metal bin.

Animal waste

Special arrangements exist for the disposal of radioactive animal waste, or any other waste that may putrefy on storage. Do not include any such materials with the normal radioactive waste. The Radiation Protection Service will provide advice in each individual case. Keep the waste frozen until the day of disposal.

Emergency Procedures

Be familiar with the emergency procedures appropriate to your work area.

All accidents involving contamination of personnel must be reported immediately to the Radiation Protection Supervisor. If a spillage can't be cleaned up immediately, isolate the contaminated area and mark it with radioactivity warning tape. If high-energy emitters are involved (e.g., 32P or 125I), clear the immediate area and make sure that no other lab workers go near the contamination. Contaminated clothing should be removed and sealed in a polythene bag. The contaminated area should be decontaminated as soon as possible under the supervision of the Radiation Protection Supervisor. As far as possible, prevent any spread of radioactivity from the spillage area. Working radiation area must be properly equipped to ensure a safe environment and should have the following - Geiger counters, shields/screens, Benchkote, plastic bags, decontamination solution (Decon), radiation warning signs and tape.
Basic Radioactive Spill Kits are provided (1 kit inside room 138 and one outside room 138) and include a spray/squeeze bottle of decontamination solution, absorbent towels, gloves, overshoes, and safety glasses. Suitable Personal protective equipment should be worn- lab coats, disposable gloves and arm guards, dosimeter.

Buildings where dedicated showers are available should be used check local information. Where dedicated showers are not available, then contaminated skin should be washed off using the sink in the radiation

room. If further washing required then proceed to nearest shower location, however, **monitor shoes prior to exiting radiation room and remove if contaminated**.

Shower location in building: -WWCRC level 1 shower and locker rooms at back of building

If a person is injured and contaminated, he/she should be sent without delay to the nearest accident and emergency unit, and the nature of the contamination given when dialling security ext. 2222. (Garscube) Someone who is aware of the radioactive hazard must accompany the casualty. Another member of staff should be nominated to oversee the laboratory cleaning up process.

Additional advice may be sought from:
Mr Jim Gray, University Radiation Protection Adviser, ext. 4471,
Mrs Janice Thompson, University Radiation Protection Officer, ext. 5878
Or National Radiological Protection Board - (office hours) 0141 440 2201 or (outside office hours 0141 440 2436), or
Health Protection Agency - 01235 822782

Non-Ionising Radiation - UV Sources

http://www.gla.ac.uk/services/radiationprotection/non-ionisingradiations/

UV Sources

UV sources can be found throughout the School buildings and are used for a variety of purposes, from cell irradiation to transillumination.

Eyes and skin can be burned using UV transilluminators or UV light boxes. Always wear UV-protective safety glasses or a UV shield. Use a UV shield if you will be manipulating a gel, as your face can be easily burned. Also, wear long gloves that protect your wrists.

When using bactericidal UV lamps enclosed within microbiological safety cabinets, hands and arms must be fully protected. The RPS can check UV light boxes or cabinets for leakage of UV radiation; this service is available on request.

Lasers

For advice on safe use of Lasers please contact Mr Jim Gray, University Radiation Protection Adviser, ext 4471

University of Glasgow - MyGlasgow - Radiation Protection Service - Non-Ionising Radiations

Laser Operator REGISTRATION FORM

Laser Risk Assessment Form

Safe Use of Sharps

- Avoid the use of sharps unless they are essential.
- Use alternative safety sharps where possible.
- Use forceps to hold tissues or materials.
- Use blunt instead of sharp needles, scissors, and forceps.
- Do not hold materials with hands unless there is really no alternative, and it is essential.
- Generally, the further apart your two hands are the less likely you are to injure yourself in a sharps accident.
- Do not pass or transfer used sharps to other people.
- Do not re-sheath needles.
- Store sharps where necessary in solid boxes to prevent contact with them causing injuries.
- Do not leave your sharps lying around since they can injure you and other people and cause accidents.
- Dispose of sharps immediately after use.
- Use puncture resistant sharps bins to dispose of used sharps.
- Do not push objects or fingers into opening of the sharps bin.
- Kevlar or chain mail gloves can offer useful additional protection for some activities.

Dealing with Sharps

Scalpel Blades

Scalpel blades must always be disposed of in CinBins/ sharpsafe box. Full CinBins/sharpsafe boxes should be dropped off at the relevant point for each building.

Hypodermic Needles and Syringes

Under no circumstances should needles be re-sheathed with the needle cover prior to disposal in a Cinbin /sharpsafe. Re-sheathing increases the likelihood of a needle stick injury.

Blunt needle are available from B.Braun (via Avantor (formally VWR) as well)
Sterican Semi blunt needles Cat no 4550400-01
Sterican Blunt needles cat 4038088-01
WELA8881202363 Avantor

Broken Glass and Pasteur Pipettes

Broken glass should not be disposed of into Cinbins/sharpsafe, but safely boxed and put out with general waste, provided there is no additional chemical or biological hazard. A dustpan and brush should be used for this purpose (a piece of blutac or wad of wet tissue roll can be useful for collecting awkward slivers of glass which do not brush up easily). If a chemical is involved, proceed as for chemical spillages, and then sweep up the glass. **Biologically contaminated glassware should always be autoclaved before disposal**.

Broken Glass, Sharp Objects Contaminated with Cytotoxins

Contaminated with cytotoxins must be disposed of in specific cinbins/sharpsafe boxes these have a purple top they should be labelled and sent for disposal with the appropriate duty of care and consignment note.

Broken Glass, Sharp Objects Contaminated with Radioactivity

Sharp objects or broken glass which are contaminated with radioactivity should be placed in a plastic CinBin or sealable plastic bottle (old media bottles are ideal), before being placed in solids waste bag. This should then be discarded in a double black bag, which is then sealed with radioactive tape and placed in red metal bin in Radiation Rooms. Then it can be sent to the University Radiation Protection Service for disposal.

See radiation section p66

Liquid Nitrogen

Requires training prior to using this facility.

Access to the Nitrogen Cryostore facility for the WWCRC building is by door access control and requires staff to complete Cryosafety training prior to gaining access.

This can be arranged via **Caroline O'Connell / Karen Thomas** in the Beatson Institute. **Appendix 6**

Building Contact for training……Paul O'Gorman LRC: Alan Hair (GG&C SOP)

When collecting or dispensing liquid nitrogen two people must be present. It is School policy that this task must not be undertaken by a member of staff/student working on their own. Collecting and dispensing of liquid nitrogen is not allowed out with normal working hours unless with special permission and emergency procedures knowledge.

General Safety Precautions

Liquid nitrogen at -196 degrees C is kept in double-walled steel vessels specifically designed for the storage and transport of cryogenic gases.

When dispensing quantities necessary for handling cryo-preserved materials, or for cooling purposes, or when transferring liquid nitrogen from one container to another, observe the following rules.

1. Suffocation Hazard - Work in a well-ventilated area. Always use alarms /O2 sensors if provided.
2. Wear protective goggles, or a face-shield, thermal gloves, and a laboratory coat. Absorbent material close to the skin (e.g., gloves) should not be exposed to contact with liquid nitrogen. Do not wear open toed shoes or sandals when working with liquid Nitrogen.
3. Decant liquid nitrogen slowly, especially into vessels at room temperature since rapid vaporisation sprays cold droplets into the atmosphere until equilibration of temperature is reached.
4. Containers, other than large storage Dewar's, should be of rigid polystyrene ('Styrofoam') or double-skinned metal construction. Do not use glass or plastic 'thermos' flasks not designed for cryogenic gases, as there is an implosion risk from thermal shock during filling.
5. Do not touch any non-insulated surface cooled to liquid nitrogen temperatures, as adhesion of the skin will occur. Handle all cooled objects with tongs or forceps.
6. ALWAYS replace stoppers or lids, loose-fitting only - never seal vessels containing liquid nitrogen, as this could create a risk of an explosion.

First Aid Treatment for Cold Skin Burns

- Flush the area of skin with tepid water.
- Do not apply direct heat or hot water.
- Do not use a forceful flow of water as this can cause tissue damage.
- Move the casualty to a warm place and seek medical attention.
- If burn severe call an Ambulance.
- While waiting for medical attention, continue to flush with tepid water and remove any tight jewellery.
- Do not offer the patient hot beverages.

Transporting Liquid Nitrogen

Always use protective gloves provided as well as wearing a lab coat and no open toed shoes or sandals. When transporting liquid nitrogen only use designated Dewar's and flasks inspect these regularly to ensure there are no cracks or leaks, only use trolleys which are specifically designed for use with the particular Dewar /flask.

If using a lift under no circumstances travel in the elevator with the container of liquid nitrogen. (enclosed space with poor ventilation) One person should send the lift to the appropriate floor while another person waits at the floor which the liquid nitrogen is to be sent. Clearly mark the Dewar /flask with a sign warning liquid nitrogen do not enter lift this will warn staff/students in the event of the lift stopping between floors; if there are specific mobile warning gates for the lift, please use them.

For further information please follow the link Cryogenic substances and click on the link for liquid nitrogen at the bottom of the page.

Use of Pressurised Gases

Gas Cylinders

Large gas cylinders must be handled with care because serious injury can result from a cylinder toppling over and, for example, crushing a foot or breaking the cylinder's main valve leading to an enormous release of energy and turning it into a lethal projectile. DO NOT ATTEMPT TO MOVE A CYLINDER WITHOUT A CYLINDER TROLLEY. Gas cylinders are colour coded. Be sure to correctly identify the cylinder you want before using it. The correct reduction valve for the gas must be fitted to the cylinder prior to use. Do not attempt to do this unless training has been given. TRAINING IS ORAGNISED VIA SEPS and external contractor. Never move a cylinder with its reduction valve still in place, as this greatly increases the chance of snapping the cylinder neck in an accident. Gas cylinders other than "lecture bottles" must be securely strapped to benches or walls using an approved fitting. When not in

use, cylinders should be turned off, not merely at the reduction valve, but at the main cylinder valve as well (after which the gas in the reduction valve should be released).

- Ensure that there is an appropriate warning label on the external door of the laboratory.
- Ensure that the valve and regulator are free of grease.
- Care must be taken with oxygen.
- The use of Teflon tape (plumbers sealing tape) on the threads of cylinder regulators is prohibited by the PSSR 2000 regulations.
- Note that using nitrogen or argon in confined spaces poses an asphyxiation hazard. Carbon monoxide is very toxic, and hydrogen and carbon monoxide are both flammable and can present an explosion risk.
- Regulator valves on gas cylinders have only a 5-year life span, please ensure that they are in date and are replaced in good time.

Compressed Gases

Pressure Equipment

The Pressure Systems and Transportable Gas Containers Regulations 1989 cover all systems in which gas or vapour is contained at pressures greater than 0.5 bar above atmospheric pressure, including gas pipelines. Equipment with a pressure vessel in which the energy exceeds 250 bar litres must be registered with the university and be subject to periodic examination by an insurance engineering inspector. In addition, equipment covered by the above regulations must be certified as being suitable for its purpose by a consultant engineer before being used.

- Laboratory equipment, including pressure cookers (microwave pressure cookers) and gas distribution systems, are included in this.
- The regulations do not cover vacuum or hydraulic systems.
- Includes autoclaves, compressed air generator systems and gas pipe manifold valves. (Estates and Buildings do not organise this work, it is up to the individual buildings to organise this with the Insurance inspectors currently Zurich Insurance, and there must be an inspection scheme in place and regular maintenance.

Useful links http://www.gla.ac.uk/services/seps/az/pressuresystems/

WASTE STREAMS in University Buildings (NHS buildings see local rules)

See Appendix 13

For all H&S and waste related issues within the **Laboratory Medicine Building**, please see NHS Pathology Policy available through Q-Pulse.

Recycling – paper, plastics, cardboard **- White and blue recycling bins** in office and lab areas.
Glass recycling in outside bins

General Waste – non-hazardous waste not suitable for recycling **Black bags in bins** in lab areas **and small clear bags** in bins office areas.

Hazardous waste – autoclave bags yellow and purple bags, sharps bins (yellow and purple lids)

Waste Inactivation and Disposal

- Waste should be properly labelled, safely handled, stored, transported, and disposed.
- Waste should be properly inactivated using a validated means before disposal.
- Waste bags and sharps bins should not be overfilled.
- Dispose of waste safely using appropriate containers and correct waste route (e.g., waste bags or bins, sharps bins, hazardous or non-hazardous waste, biological, chemical, or radioactive waste etc).
- Validation and monitoring of effectiveness is required to prove that inactivation method works.
- Effective disinfectants should be available.
- Disinfectants should be suitable for the biological agents and hazards, genetically modified organisms, animals, and plants used in the work.
- Regular decontamination of surfaces of safety cabinets and benches is required.

In all cases the producer of waste has a legal responsibility to discharge their duty of care from the moment the item or substance becomes waste to its final destruction.

Disposal of Biological waste users guide for information and classifications of the different waste streams.

Biological waste

SRCL Colours and Disposal routes for University Buildings

(NHS run buildings will have their own disposal routes to follow)

Colour of bags or sharps lids	Classification of waste suitable for this stream	Description of Disposal method
ORANGE	Infectious Waste Suitable for Alternative Treatment (not incinerated)	Hazardous Waste for alternative treatment (autoclave /shredding/ landfill). May include Sharps but not those containing Pharmaceuticals / cytotoxic.
RED	Infectious anatomical waste for incineration	Human anatomical parts that require incineration due to infection hazard.
YELLOW	Infectious Sharps waste for incineration	Sharps containing infectious material.
YELLOW	Sharps containing pharmaceuticals other than Cytotoxic	Sharps containing pharmaceuticals other than Cytotoxic.
YELLOW	Highly Infectious waste for incineration	Waste from work that is not anatomical but requires incineration due to infection hazard. Sharps containing Pharmaceuticals.

PURPLE	**Waste Containing cytotoxic or cytostatic contamination for incineration.**	**Waste from Work that contains cytotoxic / cytostatic compounds. Cannot go for alternative treatment, must be incinerated.**
BLUE	**Non Hazardous medicines for incineration.**	**Medicines. Cannot go for alternative treatment require incineration.**

See Appendix 13 for Waste disposal routes in WWCRC

Glass Waste Disposal

SEPS Link http://www.gla.ac.uk/services/seps/waste/glass/

It is the aim of the University, where practical, to recycle glass. Glass for recycling should go in the outside glass recycling bins.

Pyrex and other high melting point glass

This type of glass, whether arising from a laboratory or other area, is **unsuitable for recycling** due to the high temperature at which it melts. Placing this type of glass into the recycling stream would result in the entire batch of glass with which it is mixed becoming unsuitable for recycling. It is therefore extremely important to ensure that these types of glass are not placed into the glass recycling bins. Provided it is not contaminated with any substance that would result in it being classified as special waste (i.e., hazardous) these specialist glass types can be disposed in the general waste stream.

Glass from laboratory and other non-catering processes

Waste glass that is contaminated with hazardous materials, and is classified as special waste, must not be disposed through the general or recyclable waste stream. It may be possible to safely decontaminate the glass. If this is possible then the glass can be streamed for recycling or general waste (Pyrex). **Glass for recycling should not be placed into the containers used for mixed recyclable waste**. It should be deposited directly into the **dedicated glass collection bins**. If decontamination is not practicable then the glass must be disposed as special (i.e., hazardous) waste. Further information on identifying special waste and on how to dispose of special waste is available on SEPS web site.

- Make sure that all containers that you dispose of are completely empty.
- When disposing of glass bottles or containers be aware of the statements on the label. If the label indicates that the content was hazardous, and you have ensured that the container is fit for disposal through the recyclable glass waste route, you should score out any part of the label that implies that it is hazardous. This may include the name of the material it has held and any hazard symbols that are displayed on it.
- Used microscope slides may be disposed through the glass recycling route provided they are not Pyrex and any material (e.g., tissue sections, blood smears) that is on them is not hazardous.

General note on handling waste glass

When collecting and handling glass for disposal you should ensure that it is suitably contained to avoid the risk of cuts and scratches to those dealing with it. In the case of non-hazardous glass, if it is not practical to immediately transfer waste glass to the relevant external bin, a robust collection container should be used for temporary storage. This container should be securely sealed prior to transporting directly to the external bin. Glass should never be placed in any bin where a bin liner is used if this liner is then removed and carried with no further protection being in place for the operator.

Electrical Safety

http://www.gla.ac.uk/services/seps/a-z/electricalsafety/

Mains Electrical Installation

As a general principle, Estates and Buildings are responsible for the mains electrical installation within the building and any faults that you see on the mains system should be reported to the janitor (WWCRC) (ext. 5644) who will put in a request to Estates and Buildings. This could include things like loose socket outlets, lights or sockets not working.

Or a fault can be reported on the Estates and Buildings Helpdesk - report a fault website.

……..Building Contact……

Portable Appliances

- All new electrical appliances brought into the School must be PAT tested before they are used. Contact John McDougall John.McDougall@glasgow.ac.uk or local building staff trained to carry this out to arrange this.
- All electrical equipment should be inspected regularly to make sure that it is in a safe condition. ALL users should be alert to the risk from damaged equipment and should visually check equipment that they use regularly. This requires no special skills. The sorts of faults you may find are simple and obvious things like damaged cables or plugs or damaged equipment casings.
- If you find faults on equipment, DO NOT USE the item. Remove it from service and notify your principal Investigator PI or group safety representative of the fault.
- Do not use electrical equipment in wet conditions unless it is specifically designed for that environment.
- Laptop / mobile phone charges. Check any electrical items are suitable voltage.

Guidance on inspection follow link http://www.gla.ac.uk/media/media_142469_en.pdf

Precautionary Measures

- Ensure that portable appliances in use in the laboratory are in good condition.
- Do not use any equipment in a manner that breaches manufactures' instructions.
- Select equipment suitable for the environment in which it is to be used.
- Remove as far as is possible any external hazards from the work area.

Redundant electrical equipment

Where equipment is surplus to requirements but is in good condition/working order, you should attempt to transfer it to another College/School/School within the University. (WARPit can also be used)

If this is not possible, or if the equipment is beyond its useful life, then it must be disposed *via* the University appointed supplier for the disposal of WEEE- CCL North. Information on DISPOSAL procedures can be found on SEPS web site.

In all cases the equipment must be correctly decommissioned & decontaminated prior to transfer or disposal. Upon decommissioning & decontamination a 'Safe for disposal' notice must be affixed in a prominent place on EACH PIECE of equipment. This notice can be downloaded at:
http://www.gla.ac.uk/media/media_292014_en.pdf **See Appendix 12**

Decontamination of equipment prior to repair.

Equipment should be assessed for biological, chemical and radiation hazards prior to repair. The equipment should be decontaminated as far as practical according to the manufacturers/suppliers protocol. The appropriate safety clearance certificate should be attached. **See Appendix 11**

Check list for disposal

Check List

- All items including chemicals and biological materials have been removed.
- All internal and external hazard warning signs have been removed.
- Safe for disposal' sign has been attached to equipment.
- Identifying labels or asset register PAT testing stickers are removed.

Equipment

In general, do not use any equipment unless you know the correct procedures for their use and safe systems of work, along with any booking procedures. Most large or specialist pieces of equipment will be assigned a curator, who should be contacted for training prior to use. Please also ensure that you clean up any spillages that occur during use and report any faults or problems to the appropriate person. If you are untrained and use a piece of equipment and damage it, it is unlikely that the Insurance Company would be willing to support our claim.

Use of Equipment in cold rooms.

Equipment used in the cold room must be PAT tested before use, and when removed from cold room must be allowed to equilibrate to room temperature and any condensation that has formed on the electrics allowed to evaporate before further use. Minimise the use of equipment in cold rooms and check regularly for condensation. Switch off when not in use and if condensation forms.

Centrifuges

Centrifuges can be dangerous if not operated in strict accordance with the manufacturer's manual. TRAINING should be undertaken and will be provided for this equipment. The Ultra centrifuge and High-speed Centrifuges are maintained on an annual contract and rotors inspected annually. Rotors are very expensive; the life of a rotor can be extended by ensuring that it is washed out after use. Harsh disinfectants such as **DECON MUST NOT BE USED** to clean rotors. Any rotor defects or signs of corrosion must be reported to technical staff or the Safety Co-Ordinator for that building at once.

In the event of a tube breakage or spillage occurring in a centrifuge whilst in operation the following procedure **must** be undertaken:

- Shut down centrifuge power.
- Leave the lid closed for at least 30 minutes to allow aerosols to settle.
- Notify technical support staff.
- School a clean-up procedure avoiding harsh cleaning or harsh disinfecting agents.
- Use appropriate disinfectant to render safe the biological agent in use at the time of the incident.
- All accidents/ Incidents must be reported using the University reporting procedures.

Electrophoresis equipment

Electrophoresis equipment may operate up to 5000V and therefore incorrect operating procedures or equipment defects are very hazardous. Power must be switched off at the mains and power pack before connecting, disconnecting, or checking any part of the system.

- Electrical connections at the gel tank must be fixed and be provided with adequate shrouding.
- All switches, electrical connections, insulation, and enclosures must be suitable for their environment and working voltage.
- All equipment must be regularly examined by a competent person and any defects must be rectified immediately.
- Understand your electrophoresis equipment and its limitations, run strictly in accordance with the manufacturers/suppliers' requirements.
- If the system is to be run on a constant current, ensure there is an upper current limit set. There have been many instances of electrophoresis equipment catching fire in laboratories - check all systems carefully before every run.
- High voltage electrophoresis must not be run out of normal working hours. The high voltage electrophoresis systems must be monitored during operation.
- OVERNIGHT USE –FORM FROM SEPS should be used and placed on door or near experiment to advise personnel (security, cleaners) who to contact if any issues out of hours.

Fluorescent Microscopes

If using fluorescent microscopy for the first time, obtain expert advice from trained staff within the building who will be able to provide or arrange training of this equipment. CONTACT DETAILS – Allan McVie WWCRC

- Never look directly at the light source (radiation hazard)
- Do not align the mercury source.
- Never remove the light protective acrylic shield from the confocal microscope (positioned in front of the light source)
- Never open compartments of the microscope.
- Never remove objectives, or remove protective caps from empty objectives, or change the position of objectives.
- Never insert reflective objects into the emitted light path.
- Never use another lens (eyepiece/ telescope/ magnifying glass etc.) to view the light emitted by the objective.
- If images of a navy-blue appearance are obtained, check immediately that the correct filters are in place.
- Never view the image unless the background is black in colour.
- Cease work immediately if there is an incidence of prickly eyes or headache and seek medical advice. Remember that the symptoms often appear sometime after exposure (as with sunburn) so check the filters or advise staff responsible for the equipment accordingly.

Sonicators

- USERS SHOULD SEEK ADVICE AND TRAINING PRIOR TO USE to be aware of potential hazards.
- Generally, sonicators are used only for short periods of time but they can cause discomfort if protection measures are not in place. Unprotected sonicators can produce noise at levels more than those at which an employer is required to act.
- In this case action is, in part, in the form of an acoustic cabinet which when closed provides protection to those directly and not directly engaged in sonication and are sited in rooms away from general laboratory work. For these to work sonication MUST be carried out with the cabinet door closed.
- Those persons operating the sonicator should also wear the ear protection provided.
- Containers of solutions undergoing sonication should **not** be handheld, as prolonged use can cause subsequent swelling and pain in finger joints. Standard practice – to avoid samples overheating, noise leakage and damage to hands, is to sonicate for short bursts of time (seconds) only, using a clamp and stand.

  It is a legal requirement that workers are not subjected to noise at or above 80 dB(A) over the whole working day nor to impulsive noise at or above 112 Pascal's peak pressure (under the Control of Noise at Work Regulations 2005).

Microwave Ovens

The use of microwave ovens must comply strictly with the manufacturer's instructions. Do not try to operate an oven if the door is not fully closed.
Liquids heated in a microwave oven can be dangerously superheated, and may boil up unexpectedly when picked up, causing severe scalding. Hot agar or agarose solutions are especially hazardous.

Always wear thick water- and heat-resistant gloves when removing containers of liquids from a microwave oven and hold the container facing away from you to avoid spilling hot liquid on yourself.

Water baths

Legionella pneumophila can establish itself in water systems where the temperature is between 20°C and 45°C, and in agitated or stagnated water.

Laboratory water baths should be cleaned regularly, and a sanitising agent added to them such as ProThermal water bath treatment. (Which is provided in the tissue culture suites in the WWCRC).

Unattended equipment

If you are responsible for any apparatus which you intend to operate unattended or after normal working hours, a SAFE SYSTEM OF WORK MUST BE ESTABLISHED. This entails leaving detailed instructions beside the equipment of detailed actions to be taken, and the person (s) to be contacted, in the event of an accident involving the equipment. Use University FORM

Manual handling

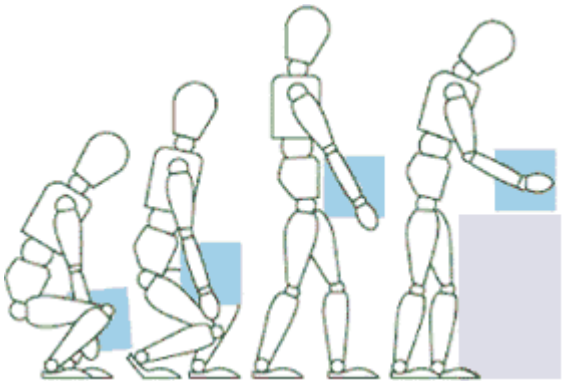
http://www.gla.ac.uk/services/seps/az/manualhandling/#d.en.182706

Introduction

Manual handling (lifting, carrying, and handling of loads) is one of the most common causes of injury at work resulting, typically, in muscular strains or physical injury. The management process required is a risk assessment. The starting point is to consider whether the manual handling task is necessary or if the work might be organised differently, or perhaps mechanised.

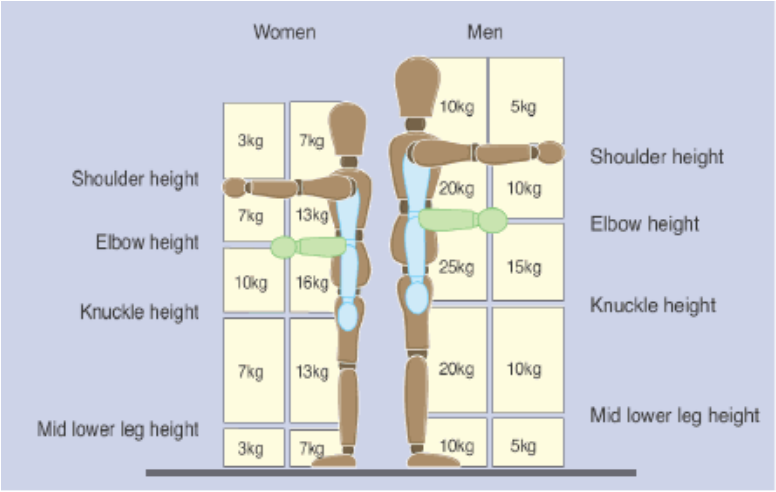
Guidance on manual handling: http://www.gla.ac.uk/media/media_249491_en.pdf

Information on Correct lifting techniques http://www.gla.ac.uk/media/media_249493_en.pdf



Risk Assessment

Where manual handling is essential, a risk assessment of the task(s) must be carried out. Where the risk is low, assessments can sometimes be done generically, for example, by looking at a particular type of handling operation. However, where risks are higher, the risk assessments will usually need to be specific to the task. Form



Source: HSE Leaflet, Getting to Grips with Manual Handling

Figure 1

Training

Staff members who are regularly involved in manual handling as part of their work must be provided with formal manual handling training and should also receive periodic refresher training. SEPS arranges Manual Handling courses. Information found on the training pages.

http://www.gla.ac.uk/services/seps/trainingandresources/manualhandlingandbackcare/

Manual handling training is available on Moodle for all other members of staff who carry out minimal or infrequent manual handling tasks i.e., office work, teaching etc. Follow this link to access. Manual handling training and use your GUID to log into Moodle. For access use the enrolment key below.

Enrolment Key: **ssbh01**

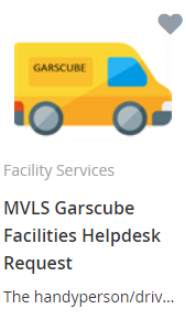
Trolleys should be used to move heavier items or for moving items a longer distance. These should be available in your building for your use.

Handyperson request Operational Handyperson/Driver Team web page

This is run by the MVLS Facilities team and provides services for:

- Stores deliveries
- Handyperson help in various buildings.
- Driving
- Equipment removal and relocation.

Please place an online job request if you require any of these services. Via U of G helpdesk request MVLS Garscube of Gilmorehill Facilities Helpdesk icon



"Hot" Work

http://www.gla.ac.uk/services/seps/az/hotwork/

Some building maintenance tasks may involve the use of equipment capable of igniting a fire. - Typically, this is known as "hot" work. Any group organising any repair that might require this type of work, should speak to the management of the building first to arrange a “hot works “permit and to disable any fire detectors in the area. New form available and system since March 2016.

APPENDIX LIST

Appendix 1	List of all safety personnel and contact numbers
Appendix 2	List of all group representatives for the various disciplines
Appendix 3	Competence Training form
Appendix 4	Nitrogen training form – (WWCRC)
Appendix 5	Safety Induction form for New Staff
Appendix 6	University Accident and Incident reporting form.
Appendix 7	Biological Risk Assessment Form
Appendix 8	Chemical Risk Assessment Form
Appendix 9	High Hazard Chemical Register Form for Building
Appendix 10	General Risk Assessment Form
Appendix 11	Decontamination form
Appendix 12	Safe for disposal form
Appendix 13	Waste Disposal routes in WWCRC
Appendix 14	University Safety staff contact details. (Biological, COSHH, etc)

APPENDIX 1

Safety Staff for each Building

	WWCRC	Paul O'Gorman	Lab. Med. Building, QEUH
Safety Co-ordinator	Stacey Hoare Ext 8707	Alan Hair (301) 7883	Nicola Small
Area Fire Officer	Sharon Burns Ext 6897	Des Keating 211 (5) 3325	Francis Deacon
Deputy Area Fire Officer	Allan McVie Ext 8124		
GM Safety Officer	Vignir Helgason Ext 7245	Vignir Helgason Ext 330 7245	Vignir Helgason Ext 330 7245
Biological Safety Officer	Sharon Burns Ext 6897	Alan Hair (301) 7883	
Chemical Safety Officer	~~Sarah Buchanan~~ ~~Ext 2566~~	Alan Hair (301) 7883	
Radiation Safety Officer	Allan McVie Ext 8124	No Radiation work	
First Aid Trained Staff	Sharon Burns Janitor Allan McVie Alfred Nisbet	Gillian Horne	Hannah Morgan
Fire Wardens			
Level 1	Facility Assistant Freddy Nisbet		
Level 2	Julie Galbraith		
Level 3		Heather Jorgensen Jennifer Cassels	
Level 4			

APPENDIX 2

List of Group Safety Representatives:

Wolfson Wohl Cancer Research Centre

M02 – Nicol Keith	Nicol Keith
M05 – Andrew Biankin	Selma Rebus
M07 – David Vetrie	Eric Kalkman
M08 – Vignir Helgason	Eric Kalkman
M11 – Translational Pharmacology Lab.	Eilidh McCulloch
M12 – Anthony Chalmers	Karin Williams and Karen Strathdee
M13 – David Chang	Selma Rebus
M14 – Paul Shiels	Sarah Buchanan
M15 – Andrew Biankin – (Sequencing)	Selma Rebus
M19 – Joanne Edwards	Jean Quinn
M20 – Adam West	Adam West
M21 – Julia Cordero	Yachuan Yu
M25 – Christine Halsey	Anand Manoharan
M28 – Oliver Maddocks	Alejandro Huerta Uribe
M33 - Ross Carruthers	Karin Williams and Karen Strathdee
M36 - Nigel Jamieson	Holly Leslie
M38 - Chiara Braconi	Colin Rae
M41 - Ross Cagan	Evangelina Stamou
M44 - Campbell Roxburgh	Leia Jones
M45 - Joanna Birch	Karin Williams and Karen Strathdee
M46 Fieke Froeling	Selma Rebus
M47 Conchita Vens	Karin Williams and Karen Strathdee

Beatson

Y95 – Leo Carlin Screening service	Lynn McGarry

Paul O'Gorman Building

PG2 – Heather Jorgensen	Heather Jorgensen
PG3 – Alison Michie	Alison Michie
PG4 – Mhairi Copland	Mhairi Copland
PG5 - Helen Wheadon	Helen Wheadon
PG6 – Karen Keeshan	Karen Keeshan

SCS Groups or Individuals based in the Beatson Institute.

M06 – Stephen Tait
M10 – Daniel Murphy
M22 – David Bryant
M27 – Lovena Delosi
M29 - Iain McPherson
M31 – Imran Ahmed
M32 – Seth Coffelt
M34 – Kristina Kirchner
M35 – Peter Bailey
M39 - Robert Insall

M40 - Kevin Blyth
M42 - John Le Quesne
M48 – Colin Steele

SCS Groups or Individuals based at the Beatson Oncology Centre, Gartnavel General Hospital.

M03 - Rob Jones
Stefano Schipani
Caroline Kelly

SCS Groups or Individuals based at the Queen Elizabeth University Hospital.

Karin Oien
Jennifer Hay

APPENDIX 3

University of Glasgow

School of Cancer Sciences

Competence Training Form

Trainee:

Job Category:

Principal Investigator:

Group Supervisor:

Building:

	Trainer Name	Signature	Date
The Trainee is trained and competent in the use of the **Containment level I Laboratory.**			
Door access activated by			
The Trainee is trained and competent in the use of the **Containment level II Laboratory.**			
Door access activated by			
The trainee is trained and competent in the use of the **Controlled Radiation Laboratory**			
Door access activated by			
The trainee is trained and competent in procedures relevant to non-GCP studies performed within a **GCP-compliant laboratory**			
Door access activated by			

APPENDIX 4 - BEATSON CRYOSTORE TRAINING FORM

Name: Trainer:

Group No: Date:

Please **tick the boxes *** below to show you have read and understood the SOP regarding the correct procedure for using the cryostore; and **to acknowledge you have understood and will comply with these safety procedures.**

Action	Procedure	Tick box *
Before entering cryostore	Check the oxygen levels on the gasguard panel and only proceed to enter if levels read >19%	
	Pick up an oxygen monitor from the box on the wall outside the cryostore and keep it with you at all times when inside the cryostore	
	If the low oxygen alarm and klaxon is sounding do not enter the cryostore and immediately inform L. Bence, P. McHardy, S. Fowler or R. Selkirk (or security if outside hours)	
	Ensure you have a colleague with you to act as a 'buddy' in case of problems.	
	Ensure you are wearing appropriate protective clothing- lab coat, no open toed shoes.	
Within Cryostore	Immediately on entering obtain further appropriate protective clothing i.e. visor, cryogenic gloves/gauntlets.	
	If the personal monitor/alarm sounds, close the storage vessel as quickly as possible and leave. Re-enter the room only after the monitor/alarm indicates Oxygen level has returned to normal – note make sure you are not dangling the monitor in or near the nitrogen tanks and generating a false alarm.	
	Be aware of the height and weight of the towers used for storage and observe the manual handling regulations. Where required use the mobile stairs in retrieval operations. If the tower is too heavy, ask for assistance from a colleague or contact Laura or Peter who can assist.	
	If any of the storage tank integral alarms sound, please contact Caroline, Karen Peter or Scott for advice. Please do not "reset" these alarms, they can be "muted" for short periods, but do not leave without letting someone know that there may be a problem.	
	If any alarms sound out-of-hours, please contact the University of Glasgow security staff (Ext 5799 and ask them to contact either Caroline, Karen, Peter or Scott.	
	Do not touch or interfere with the main liquid Nitrogen external supply tanks. If any issues occur contact authorised staff as above	
	If the fire alarm sounds immediately close the tank lid and proceed to the nearest assembly point.	
	Use the mobile dewar in the external metal cage to dispense small quantities of liquid nitrogen. Two people must be present to ensure emergency assistance is possible. If the fire alarm sounds immediately close the tap on the tank and leave your dispensed liquid in a safe position within the locked compound. DO NOT TAKE IT WITH YOU.	
	If transporting nitrogen to a laboratory area do not travel in the lift with the nitrogen	
	Be aware of the first aid requirements regarding liquid nitrogen burns, as laid out in the Institute safety manual.	
	Return personal alarm, visor and gauntlets when finished working in the cryostore	

Signature of Trainee ……..… **Date ……**

APPENDIX 5

University of Glasgow

School of Cancer Sciences

Training Check List

Name of Staff /Student/Visitor*:	**_____**
Principal Investigator:	**_____**
Induction Trainer:	**Stacey Hoare**

I have completed the online safety induction.
Choose an item.

I have received and read the written local rules of the Wolfson Wohl Cancer Research Building. Choose an item.

I have received eye protection (goggles/spectacles).
Choose an item.

I have received protective clothing.
Choose an item.

I have received a radiation protection dosimeter.
Choose an item.

I have read the School's Safety Manual.
Choose an item.

I have read, understood and agree to abide by the local rules detailed in the Safety Manual and Appendices and also the Glasgow University Safety policy.
Choose an item.

(STAFF ONLY) I have completed the University online Safety Induction Course.
Choose an item.

I confirm that the above-named staff/ student/visitor* will have/has had* training needs identified, and appropriate training provided, ensuring competence to work safely in the Wolfson Wohl Cancer Research Building within the local rules.

Principal Investigator's Signature: _____

Date: Click or tap to enter a date.

Signature:

*Delete as applicable

APPENDIX 6

Safety & Environmental Protection Service
University of Glasgow
Isabella Elder Building
Glasgow G12 8QQ **Tel No. 0141 330 5532**
Email:* *safety@glasgow.ac.uk

For SEPS use only

Serial No.	
Date	
Investigated	

Incident Report Form (Please send a copy of this report to SEPS and to your supervisor or follow local reporting procedures, if these are specified by your unit). Please report within 5 days of the incident.

- If more than one person was injured as a result of an accident, please complete a separate form for each person.
- Do not delay reporting. If important, any missing information can be provided later by email or phone.

A Was someone injured yes ❑ no ❑ If yes, were they absent from work more than 3 days yes ❑ no ❑
(if no please go to Section C) **(employee only)** more than 7 days yes ❑ no ❑

B The injured person

First Name
Surname
Home Address
Post Code Home Tel No.
Email Mobile

University employee? yes ❑ no ❑
If 'No', tick appropriate box
Student ❑
Employee of outside contractor ❑
Member of general public ❑
Other **(please specify)** ❑
_____

College/School/Research Institute/Service	Phone Number	Staff/Student No.	Age	Sex M ❑ F ❑

Nature of injury or condition	Part of body affected	Trade, occupation or job title (if student, class/course)

Was first aid given yes ❑ no ❑ By whom

Was immediate hospital treatment required yes ❑ no ❑

C Details of incident

Exact location (building, room number etc.)	Date
Name and telephone number of supervisor and witness(es)	Time

D Indicate what led to the incident (tick one box)

Injured by an animal	❑	Fall from a height*	❑	Handling glass or sharps	❑	Injured during sporting activity	❑
Contact with electricity	❑	*Distance through which person fell ___ m		Portable power or hand tools	❑	Struck against stationary object	❑
Exposure to an explosion	❑	Exposure to fire	❑	Contact with moving machinery or material being machined	❑	Struck by moving, flying or falling object	❑
Slip, trip or fall on same level	❑	Injured whilst handling, lifting or carrying	❑	Exposure to harmful substance or pathogen	❑	Struck by moving vehicle	❑
Fall on stairs	❑	Occupational disease	❑	Hot/Cold contact	❑	Other (Outline)	❑

Circumstances of incident (continue on a separate sheet if required)

Report completed by (signature) _____ Print name _____ Date _____

University of Glasgow

APPENDIX 7

Biological COSHH Risk Assessment

A biological COSHH risk assessment is required for the possession or use of biological agents and hazards. Please complete this form by computer and register any hazard group 2 and 3 biological agents and hazards using the Pathogen and Toxin Registration form. Please note that the possession or use of any hazard group 3 biological agent or the hazard group 2 biological agents *Bordetella pertussis*, *Corynebacterium diphtheriae* and *Neisseria meningitidis* requires permission from your School Safety Committee and HSE. Safety Coordinators will advise Principal Investigators on all aspects of biological COSHH risk assessment and HSE notification. Guidance on completing this form is provided on the Biological COSHH Risk Assessment section of the SEPS website.

Title of project	[ENTER DETAILS HERE]
Project reference	[ENTER DETAILS HERE]
Principal investigator / Responsible person	[ENTER DETAILS HERE]
School / Institute	[ENTER DETAILS HERE]
Date of assessment	dd/mm/yyyy
Location of work (Buildings & room numbers)	[ENTER DETAILS HERE]

Section 1 Project or Activity

1.1: Brief description of project or activity (Preferably no more than 500 words unless the work is very complex)
[ENTER DETAILS HERE]

Section 2 Hazards

2.1: Biological agents or hazards	
Pathogens (Hazard Group 1)	[ENTER DETAILS HERE]
Pathogens (Hazard Group 2)	[ENTER DETAILS HERE]
Pathogens (Hazard Group 3)	[ENTER DETAILS HERE]
Toxins	[ENTER DETAILS HERE]
Carcinogens	[ENTER DETAILS HERE]
Allergens	[ENTER DETAILS HERE]
Human primary or continuous cell cultures	[ENTER DETAILS HERE]
Animal primary or continuous cell cultures	[ENTER DETAILS HERE]
Human cells or tissues	[ENTER DETAILS HERE]
Animal cells or tissues	[ENTER DETAILS HERE]
Human blood	[ENTER DETAILS HERE]
Patient contact	[ENTER DETAILS HERE]
Animals	[ENTER DETAILS HERE]
Plants	[ENTER DETAILS HERE]
Soils	[ENTER DETAILS HERE]
Other biological hazards	[ENTER DETAILS HERE]
[ENTER DETAILS HERE]	

Section 3 Risks

3.1: Human diseases, illnesses or conditions associated with biological agents or hazards	
[ENTER DETAILS HERE]	
3.2: Potential routes of exposure	
Inhalation ☐ Ingestion ☐ Injection ☐ Absorption ☐ Other ☐	Select all that apply
[ENTER DETAILS HERE]	
3.3: Use of biological agents or hazards	
Small scale ☐ Medium scale ☐ Large scale ☐ Fieldwork ☐ Animals ☐ Plants ☐ Other ☐	Select all that apply
[ENTER DETAILS HERE]	
3.4: Frequency of use	
Daily ☐ Week ☐ Monthly ☐ Other ☐	Select one
[ENTER DETAILS HERE]	
3.5: Maximum amount or concentration used	
Negligible ☐ Low ☐ Medium ☐ High ☐	Select one
[ENTER DETAILS HERE]	
3.6: Levels of infectious aerosols	
Negligible ☐ Low ☐ Medium ☐ High ☐	Select one
[ENTER DETAILS HERE]	
3.7: Potential for exposure to biological agents or hazards	
Negligible ☐ Low ☐ Medium ☐ High ☐	Select one
[ENTER DETAILS HERE]	
3.8: Who might be at risk (*If you need advice contact the University Occupational Health Service)	
Staff ☐ Students ☐ Visitors ☐ Public ☐ Young people (<18yrs) ☐ *New and expectant mothers ☐ Other ☐	
[ENTER DETAILS HERE]	
3.09: Assessment of risk to human health (Prior to use of controls)	
Level of risk	**Effectively zero** ☐ **Low** ☐ **Medium/low** ☐ **Medium** ☐ **High** ☐ Select one
3.10: Assessment of risk to environment (Prior to use of controls)	
Level of risk	**Effectively zero** ☐ **Low** ☐ **Medium/low** ☐ **Medium** ☐ **High** ☐ Select one

Section 4 Controls to Eliminate or Reduce Risks

4.1: Containment	
Laboratory ☐ Animal facility ☐ Plant facility ☐ Other ☐	Select all that apply
[ENTER DETAILS HERE]	
4.2: Containment level	
Containment level (CL 1) ☐ Containment level (CL 2) ☐ Containment level (CL 3) ☐	Select one
[ENTER DETAILS HERE]	
4.3: Microbiological safety cabinets (MSC)	
Class 1 ☐ Class 2 ☐ Class 3 ☐ Other ☐	Select all that apply
[ENTER DETAILS HERE]	
4.4: Sharps controls	
[ENTER DETAILS HERE]	
4.5: Other controls	
[ENTER DETAILS HERE]	
4.6: Personal protective equipment (PPE)	

Lab coat ☐ Lab gown ☐ Surgical scrubs ☐ Disposable clothing ☐ Apron ☐ Spectacles ☐ Goggles ☐ Face shield ☐ Gloves ☐ Special headwear ☐ Special footwear ☐ Other ☐	Select all that apply
[ENTER DETAILS HERE]	
4.7: Respiratory protective equipment (RPE)	
Disposable mask ☐ Filter mask ☐ Half face respirator ☐ Full face respirator ☐ Powered respirator ☐ Breathing apparatus ☐ Other ☐	Select all that apply
[ENTER DETAILS HERE]	
4.8: Storage of biological agents or hazards	
[ENTER DETAILS HERE]	
4.9: Transport of biological agents or hazards	
[ENTER DETAILS HERE]	
4.10: Inactivation of biological agents or hazards	
Disinfection ☐ Autoclave ☐ Fumigation ☐ Incineration ☐ Other ☐	
[ENTER DETAILS HERE]	
4.11: Waste disposal	
[ENTER DETAILS HERE]	
4.12: Health surveillance or immunisation (If you need advice contact the University Occupational Health Service)	
[ENTER DETAILS HERE]	
4.13: Instructions, training and supervision	
[ENTER DETAILS HERE]	
4.14: HSE notification and consent where required	
[ENTER DETAILS HERE]	
4.15: Scottish Government or DEFRA Animal Health, Plant Health or other licence where required	
[ENTER DETAILS HERE]	

Section 5 Emergency Procedures

5.1: Emergency procedures		
[ENTER DETAILS HERE]		
5.2: Emergency contacts		
Name	Position	Telephone
[ENTER DETAILS HERE]	Principal Investigator	[ENTER DETAILS HERE]
[ENTER DETAILS HERE]	[ENTER DETAILS HERE]	[ENTER DETAILS HERE]

Section 6 Approval

6.1: Assessor		
Name	Signature	Date
[ENTER DETAILS HERE]	[ENTER DETAILS HERE]	[ENTER DETAILS HERE]
6.2: Principal investigator / Responsible person		
Name	Signature	Date
[ENTER DETAILS HERE]	[ENTER DETAILS HERE]	[ENTER DETAILS HERE]

Risk Estimation Matrix

Consequence of hazard	**Likelihood of hazard**			
	High	**Medium**	**Low**	**Negligible**
Severe	High	High	Medium	Effectively zero
Modest	High	Medium	Medium / Low	Effectively zero
Minor	Medium / Low	Low	Low	Effectively zero
Negligible	Effectively zero	Effectively zero	Effectively zero	Effectively zero

APPENDIX 8

CoSHH Assessment

Assessment Title:	
Assessment Reference Number:	
School / Service / Location:	
Safety Coordinator:	

Details of Hazardous Substances (Please attach safety datasheets where available)

Name of Substance (Include all substances used or produced)	**Quantity kg / g / ml**	**Physical Form**	**GHS Hazard Classification** (Tick all that apply)								
											
1											
2											
3											
4											
5											
6											

Special Hazards (*Separate risk assessment may be required)

 **Carcinogenic Substance**	**Details:**	 **Skin Sensitiser**	**Details:**	 **Respiratory Sensitiser**	**Details:**
 **Biological Material***	**Details:**	 **Radioactive Substances***	**Details:**	 **Explosive Atmosphere***	**Details:**

Further Details / Other Special Hazards:

Exposure to Hazardous Substances						**Workplace Exposure Limits**	
Substance	**Possible Exposure Route** (Please tick)					**8h TWA**	**15min STEL**
	Inhalation	**Ingestion**	**Skin**	**Injection**	**Other (State)**		
1							
2							
3							
4							
5							
6							

Description of Activity (Continue on a separate sheet if required)

Persons at risk:

Summary of Control Measures

Assessment of risks and any existing control measures			
Risk Rating (Before Control)	**High**	**Medium**	**Low**
Procedural Controls (e.g. lone working, hygiene)			
Engineering Controls (e.g. fume cupboard)			

PPE Requirements (Please give details) **Face fit testing required	 **Dust Mask****		 **Gloves**	
	 **Respirator****		 **Footwear**	
	 **Eye Protection**		 **Protective Clothing**	
	 **Face Shield**		 **Other (Specify)**	
Instruction and Training				
Supervision Required?				
Other safety precautions: (Including specialist first aid requirements)				
New Risk Rating	**High**	**Medium**	**Low**	
Supporting Information Checklist (Include details for each where relevant)				
Waste Disposal				
Emergency Procedures (including spill / leak control)				
Atmospheric Monitoring				
Health Surveillance				
Supporting Risk Assessments (Please attach where relevant)	**Biological**	**DSEAR**	**Radiation**	

Assessment Details	
Assessed By:	**Date:**
Approved By:	**Date:**
Date of next review:	

Description of Activity (Continuation sheet)
Continuation sheet number:

CoSHH Assessment Acknowledgement

By signing this document, I acknowledge that I have read and understood the attached CoSHH assessment and have familiarised myself with the safety control measures and protective equipment necessary to carry out the task safely. I hereby agree to follow the safe system of work required and implement the required safety procedures fully.

Full Name	Signature	Date Completed

APPENDIX 9

SCS Records for High Hazard chemicals held in the Building.

Chemical	Amount ordered	Supplier	Catalogue number	Health Hazard Codes for Carcinogens, Mutatgens,  Teratogens, Respiratory Sensitisers  and Acute Toxicity			Ordered by	Group	Storage location	Risk Assessment	Date Delivered	Disposal Date.

Found on J-Drive Health and Safety Folder for each SCS University Building.

Appendix 10

University of Glasgow

General Risk Assessment

Management Unit		**Location (Site / Building / Room)**		
Assessment Date		**Review Date**		Version
Assessor's Name		**Job Title**		
Description of Task				

Risk identification		Risk assessment				Risk management			
Hazard	Potential consequences	Inherent risk			Risk Control measures	Residual risk			Additional control measures and comments
		Likelihood	Impact	Risk rating		Likelihood	Impact	Risk rating	

Risk Rating Calculator

Likelihood that hazardous event will occur		Consequence of hazardous event	
1	Very unlikely	1	Insignificant (no injury)
2	Unlikely	2	Minor (minor injury requiring first aid only)
3	Fairly likely	3	Moderate (Up to three days absence)
4	Likely	4	Major (More than seven days absence)
5	Very likely	5	Catastrophic (Permanent injury or death)

Action Level Table

Risk Rating	Risk Level	Actions to be taken	
20 – 25	Very High Risk	STOP!	Stop the activity and take immediate action to reduce the risk, a detailed plan should be developed and implemented before work commences or continues. Senior management should monitor the plan.
15 – 16	High Risk	Urgent Action!	Take immediate action and stop the activity if necessary, maintain existing controls rigorously. The continued effectiveness of control measures should be monitored periodically.
8 – 12	Moderate Risk	Action	Moderate risks may be tolerated for short periods while further control measures to reduce the risk are being planned and implemented. Improvements should be made within the specified timescale, if these are possible.
3 – 6	Low Risk	Monitor	Look to improve at the next review or if there is a significant change. Monitor the situation periodically to determine if new control measures are required.
1 – 2	Very Low Risk	No Action	No further action is usually required but ensure that existing controls are maintained and reviewed regularly.

Some example hazards that may apply to the activity (not exhaustive)

Working at height	Noise	Lighting (including strobe lighting)	Fire and explosion
Falling objects	Vibration	Compressed air	Hazardous chemicals
Slippery, uneven or worn floors	Hand tools	Magnetic fields	Biological risks / disease
Obstructions and projections	Repetitive hand / arm movement	Pressure systems	Animals
Confined spaces	Machine operation	Needles and sharps	Compressed Air
Mechanical Lifting	Manual Handling	Lasers	Hydraulic systems
Poor housekeeping	Vehicle movements	Ionising and non-ionising radiation	Other (please specify on assessment)

Appendix 11

Refrigerated Equipment Decontamination Checklist

Where equipment is surplus to requirements but is in good condition/working order you should attempt to transfer it to another College/School/Institute within the University.

If this is not possible, or if the equipment is beyond its useful life, then it must be disposed *via* the University appointed supplier for the disposal of WEEE Information on disposal procedures can be found on SEPS web site. University of Glasgow :: Safety & Environmental Protection Services :: Waste

In all cases the equipment must be correctly decommissioned & decontaminated prior to transfer or disposal

Upon decommissioning & decontamination a 'Safe for disposal' notice must be affixed in a prominent place on EACH PIECE of equipment. This notice can be downloaded at http://www.gla.ac.uk/media/media_292014_en.pdf

Responsible Person		**Job Title**		**Email/phone No**	
Origin of equipment		**Building**		**Room No**	

Equipment description (e.g. Under bench fridge, Fridge/freezer/-80 freezer/centrifuge)	**Asset No PAT No**
1	
2	
3	
4	

Actions taken	**Done?**	**Signature**	**Name**	**Date**
All items including chemicals and biological materials have been removed				
Equipment has been completely decontaminated and presents no chemical/biological/radiological or other hazard				
All internal and external hazard warning signs have been removed				
Safe for disposal' sign has been attached to equipment				
Other (give details)				

A separate checklist should be completed for each room/area in which the equipment is located and **this record should be retained for one year**.

Full Name _____ **Signature** _____ **Date** _____

School/Institute etc. _____ **Unit/department** _____

Appendix 12

EQUIPMENT SAFE FOR DISPOSAL

This equipment has been decommissioned, the contents have been Removed and has it has been decontaminated, as appropriate.

It is now

SAFE FOR DISPOSAL

Name (Print) _____ School/College _____

Signature _____ Date _____

APPENDIX 13 **Waste Streams in the University**

MIXED RECYCLING – THE CHEAPEST WASTE STREAM OPTION.

Office and lab areas: White and blue cardboard boxes with plastic liners.

The University has a policy to reduce its landfill, so please try wherever possible to use this waste stream. Plastic, paper, and small cardboard items from the lab can also go into these boxes, as well as empty non-hazardous containers I.e., ethanol plastic bottles, plastic tip boxes and inserts etc.

It is the responsibility of end users to remove their cardboard boxes to the outside MIXED RECYCLING bins, please also remember when disposing of large cardboard boxes in the outside bins to flatten the cardboard first.

GLASS RECYLCING – outside GLASS bin for non-hazardous glass – NO PYREX
(This bin **is locked**, Key available from reception)

GENERAL WASTE – BLACK / bags in office and lab areas

Please use these in lab areas for non-hazardous items too that do not need to go in the yellow hazardous bin bags. Empty rinsed non-hazardous plastic media bottles etc. can also go in this waste stream.

Polystyrene boxes from lab areas are the responsibility of end users to remove to the outside GENERAL WASTE bins, please do not allow these to build up.

HAZARDOUS WASTE – THE MOST EXPENSIVE WASTE STREAM

Yellow bags, yellow and purple sharps bins in lab areas

These all go for incineration, please **DO NOT** put any non-hazardous waste in these bags, i.e., paper / plastic wrappers or cardboard glove boxes these should in general waste or recycling waste streams.

Biological waste standard colours

Yellow – incineration

Orange – alternative treatment

Purple – cytotoxic/static (Including Ethidium bromide gels)

Autoclave bags in Tissue culture suites.

These get autoclaved first before going for disposal in either general waste streams (cat I) or hazardous waste streams (cat II).

If you are unsure of which waste stream you should use, ALWAYS go for the safest option, or ask.

For further information on Waste streams within the University visit the Safety and Environmental protection services website: http://www.gla.ac.uk/services/seps/waste/#d.en.38775

Appendix 14 University Safety Staff contact details

Safety Environmental Protection Service Contact Details:

Mr David McLean *Head of Service* *Tel: 0141 330 4678* *Email: David.McLean@glasgow.ac.uk*	**Mrs Jo McNally** *Secretary* *Tel: 0141 330 5532* *Email: Jo.McNally@glasgow.ac.uk*
Dr. Alice Gallagher *Biological Safety Adviser* *Tel: 0141 330 7105* *Email:* Alice.Gallagher@glasgow.ac.uk	**Dr Philip Rodger** *Chemical Safety Adviser* *Tel: 0141 330 2799* *Email: Phil.Rodger@glasgow.ac.uk*
Mr Alex Shearer *Environmental Adviser* *Tel: 0141 330 5854* *Email:* alex.shearer@glasgow.ac.uk	*Safety Adviser* *Tel: 0141 330 6595* *Email:*
Mr Billy Russell *Fire Safety Manager* Tel: 0141 330 6109 *Email: Billy.Russell@glasgow.ac.uk*	**Mr Alan Watson** *Fire Officer* Tel: 0141 330 6109 *Email: Alan.Watson@glasgow.ac.uk*
Accident and Incident Reporting: *Safety and Environmental Protection Services* *Online Form* *Tel: 0141 330 5532* Email: safety@glasgow.ac.uk	

Radiation Protection Services Contact Details:

Mr James Gray – *Radiation Protection Adviser* *Tel: 0141 330 4471* *Email*: James.Gray@Glasgow.ac.uk	**Mrs Janice Thompson** – *Radiation Protection Officer* *Tel: 0141 330 5878* *Email*:Janice.Thompson@glasgow.ac.uk
Mrs Moira Bryden – *Departmental Secretary* *Tel: 0141 330 4471* *Email* : Moira.Bryden@glasgow.ac.uk	**National Radiological Protection Board** - *Tel: 0141 440 2201 (office hours)* *Tel: 0141 440 2436 (outside office hours)* **Health Protection Agency -** *Tel: 01235 822782*