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LOCAL HEALTH AND SAFETY MANUAL
for
CMCA@Perkins

To be read in conjunction with the CMCA General Health & Safety Manual

for all staff, students, users and visitors to the CMCA in the Harry Perkins Institute of Medical Research at the QEII Medical Centre

Centre for Microscopy Characterisation and Analysis

http://cmca.uwa.edu.au

Contents

1. LOCAL RULES

This publication is dedicated to the specific services and policies existing within the Centre for Microscopy, Characterisation & Analysis laboratories in Level 3, QQ block, Harry Perkins Institute of Medical Research, QEII Medical Centre at The University of Western Australia. This manual should be read in conjunction with the CMCA General Health and Safety Manual.

1.1 Safety inductions

All persons shall complete safety inductions before undertaking any tasks or activities in the workplace. Information on safety induction processes and guidance to determine which inductions must be completed is provided at http://www.safety.uwa.edu.au/induction-and-training/online. A fundamental aspect of induction is to gain an understanding of and to acknowledge workplace local rules. Induction does not infer competency or permission to commence work. Persons shall only carry out work using resources which they are deemed competent to use and shall do so only with permission of the area supervisor. A record of completed inductions shall be included in the individual's training records.

1.2 Competency and training

Workers shall only carry out work using resources which they are deemed competent to use. Competency can only be judged through assessment by a Supervisor. Hazardous equipment shall only be used by operators where their competence to do so can be verified via written records based on qualification and/or 'demonstrable competence' (see definitions). The need for specialist training shall be identified by managers and supervisors and all such requirements must be escalated via workplace line management. Individuals shall not be expected to undertake any activities for which they are not deemed competent.

1.3 Management and permission to work in the area

Managers and supervisors have control of and are responsible for workplaces and are authorised to give permission to do work. Permission to carry out work in a workplace may only be granted to individuals for whom their competency to do so can be demonstrated. Records of that competence must exist and be available for inspection. A combination of endorsement of documented methods, appropriate supervision (to be established and reviewed on a case by case basis) and verbal consent may be sufficient as a basis for granting permission to work provided it can be demonstrated that the individuals who carry out work meet the following criteria for 'demonstrable competency' (see definitions).

1.4 Workplace monitoring

All workplaces shall carry out periodic monitoring to ensure that good health and safety standards are being maintained. Workplaces should be inspected on an annual basis as a minimum. This can be achieved via several approaches which are provided via the Safety, Health and Wellbeing website. Checklists are available for a variety of area types. Inspections should also be carried out following changes to the area such as new projects, personnel, plant, equipment, procedures or refurbishment. Other monitoring processes include the Traffic Light System and the UWA Internal Audit programme which evaluates the performance of the occupational health and safety management system against the AS/NZS4801 OHSMS Standard. Workplace monitoring is usually coordinated by the workplace Health and Safety Committee.

Refer to http://www.safety.uwa.edu.au/management/monitoring for information on monitoring processes.

Refer to http://www.safety.uwa.edu.au/management/committees for the prescribed monitoring schedule.

1.5 Standard Operating Procedures (SOP) for hazardous equipment

All hazardous equipment in the workplace is to be risk assessed by creation of SOPs. These single page reference documents are to be displayed such that they may be referred to at the location of use of the equipment. Individuals will be trained to use hazardous equipment and will sign a copy of the SOP which will be stored in their training records once they are deemed to be competent operators by a supervisor or manager. Hazardous equipment may only be used by competent operators.
For further information regarding SOPs refer to Risk Management; section 9.2 - Assessing hazards associated with resources.

1.6 Emergencies, Incidents and Injuries

1.6.1 Emergency Information

CONTACT	TELEPHONE
UWA Emergency for Fire Brigade, Ambulance, Police	**6488 2222 (24 hrs.)**
UWA Security	**6488 3020**

Refer to the Staff and Support webpage of the UWA Safety, Health and Wellbeing website for further information including lists of safety personnel and a blank Building Safety Personnel Poster for completion and display in in prominent locations.

Harry Perkins	TELEPHONE	NAME	LOCATION
Building Warden	0478 876 850 0478 876 849	Ibrahim Hourani Rabih Assafiri	Ground Floor Ground Floor
Deputy Building warden	0411 602 425	Warren Smith	Loading dock stores Office
Health and Safety Representative	6151 1005	Alysia Buckley	Room 363, Level 3, QQ block, Harry Perkins Institute of Medical Research, QEII Medical Centre
First Aider(s)	0478 876 850 0478 876 849 0410 049 130 Ext. 0750 Ext. 0893	Ibrahim Hourani Rabih Assafiri Rob Marano Elyshia McNamara Xianwa Niu	Ground floor Ground floor 4th floor 7th floor 5th floor

First Aid box location(s)	6151 1010 (Concierge desk)	Ibrahim Hourani Rabih Assafiri	Ground Floor at concierge desk
Defibrillator location	6151 1010 (Concierge desk)	Ibrahim Hourani Rabih Assafiri	Ground Floor at concierge desk

Evacuation Assembly Area	R block entrance Verdun St.	
Exit Routes from the building	South	main entrance lobby.
	North	main entrance lobby.
	North/West	fire escape door (stair well exit).
	North/East	fire escape door (stair well exit).
	North	Loading dock roller door.
	North	Stores fire escape door.
	North	Auditorium fire escape door.
	East	End of trip fire escape door.
	South	Cafe entrance.

1.6.2 In the event of fire

RAISE THE ALARM:
If safe to do so, ensure the immediate safety of anyone within the vicinity of the fire. Raise the alarm if not already sounding, using a break glass alarm panel or by shouting 'Fire, Fire, Fire' if a panel is not available. The alarm system automatically notifies the Fire and Rescue Services and also UWA Security (who then notify other emergency personnel).

Phone the UWA Emergency number extension 2222. Give your name, building, level, room number, type and extent of the fire / smoke and inform your supervisor or Building Warden if safe to do so.

FIRE FIGHTING:

If safe to do so and if trained in the use of fire equipment, attempt to extinguish the fire. Do not use fire hose reel, water or foam extinguishers on an electrical fire.

FIRE EXTINGUISHERS:

All fire extinguishers are tested to ensure reliability on a regular basis by a contractor sourced by Facilities Management. This equipment is provided to extinguish minor fires only. If there is any risk from the fire the building must be evacuated. Before using a fire extinguisher read the instructions ensuring that it is appropriate to the type of fire.

- **Water Type Extinguisher (colour coded red):** For use on paper, wood, textile and fabric fires only - not to be used on electrical or chemical fires.

- **Carbon Dioxide Extinguisher (colour coded red with a black band):** For use on electrical and flammable liquids fire – Please note that this extinguisher can be safely used on all types of fires, however, when the carbon dioxide dissipates, re-ignition could occur.

- **Dry Powder Extinguisher (colour coded red with a white band):** For use on electrical, flammable gases and flammable liquid fires.

FIRE BLANKETS:

Fire blankets are installed in the workplace for use on fires involving small quantities of flammable liquids. Such fuels are typically found in laboratories or kitchens. The effectiveness of the blanket depends on obtaining a good seal with the rim of the container. Fire blankets also provide a thermal barrier and are suitable for management of clothing fires.

EVACUATION:

Evacuate the building in accordance with the area evacuation procedure or as directed by the Building Warden. Proceed to the nearest exit, walking quickly and calmly to the assembly area and do not use the lifts. Close but do not lock doors and windows as you exit. Leave lights on.

Remain in the assembly area in groups until instructed to leave by a Warden or Fire and Rescue Services personnel.

Do not re-enter the building until informed that it is safe to do so by a Warden or Fire and Rescue Services personnel.

1.6.3 Incidents and Injuries

If contaminated with acids or alkalis, wash skin immediately with plenty of water then seek medical attention if required. Eyes splashed with any chemical must be washed with water for 15 mins and medical advice obtained immediately.

Ensure all incidents and injuries are reported to Supervisors and on a UWA Confidential Incident / Injury / Near Miss Report Form.

http://www.safety.uwa.edu.au/incidents-injuries-emergency/notification

1.7 General rules for workshops and laboratories

- CLOSED-IN FOOTWEAR MUST BE WORN
- NO FOOD OR DRINK MAY BE CONSUMED IN LABORATORY AREAS
- ONLY USE EQUIPMENT WITH PERMISSION FROM THE SUPERVISOR. YOU MUST HAVE BEEN INDUCTED AND DEEMED COMPETENT
- WEAR LAB COATS AND OTHER PERSONAL PROTECTIVE EQUIPMENT (PPE) ACCORDING TO LOCAL RULES AND AS DIRECTED BY SOP's FOR INSTRUMENTS AND EQUIPMENT
- TAKE CARE WHEN USING COMPRESSED AIR
- LEAVE ALL EQUIPMENT CLEAN & TIDY AFTER USE
- WEAR LAB COATS AND GLOVES AS PER LOCAL RULES
- COVER ALL OPEN WOUNDS WHEN HANDLING CHEMICALS, ANIMALS OR OTHER BIOLOGICAL MATERIAL. BAND AIDS AND DRESSINGS ARE AVAILABLE IN FIRST AID BOXES.
- USE DISINFECTANTS AFTER HANDLING SUSPECTED INFECTIOUS MATERIALS
- WHEN PIPETTING ALWAYS USE MECHANICAL DEVICES - NEVER PIPETTE BY MOUTH
- KEEP FUME CUPBOARD SASHES CLOSED WHENEVER PRACTICABLE
- DO NOT ALLOW AIR-FLOW INTO FUME CUPBOARDS TO BE IMPEDED
- AVOID ACCUMULATION OF FLAMMABLE SUBSTANCES
- KEEP ONLY MINIMAL REQUIRED QUANTITIES OF CHEMICALS IN LABORATORIES
- WASH HANDS AND REMOVE LAB COATS BEFORE LEAVING THE LABORATORY
- DO NOT STORE FOOD OR DRINK IN CHEMICAL STORAGE REFRIGERATORS
- WHEN WORKING IN THE PC2 LABORATORIES SITUATED IN ROOM 1.20, ALL USERS MUST FOLLOW THE PC2 GUIDELINES.

1.8 Hazardous chemicals or substances

Regard all substances as hazardous unless there is definite information to the contrary. It is a mandatory requirement to be in possession of a Material Data Safety Sheet and to complete a risk assessment relating to use of all hazardous chemicals or substances. For further information regarding risk assessments see section - **Risk Management**.

For work with carcinogens, toxins and embryotoxins, cryogenics, herbicides/pesticides, peroxidizables, organic and shock sensitive, cyanides, acid fluoride chemicals and gas cylinders refer to MSDS and the UWA Chemical Safety Procedures.

Clearly label all containers in use within the working area.

Use safety carriers for transporting glass or plastic containers with a capacity of 2 litres or greater.

Do not store flammables (Dangerous Goods class 3) in a domestic refrigerator (cooling and storage of flammables must only be done in a spark proof refrigerator or freezer). Chemical storage refrigerators must never be used to store food or drink.

Segregate and store all Dangerous Goods according to class.

Hazardous substances must be disposed of in accordance with University policy, statutory and MSDS requirements. Areas must provide suitable waste disposal containers and are responsible for their removal by an approved waste disposal contractor (refer to the Chemical Safety Procedures). Use the correct containers provided to dispose of glass, sharps, metal, paper, infectious, OGTR, AQIS waste etc. (Regularly check disposals against licence requirements).

Chemical waste is not to be disposed of via sinks, drains or stormwater channels unless using neutralisation processes approved by the WA Water Corporation.

1.9 Laser Working Rules for QEII Confocal Microscopes, Flow Cytometers and Laser Microdissector

Working rules are essential for all Class 3B and Class 4 lasers to ensure they may be used with a high standard of safety. Australian Standard AS 2211 details the main procedures and check lists which are appropriate for these Lasers. The Standard specifies the following working rules which are common to all Class 3B and Class 4 lasers.

1. Do not look into the laser beam. (For any class of laser this is a hazardous practice)
2. The confocal microscope system is a Class 1 laser product whilst all covers are in place. The laser beam is fully enclosed within the system covers and is inherently safe.
3. Only approved and licensed service engineers may remove the laser covers or service the laser. The covers must have interlocks to prevent operation of the lasers if they are removed.
4. Use of the laser system:
    - Use the correct signs, according to AS2211, on the laser and the laser system covers.
    - The power supply is keyed, with the key stored safely whilst the laser is not in use, or with password access if a computer key system.
    - No cover may be removed or interlock disabled by personnel at any time, other than by the service engineer or with the approval of the SLSO.
5. Immediate measures must be taken to remove potentially hazardous situations arising from laser beams that may be emitted due to equipment defect, misalignment or any other reason.
6. Additional working rules for servicing the laser system are required.
7. All users of the laser system are to be an induction into its safe use, and must read these working rules – records are to be kept of personnel inducted.
8. Accidents and incidents must be reported to the Safety and Health Office
9. The School Laser Safety Officers (SLSO) in QEII are Paul Rigby & John Murphy

2 ACCESS TO CMCA LABORATORIES

2.1 CMCA Access & Registration

To gain access to any instrument within the CMCA you must first register as a user. Access will be granted following a new user meeting and successful completion of the relevant training course(s). There are access fees associated with using all CMCA facilities, which vary depending upon your status and usage. Entry to the CMCA sites is by access card only.

To register you must visit: http://www.cmca.uwa.edu.au/ and complete two documents:

Part A our online registration form; and

Part B project details including a project risk assessment, previous publications and payment details which can be accessed from the CMCA website. This form requires signatures where appropriate.

Once Part A and B have been received by the CMCA office, an e-mail confirming your User status and activation of your access will be initiated.

To enrol in relevant training courses, course outlines and timetables can be found at:

http://www.cmca.uwa.edu.au/

Instruments that you are qualified to operate can then be booked at your convenience through the website at: http://130.95.124.111/cmca/book.dll.

Limitations are imposed on advanced instrument bookings – for more information see: http://www.cmca.uwa.edu.au/access/bookings-policy Extended hours, where justified, may be accommodated *on application* to the CMCA Director.

If you would prefer for CMCA technical staff to complete work on your behalf please contact the CMCA office for details.

2.2 CMCA Access Fees (UWA staff and students only)

Access arrangements are based on a member subscription model at the individual User level combined with Faculty and Vice-Chancellery contributions. Full details of CMCA access fees for UWA staff and students can be found at: http://www.cmca.uwa.edu.au/access/rates Please note that a subscription is for a 12 month period i.e. 1 February 2016 - 31 January 2017, except for honours projects, which is restricted to the period of honours only. Hourly fees have a monthly administrative fee.

2.3 CMCA Access Fees (non UWA)

For external users there are hourly rates or subscriptions available. A special rate is available to staff and students of the Western Australian Centre for Microscopy (WACM) member universities: Curtin University, Edith Cowan University and Murdoch University. Curtin University also has an access arrangement for hourly rates. Please contact the CMCA administration on 6488 2770 or admin.cmca@uwa.edu.au to discuss your particular needs.

2.4 After Hours Access

- Afterhours access to CMCA at the QEII site instruments is only available to approved Users and requires a current valid UWA staff/student/visitor ID card. It is essential that the front door is kept locked AT ALL TIMES after hours.
- It is not recommended that staff or students carry out experimental work after hours. To do so is at your own risk. If experimentation after hours is unavoidable then a second person should be present to raise the alarm should an accident occur. This must only be done in compliance with the Working in Isolation policy at:

http://www.safety.uwa.edu.au/health-wellbeing/physical/alone.

- At a minimum, Security (6488 3020) should be notified of your presence on campus, your intended period of stay and the activity being performed. It may be possible for Security to check on you during their usual rounds. Please talk to your supervisor or Safety Officer to discuss alternatives.

- Staff and students who are on the premises after hours will need to carry their staff or student security access card. Failure to produce proper identification when asked by Security staff will result in you being escorted from the premises.
- Departure from the CMCA Crawley building after hours is by press button exit from the main Physics entry. Emergency exit is provided from other doors, e.g. Fire escapes by breaking glass exit buttons or automatically in the event of a fire alarm.

If formal permission has *not been granted* you may not work after hours.

3 PC2 LABORATORIES

3.1 BIOLOGICAL SAFETY REQUIREMENTS

3.1.1 Physical containment level 2 facility

A Physical Containment Level 2 (PC2) facility is suitable for work with micro-organisms in Risk Group 2 as defined in AS/NZS 2243.3:2002. A PC2 facility also incorporates all facilities, equipment and practices for Containment Level 1.
Risk Group 2 relates to the Classification of Infective Microorganisms by Risk Group. Worldwide, four risk groups are defined according to the degree of risk and the appropriate Containment Level. Each group is defined nationally according to the microorganisms encountered within the country's boundaries. The risk group for Australia and New Zealand is a modification of the World Health Organisation guidelines and is based on pathogenicity of the microorganism, the mode of transmission and the host range, the availability of effective preventative measures and the availability of effective treatment.

Risk Group 2 is defined as follows:

- Moderate individual risk and limited community risk. Risk group 2 pathogens can cause human, plant and animal disease, but are unlikely to be a serious hazard to laboratory workers, the community, livestock, or the environment; laboratory exposure may cause infection, but effective treatment and preventative measures are available, and the risk of spread is limited.

The CMCA PC2 facility suitable for work with materials of human origin at the QE II site is *Room 3008/9 (Supervisor Associate Professor Paul Rigby).*

No other laboratory in the Centre may be used for biological work involving human or animal materials.

Laboratory compliance is in accordance with the recommendations of Australian/New Zealand Standard AS/NZS2243.3:2002 Safety in Laboratories Part 3 and Australian/New Zealand Standard AS/NZS2982.1:1997 Laboratory Design and Construction Part 1 for Physical Containment Level 2.

3.1.2 Physical containment level 2 compliance

PC2 compliance is dependent on both the physical construction of the laboratory and the operational procedures and level of experience and training of the researchers using the facility. All of these factors will be assessed by the University Safety Committee (USC) in approving (or revoking) the Center's PC2 operation.

The University Biological Safety Officer is responsible for inspecting all PC2 laboratories to ensure that they comply with the relevant standards.

Researchers working in the PC2 facility with materials of human origin must clearly understand their obligations to comply with the requirements of the USC and the University Human Research Ethics Committee.

The University requires that all research involving fresh, unfixed human tissues be reviewed and approved by the University Human Research Ethics Committee (HREC). In circumstances where research is carried out in conjunction with a hospital department it is necessary to check that patient consent and ethics approval has been obtained. It is the responsibility of the chief investigator to ensure that they have documented proof of compliance with ethics requirements.

UWA is an accredited organisation with the Office of Gene Technology Regulator (OGTR). As such it is a requirement that the University Biological Safety Officer must be advised if any work involving gene technology be undertaken in CMCA.

3.1.3 Infection control

The effectiveness of an infection control program is dependent on the training of laboratory personnel and their fundamental understanding of the transmission modes of potentially infectious agents. This includes understanding the mechanisms associated with propagation of bacterial, fungal and viral agents that are responsible for infections.

It is an established general safe practice to assume that all blood, blood products, body fluids and associated materials are potentially infectious and treat them accordingly. By employing a consistent infection control program in conjunction with good personal hygiene the spread of infection can be minimised or eliminated.

The most common sources of infection are ingestion, inhalation or skin penetration. It is important that the laboratory develop its own unique infection control program based on probable transmission routes for these three common infection sources. Each research project will consist of a sequence of biological specimen handling tasks carried out in the PC2 workplace environment using specific tools and equipment. These operations must be accompanied by a risk identification, assessment and control model that will identify infection risk and place the necessary controls in place through planning, procedures and use of personal protective equipment.

The microscopic size of infectious pathogens means that there is no continuous quantitative feedback method to measure the effectiveness of control measures. The onset of illness is the only identifiable outcome. Inadequate infection control procedures will not generate pathologies if no infectious pathogens were present! This emphasises the need for a consistent and thorough application of the established operational procedures at all times.

The ingestion of sources of infection can be quite subtle and removed from the original source. This can be controlled by good hygiene and understanding of transmission paths. The most direct method of transmission is from hand to face or mouth. Examples of other more indirect pathways would be hand or glove contact with a contaminated surface, followed by the transfer of pathogens to a pen, book, disk or other object that is taken outside the biological facility or comes into contact with a person's face or mouth. Restricting potentially infectious material to specific areas of the laboratory, and carrying out regular decontamination and good hygiene will control this problem.

Aerosols are a continuous hazard being the most common way in which infection is propagated. Any operations such as dissection, sectioning or manipulation of biological tissue will generate aerosols that can be inhaled into the lungs. The risk to researchers can be minimised by ensuring that surgical masks are always worn during these operations and that procedures generating higher levels of aerosol or dust, such as drilling, are carried out in a fume cupboard or biological safety cabinet if it is available.

The risk of skin penetration is most common when handling or disposing of needles, syringes, scalpel blades and other sharp instruments. Skin puncture injuries are the primary cause of blood-borne disease transmission in the health industry. These particular infection risks can be controlled by adherence to proper handling and disposal methods. Researchers should be aware of the suitability

of tools and equipment used in specific operations, both from the aspect of effective decontamination as well as cuts and injuries from sharp corners and edges.

These principles can be applied to most processes and operations that are carried out in a biological research facility. Researchers are encouraged to apply these approaches in identifying sources and transmission of potential pathogens and develop their own infection control programs and written procedures for recurrent or high-risk tasks.

3.1.4 Physical containment level 2 - work practices

Access to the laboratory shall be limited to laboratory personnel and persons specified by the laboratory management - laboratory must be closed while work is in progress and signage in place that potentially infectious material is in use

Authorised laboratory personnel shall receive instruction and training, with regular updates, in handling pathogens

All clinical specimens should be considered as potentially hazardous

Use of needles and syringes require special care. Never attempt to re-sleave the instruments prior to disposal in a sharps container - sharps containers shall be provided at every point of use and be disposed of by incineration

Laboratory staff shall advise maintenance and service personnel of the special microbiological hazards existing in the laboratory - potentially contaminated surfaces shall be disinfected before maintenance of equipment is conducted

Protective clothing shall be removed before leaving the laboratory area and stored or disposed of in the facilities provided - hands should be disinfected after the removal of gloves

Eating, drinking, storage of food and application of cosmetics is prohibited in the biological laboratory - hands, pens and pencils can become contaminated from dirty surfaces, liquids and aerosols and should be kept away from the face

Long hair should be tied back and covered with a disposable surgical hat as it constitutes both a fire risk and a risk of contamination

Do not mouth pipette - rules for the correct use of pipetting devices and syringes shall be followed

Take care to minimise the production of aerosols where work is carried out on an open bench

A period of at least 5 minutes shall be allowed for aerosols to settle before opening homogeniser or sonicator containers in a fume hood or biological safety cabinet

Take precautions to ensure that reading and writing materials do not become contaminated

Clean up all spills immediately and decontaminate the area - report significant spills and accidents immediately to the laboratory supervisor - decontaminate work benches at least daily and after each work task is completed

Use a fume cupboard or biological safety cabinet for all operations that are likely to produce aerosols

Personnel wishing to transport material between institutions are advised to pay particular attention to various statutory regulations regarding transport of biological materials that may be regarded as infectious.

3.1.5. Personal protective equipment

The following clothing and Personal Protective Equipment must be worn in PC2 facilities when working with biological materials of human or animal origin:

- Protective clothing that offers protection to the front of the body - it is preferable to wear a wrap-around theatre or laboratory gown or coverall
- Safety glasses or face shields should be worn to protect the eyes and face from splashes and other hazards - contact lenses do not offer suitable protection
- Disposable latex or vinyl surgical gloves should be worn when working with biological materials to prevent contamination. It is always important to ensure that cuts and scratches are properly covered with a waterproof dressing
- Closed footwear should be worn at all time in laboratories and disposable overshoe covers worn during any sectioning procedures
- Respiratory protection is required for any operations likely to produce aerosols or dust, or involving the clean-up of spills - always wear a wraparound surgical mask during these operations and use the fume hood or biological safety cabinet whenever possible.

The above listed items of clothing and protective equipment are the minimum requirement for biological work in PC2 laboratories and provide a barrier to minimise the risk of exposure to aerosols, splashes and accidental inoculation. However, it is the individual's responsibility to select the most appropriate equipment according to the nature of the work being performed and subsequent risk.

The extent of use of personal protective equipment may vary between tasks; therefore, it is advisable to document the requirements for frequently executed tasks.

For further information on personal protective equipment refer to:

http://www.safety.uwa.edu.au/health-wellbeing/physical/protective-equipment

3.1.6. Laboratory decontamination

Laboratory decontamination refers to the disinfection of all benches, work surfaces and equipment that has or may have come into contact with potentially infectious material. All benches and work surfaces should be wiped down with disinfectant at least once a day when work is in progress.

The following chemicals are recommended since they are known to kill HIV and hepatitis B if they are mixed and applied according to the manufacturers' instructions. Before using these chemicals it is important to have a copy of the relevant Material Safety Data Sheet (MSDS) and follow the safety instructions.

3.1.7. Sodium Hypochlorite

Sodium hypochlorite is recommended as a safe and effective agent against HIV and Hepatitis A, B, C and D when it is left in contact for at least 10 minutes. Use 10,000 ppm (1%) solution for areas soiled with blood or body fluids. Carry out a second wipe using 10,000-ppm (1%) solution and dispose of all wiping pads etc into the contaminated waste collection. For walls, benches, floor and other objects that may be contaminated but not visibly soiled, use a 0.5% solution. Finally, clean each area with water and commercial detergent.

The effective strength of chlorine solution decreases with storage, therefore, fresh solutions should be prepared each day.

Sodium hypochlorite may be corrosive to some metal surfaces and should not be left in contact for more than 10 minutes. Wash metal objects in warm water and detergent and allow drying. Spray with Inox if corrosion is likely to be a problem.

3.1.8. Ethanol

Caution: Ethanol is classified as a hazardous substance. It is highly flammable and should not be used near ignition sources.

Ethanol used in a 70% solution with contact for 20 minutes is effective against a wide range of pathogens including HIV and Hepatitis A and B, but is ineffective against Hepatitis C and D agents. Industrial methylated spirits is an acceptable alternative since it has a 95% ethanol concentration.

Note that some disinfectants are more effective than others in deactivating specific pathogens. Also, be aware that some disinfectants are better suited for certain decontamination procedures. Written laboratory procedures should be developed for routine decontamination tasks, based on the disinfection agents that are stocked and the cleaning

3.1.9. Disposal of biological waste

All biological waste generated from this PC2 facility should be regarded as potentially infectious and disposed of in accordance with State [2] and Commonwealth [3] regulations. These regulations require that contaminated waste material shall be sterilised, preferably by autoclaving and be disposed of by incineration.

All scalpel blades, needles, syringes and other disposable items used in procedures with material of human origin both fixed and unfixed, must be disposed of with other contaminated waste on completion of the experiment.

For additional information on the disposal of sharps refer to the University Policy titled *Sharps Injury and Disposal of Sharps*.

http://www.safety.uwa.edu.au/topics/biological/sharps/needlestick

Under no circumstances should animal materials be disposed of in the University's rubbish bins. This regulation is specific to prevent animal material from becoming a host or source of infectious pathogens.

Sharps and broken glass disposal bins should be collected for disposal at regular intervals, as defined in operating procedures.

Complete details of disposal procedures for different groups of contaminated and non-contaminated waste should be documented, including all contact names and telephone numbers.

[2] *'Guidelines for the Storage, Transport and Disposal of Medical Waste' Health Department of WA.*

[3] *'Safety in Laboratories - Microbiology' AS2243.3 and 'National Guidelines for Management of Clinical and related Waste' NHMRC.*

3.1.10 Biological warning signs

Biological laboratories must carry a sign on the door indicating the level of containment. A similar sign must be visible inside the laboratory accompanied by a set of laminated procedures for the designated level of work.

In addition, all biological hazards must be clearly indicated by standard biological warning signs. Biological warning signs are recommended:

- Biological Hazard - black on yellow background, as a larger self-adhesive sign

The latter is most suitable for labelling specimen containers and vials. Where possible, provide information on the type and degree of risk and the person responsible.

All storage areas such as fridges that contain biological specimens must carry a Biological Hazard warning.

3.1.11 Transportation of specimens

Potentially infectious specimens taken outside of the PC2 laboratory must be transported in a double containment system. Both the primary and secondary containers must be leak proof. In addition, the primary specimen container should be sealable and the outside container must not be breakable.

All transported specimen containers must be labelled to indicate the contents and have a contact name and address. An infectious material warning label must be visible.

3.1.12 Biological accidents and reporting

All accidents and near misses are to be reported to the individual's supervisor or the School Safety Officer. A Confidential Incident/Injury Report form will need to be completed and forwarded to the University Safety and Health Office, within 24 hours.

All injuries and accidents resulting from procedures with unfixed human tissue should be regarded seriously. In cases where there is skin penetration, the wound should be encouraged to bleed under running water. Splashes to the face, eyes and mouth should be immediately flushed with water at the emergency eyewash station.

In these circumstances it is advisable to have the pathology of the instrument or tissue tested in order to more accurately assess the risk associated with the incident. All accidents of this magnitude must be reported to the supervisor and the individual concerned must attend the University Medical Centre or a General Practitioner for assessment.

A detailed set of incident and accident procedures should be written to cover accidents involving all common exposure paths to potentially infectious material, including spill clean-up routines.

3.1.13 Record of biological material

The University requires a register be kept for the PC2 Laboratory to record the acquisition and disposal of all biological material used in experiments and research activities. All users are responsible for the removal and appropriated disposal of their samples. CMCA does not store or dispose samples.

3.1.14 Hazardous substance management

Biological research work can involve the handling and use of hazardous chemical substances of a toxic, explosive or flammable nature. To comply with Government legislation and University policy, researchers must comply with the Universities Hazardous Substance Management System that controls the registration, use and storage of hazardous substances.

The following web addresses may be useful sources of information for further information on UWA policies and procedures relating to biological compliance and safety.

BIOLOGICAL HAZARDS:

http://www.safety.uwa.edu.au/policies/biological_hazards

INFECTIOUS DISEASES:

http://www.safety.uwa.edu.au/topics/biological/infectious-diseases

3.2 Housekeeping

General tidiness helps to ensure that work area resources are maintained and available for safe use as required. General tidiness includes such considerations as:

1. Keeping floors tidy and dry.
2. Proper storage of heavy/awkward material or equipment stored between knee and shoulder height.
3. Benches or work surfaces to be kept clean and free from chemicals and apparatus that are not being used.
4. Keep the interior of fume cupboards and nearby areas clean and clear.
5. Aisles and exits are to be kept free from obstructions.
6. Bottles and glassware are to be kept off the floor.
7. Access to all emergency equipment (fire extinguishers, first aid kits) is to be kept free from obstruction.
8. Work areas and equipment are to be cleaned after use.
9. If last to leave the work area, make sure all equipment is turned off.
10. If contractors are working in your area, make known to them any hazards that may exist (i.e. flammable liquids, dusts, combustible material).
11. Cleaners will normally only sweep or mop floors and empty general waste bins of laboratories – avoid exposing them to hazards.

3.3 Working Alone

Individuals may occasionally be required to work alone on University premises. In all of the following cases, working alone is not permitted.

Refer to

http://www.safety.uwa.edu.au/health-wellbeing/physical/alone

1. Work which is remote or isolated from the assistance of others because the location nature or time; or
2. Operation or maintenance of equipment or the handling of a hazardous substance; or
3. Work which is dangerous for a person to perform alone.

Working alone is only permissible under the following circumstances:

- Staff and students may work alone in office environments; however, they must have obtained an endorsed afterhours access permission form.
- Staff and students must not work alone in workshops where medium to high risk equipment is to be used.
- Emergency assistance – a means of communication to gain assistance in an emergency is available.

If formal permission has not been granted you may not work after hours.

In general, if working after hours:

1. Ensure that the doors of buildings are securely closed and locked after entering and leaving the building.
2. Ensure that the doors to internal areas are secured on leaving.
3. Ensure that you are familiar with the safety rules and emergency contact numbers displayed in the work area.
4. Report to University Security any breaches of security or suspicious behaviour.
5. Do not give anyone else security codes, keys or access cards.
6. Do not provide access to buildings to unauthorised persons.

No equipment may be operated unless:

1. Two persons are present.
2. The operator is deemed to be competent to carry out the activity with supporting documentary evidence on file.
3. Permission to use the resources.

A breach of any of these conditions will result in after-hours access being immediately cancelled. Any future request for after-hours access will require personal consultation with the Director.