INTRODUCTION

1. The Postgraduate Medical Education (PGME) office recognizes its role in providing postgraduate trainees with a safe environment during their training. The responsibility for promoting a culture and environment of safety for postgraduate trainees rests with the Faculty of Medicine, affiliated training sites, clinical departments and trainees themselves. The concept of postgraduate trainee safety includes physical, emotional and professional security. This policy may be augmented at the level of the Residency Program Committee (RPC) in response to the program-specific context.

KEY RESPONSIBILITIES

2. For postgraduate trainees:

- to provide information and communicate safety concerns to the program, and to comply with safety policies.

3. For residency training programs:

- to act promptly to address identified safety concerns and incidents, and to be proactive in providing a safe learning environment.

   Note: These policies apply only during postgraduate trainees’ activities that are related to the execution of training duties.

PHYSICAL SAFETY

4. When postgraduate trainees are traveling for clinical or other academic assignments by private vehicle, it is expected that they maintain their vehicle adequately and travel with appropriate supplies and contact information.
5. For long distance travel for clinical or other academic assignments, it is expected that postgraduate trainees will ensure that a colleague or the home program office is aware of their itinerary.

6. Postgraduate trainees are not to be on call the day before long distance travel for clinical or other academic assignments by car. When long distance travel is required in order to begin a new rotation, the trainee must request that they not be on call on the last day of the preceding rotation. If this cannot be arranged then the trainee is to be provided with a designated travel day on the first day of the new rotation before the start of any clinical activities.

7. Postgraduate trainees are not to be expected to travel long distances during inclement weather for clinical or other academic assignments. If such weather prevents travel, the trainee is expected to contact the program office promptly. Assignment of an alternate activity is at the discretion of the program director.

8. Postgraduate trainees are not to work alone after hours in health care or academic facilities without adequate support from Protection Services.

9. Postgraduate trainees are not expected to make unaccompanied home visits unless they have had training relevant to the context.

10. Postgraduate trainees are not to communicate with patients or families using a method that discloses the trainee’s personal contact information.

11. Call rooms and lounges must provide trainees with a healthy and secure environment.

12. It is expected that postgraduate trainees will not walk alone for any major or unsafe distances at night.

13. It is expected that postgraduate trainees will arrange safe transportation home if they feel unduly fatigued after their duty hours.

14. Postgraduate trainees are not to assess potentially violent or psychotic patients without the backup of security and an awareness of accessible exits.

15. The physical space requirements for management of violent patients must be provided where appropriate.

16. Special training must be provided to postgraduate trainees who are expected to encounter aggressive patients.

17. Site orientations must include a review of local safety procedures. As employees of the institution, postgraduate trainees must be aware of and follow the institution’s policies and procedures.

18. Postgraduate trainees are expected to familiarize themselves with the location and services offered by the institution’s Occupational Health and Safety Office. This includes
Resident Safety Policy

familiarity with policies and procedures for infection control and protocols following exposure to contaminated fluids, needlestick injuries and reportable infectious diseases.

19. Postgraduate trainees must observe universal precautions and isolation procedures.

20. Postgraduate trainees must keep their required immunizations up to date. Overseas travel immunizations and advice should be sought well in advance when traveling abroad for electives or meetings.

21. Postgraduate trainees working in areas of high and long-term exposure to toxic substances, including but not limited to chemotherapeutic agents, re-agent dyes, etc., must follow the institutional safety policies.

22. Postgraduate trainees working in areas of high and long-term exposure to radiation must follow radiation safety policies and minimize their exposure according to current guidelines.

23. Radiation protective garments, such as aprons, gloves and neck shields, must be used by all postgraduate trainees using fluoroscopic techniques.

24. Pregnant trainees are expected to be aware of specific risks to themselves and their fetus in the training environment and request accommodations where appropriate.

PSYCHOLOGICAL SAFETY

25. Learning environments must be free from intimidation, harassment and discrimination.

26. When a postgraduate trainee’s performance is affected or threatened by poor health or psychological conditions, it is expected that the trainee will be granted a leave of absence and receive appropriate support. Such trainees are not to return to work until an appropriate assessor has declared them ready.

27. It is expected that postgraduate trainees will be aware of and have easy access to the available sources of immediate and long-term help for psychological problems, substance abuse problems, harassment and inequity issues. Resources include, but are not limited to, the OMA Physician Health Program, University of Ottawa Counseling Services and Sexual Harassment Office, the Faculty of Medicine Office of Faculty Wellness and PARO.

PROFESSIONAL SAFETY

28. Postgraduate trainees may experience conflicts between their ethical or religious beliefs and the training requirements and professional obligations of physicians. Resources are to be made available to residents to deal with such conflicts.

29. Programs must make reasonable accommodations for religious holidays.
Resident Safety Policy

30. Postgraduate trainees must have adequate support from the program following an adverse event or critical incident.

31. Programs must promote a culture of safety in which postgraduate trainees are able to report and discuss adverse events, critical incidents, ‘near misses’, and patient safety concerns without fear of recrimination.

32. Programs collect, and must responsibly and securely hold, postgraduate trainees’ personal information and evaluations to maintain confidentiality. Disclosure is appropriate where required for the purposes of ongoing education and to facilitate and maintain patient and workplace safety.

33. Programs must be aware of and comply with the Freedom of Information and Protection of Privacy Act (FIPPA) in relation to postgraduate trainee files.

34. Postgraduate trainee feedback and complaints must be handled in a manner that ensures trainee anonymity, unless the trainee explicitly consents otherwise. However, in the case of a complaint that must be dealt with due to its severity or threat to others, a program director may be obliged to proceed against the complainant’s wishes. Depending on the nature of the complaint, the affiliated institution and/or the College of Physicians and Surgeons of Ontario may need to be informed and involved. In general, the program director should serve as a resource and advocate for the resident in the complaints process.

35. Residents must be members of the CMPA and follow CMPA recommendations in the case of real, threatened or anticipated legal action.

36. In addition to CMPA coverage for patient actions, residents are covered, either by the University itself or its insurer, for actions arising from their participation (acting reasonably) in University committees (e.g. tenure, appeals, residency training) on which they may serve.

REVIEW This Policy will be reviewed one year after adoption and every three years subsequently.

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<thead>
<tr>
<th>Committee</th>
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<tr>
<td>Executive Committee of the Senate</td>
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Specific Resident Safety in Pathology and Laboratory Medicine

Laboratory Staff, Residents and Students

YOU are a valuable resource. We do not want you to be “wasted” by a needless accident.

YOU are the only one who can practice safety procedures for your own protection and that of your fellow workers.

YOU have responsibility to:

- be aware of safety hazards,
- work in accordance with the Occupational Health and Safety Act and Hospital policies and procedures designed to protect you,
- attend safety training that is provided and read any required safety-related documents
- report all incidents including near misses so that steps may be taken to prevent recurrence.

AN OVERVIEW OF DEPARTMENTAL SAFETY PROGRAM

Scope of program

All members of The Ottawa Hospital (TOH) must abide by the safety policies and procedures of the TOH site at which they are working i.e. all Ottawa Hospital campuses, University of Ottawa, Heart Institute, Rehabilitation Center or Ottawa Regional Cancer Centre.

Employees and Students

It is mandatory that all new students and employees attend the TOH Orientation Program. All employees must read the Safety Manual, any required safety documents, and receive WHMIS training. If using biohazardous materials or radioisotopes, laboratory workers must attend training in biosafety and/or radiation safety. Until training has been completed, new employees/students will do only restricted and supervised work. All new employees must complete the
new employees Safety Checklist.

**Pregnant Women**

Pregnant employees should be aware that certain chemicals, radioactive and biohazardous materials might be harmful to a developing fetus. Therefore, if a person has reason to believe that she may be pregnant she should inform her supervisor in order to discuss any modified work that maybe required.

**Safety Training**

All employees must participate in the TOH half day safety training program once every three years and participate in any safety training activities required within the department or division. The TOH safety training program includes fire safety, WHMIS, spill procedures, and the proper use of protective clothing and equipment.

A Safety Manual must be available in the work area and must be required reading for all new employees; the Manual must be updated regularly and initialled annually by each employee in the Division.

**Needle stick injuries (or exposure to biohazardous substance):**

Injury with Dirty Sharp (or Exposure to Biohazardous substance):

Dispose of the sharps in the ‘sharps’ container.

Encourage the wound to bleed (for approximately one minute).

Disinfect the wound with alcohol swab or iodine (which ever is handy).

For exposure to a biohazardous substance to the eyes, nose, mouth or non-intact skin, flush the area with copious amounts of water for 15 minutes

**On Nursing Units:**

Approach the RN in charge of patient explaining that you have injured yourself and require an Employee Incident form. Fill out the form as completely as possible and have the Nursing supervisor sign the form. Be sure to include the names of any witnesses present. Follow the above protocol.

**In Lab or Outpatient Area:**

Phlebotomists must contact another phlebotomist to take over their duties. Inform them that you will be leaving your assignment due to an injury. For inpatient areas, also tell the phlebotomist where your cart is located so that they can retrieve the remainder of your assignment and bring the cart back to the
Resident Safety Policy

phlebotomy office.

For all injuries:

Report to the supervisor or manager and fill out an Employee Incident form (OHS form 13).

Report to one of these two areas within 1 hour of incident for medical assistance:

Occupational Health and Safety Services (OHSS) (Mon-Fri between 0730-1545, at Riverside OHSS has shorter hours and it may be necessary to go to the General Campus)

Emergency Department (all other times when Health Services is closed)

Note: Physicians, Students and volunteers are to report to the Emergency Department if they are injured.

Take the incident form as well as an imprint of the patient’s hospital card to OHSS (or Emergency), who will provide counselling and further direction.

They will document the event and notify the Laboratory Manager of the incident.

If reporting to Emergency, insure that the Physician has signed the incident form and report to OHSS as soon as possible to make them aware of the injury. (If the injury occurs on the weekend, leave a photocopy of the documentation on the supervisor’s desk. You must report to OHSS within 48 hours of the incident for WSIB purposes.)

**Injury with ‘clean’ sharps:**

Injury with ‘clean’ sharps must be reported to Occupational Health and Safety Services, but can wait until ‘break time’ or the end of the shift, if the injury is minor.

Encourage injury to bleed and disinfect the injury as above.

If the injury is minor, cover the area with a bandage and continue assignment/duties if appropriate.

Inform the manager or supervisor of the injury, complete a Safety Incident form and send a copy to OHSS.

For more detailed information, consult Policy ADM VI 270 in the TOH Policies and Procedures Manual.

**Medical Emergency/ Personal Injury**
A Medical Emergency is an injury of a serious nature that places life in jeopardy; produces unconsciousness; causes substantial loss of blood; involves a fracture; a major burn; loss of sight; or involves an amputation. It is your responsibility to:

Civic General Riverside

Step 1: Phone (24 hr/ 7 day/wk) 15555 75555 85555

Step 2: State: “We have a medical emergency…”

State your name, department, exact Location and campus (do not use abbreviations)

Step 3: If safe to do so, secure and preserve the immediate accident site area until help arrives

Step 4: Stay with the person until help arrives

Step 5: Inform the supervisor/ person in charge of the injured person

Step 6: If the injured person is a worker, contact Occupational Health and Safety Services at ext. 78391 (General) or 14161 (Civic) or 88250 (Riverside – only staffed half days, otherwise contact the General Campus). Incidents must be reported to OHSS within 24 hours.

Staff are required to read the TOH Emergency Preparedness Manual.

CHEMICAL SPILLS

For information on Biohazard material spills, please see section 10.0 (Biosafety). For spills involving radioactive materials, please see section 11.0 Radiation Safety.

Chemical Spill Information:

The Spill Protocol should be posted in each laboratory.

Civic Site: Spill Carts are located in hallway outside of room M28 first floor of the Lab Building. There are also spill kits in E.M., Histology, Gross room, Morgue and Transfusion Medicine.

General Site: Spill Kits are located in each lab section.

In the event of a large spill contact the spill centre.

General Campus Spill Centre: Rm. 2400EI - to obtain access call Ext. 72999

The Spill Centre contains emergency response guides, a large cart, spare
Resident Safety Policy

absorbent material, warning signage, personal protective equipment (respirators) and cleaning equipment.

Riverside Site: The Spill cart is located in Histology section of the lab.

**Minor Spills (under 1 liter)**

If in the event of a spill, if immediate action can be taken without endangering your health and safety and that of those around you, proceed as follows.

- Turn off any ignition sources
- Identify the hazard – refer to the label and MSDS.
- Stop the leak, if without risk, and keep the spill from spreading.
- Absorb the spill with sand, earth or other non-combustible absorbent material and/or neutralizing agent.
- Collect and place the contaminated absorbent material in the proper appropriately labelled container for proper disposal.
- Flush area with water.

- Dispose of used materials in the hazardous waste pickup (water may be flushed down the drain if the spill is sufficiently dilute)

**Major Spills (over 1 L) - Code Brown**

In the event of a spill, if immediate action cannot be taken without endangering your health and safety along with that of those around you:

W:\Safety\Safety Manual R04.doc Page 20 of 84 Controlled document; printed copies may not be current version and should be checked against electronic document

Turn off any ignition sources if possible, unless flammable chemicals are involved and adjusting the switch would create potentially a more dangerous situation

- Leave the immediate area and close the door.
- Cordon off the area to prevent access.
- Call Security 12999 (Civic) or 72999 (General) or 82999 (Riverside)
- State that there is a code brown request.
- State the exact location, including the campus, what has spilled and how much.

- Provide MSDS sheets and chemical information concerning the substance involved to responding Emergency Crews.

**Vapour Alarm (General Campus, Histology lab and Cytology screening lab):**

Due to the quantities of flammable chemicals used and stored in the Histology lab at the General, vapour sensors connected to audible alarms have been installed in several places in the Histology lab and Cytology screening lab area.

The vapour alarm has been set on a delay so that it will not sound if organic solvents such as alcohol are used for short periods of time for processes such as cleaning of the benches. If the time for dispersion exceeds the time delay, the alarm will sound. If the vapour level exceeds the 20% level, then the alarm will sound immediately and all power to the area will be shut down.

If there is a spill, the area should be evacuated and a code Brown reported to ext. 72999. To reset the alarm and restore power once the spill has been cleaned up, call Telecommunications and ask for the Fire Marshall or Facilities Electrical Manager to be paged.

**FIRE SAFETY**

**General Information**

Familiarize yourself with the location and operation of the fire extinguishers, fire blankets, emergency exits, evacuation routes, fire alarm systems and fire suppression systems in your area.

Once the fire alarm is sounded, follow the evacuation routes established for your area.

Assistance should be given to disabled personnel, visitors and patients.

The hospital fire alarm system is a two-stage system at the General and Riverside Campuses, and the main building of the Civic Campus. It is a single stage alarm in the Civic Lab building.

**First Stage:**

Upon activation, the fire alarm rings at 60 strokes per minute continuously until someone acknowledges the alarm (one of the trained fire safety staff). At this point switchboard will announce the Code Red with the location.
In the lab building at the Civic, leave the building if the fire alarm sounds

Second Stage:

Once the situation is investigated and it is found necessary, a key will be inserted in the fire alarm upgrading it to the second stage. The alarm will then ring at 120 strokes per minute. At this time, the specified area will be evacuated. Communications will announce a Code Green.

Use stairs that are clear of smoke; never use elevators. Be observant. Report any problems or anything unusual (fire, smoke, and odours) to supervisors.

Once outside of the building, move away from the doors to enable others to exit. Report to personnel monitor (person wearing safety vest).

Never re-enter the building before authorized to do so by the officer responsible.

When Alarm Sounds (General - dual alarm, Civic labs - single alarm, Riverside - dual alarm)

Stop whatever you are doing. If you have any time, do the following….

Secure any flammables, chemicals and toxic materials in their proper storage areas

Close all doors, shut off equipment, close fume hood doors

Shut off gas cylinders, air, vacuum and main gas valves

Evacuate and report to the designated Assembly area and check with the staff member wearing the safety vest.

Assistance should be given to disabled personnel, visitors and patients.

Note - one person from each area/lab should liaise with other TOH departmental staff

Remain clear of the building until the “all clear” has been announced. You should assemble and wait at least 30 feet away from the building.

LABORATORY SAFETY

Safety Practices

Awareness – Communication

BE FAMILIAR with the locations and operation of safety and emergency
Resident Safety Policy

facilities such as fire extinguishers, first aid kits, emergency wash facilities, fire alarm pull stations, telephones, and emergency exits.

BE ALERT to unsafe conditions

PROMPTLY REPORT unsafe conditions and accidents to your supervisor and Health and Safety Coordinator.

Ensure that safety equipment is readily accessible and clearly marked.

Have a good understanding of the safety rules as well as the emergency procedures.

Working alone in the laboratory can be particularly dangerous. If you are alone, ensure that someone, such as a janitor or guard, checks on you regularly. It is advisable to use the buddy system.

Management does not condone the use of radios or iPods/mp3 players in the lab

**Proper Attire**

Wear clothing appropriate for the level of hazard. Lab coats (closed, knee-length) and proper footwear are required for work involving chemicals, biohazards or radioisotopes. Gloves and safety glasses or safety goggles must be worn as required by the work being performed.

NEVER WEAR CONTACT LENSES when working with hazardous chemicals, unless wearing safety goggles.

Application of cosmetics in the technical work area is prohibited.

Suitable footwear with closed toes and heels and preferably with non-slip soles must be worn in all laboratory areas. Leather or synthetic, fluid impermeable footwear is recommended. Shoe covers may be worn for additional protection against liquids.

Long hair must be tied back in the working area of the laboratory.

Jewellery and loose clothing (e.g. ties or name tags on neck cords) shall not be worn in laboratory work areas if there is a danger of it being contaminated by infectious substances or chemicals or caught in equipment. Consult the TOH Dress Code for additional information.

Wash hands frequently during shift with soap and water (or waterless hand washing gel) after removing gloves, before and after contact with patients, before leaving the work area and before eating or smoking.

Leave behind protective equipment (lab coats, gloves, etc.) when leaving the
Resident Safety Policy

work area. Be careful not to contaminate door handles or telephones.

Working within the laboratories

Workspaces must be kept clean and free of clutter (chemical, biological specimens, etc.)

Smoking, eating and drinking are NOT permitted in the laboratory.

DO NOT store food and drinks in laboratory refrigerators.

DO NOT run in laboratories. Walk.

Laboratory doors must be kept closed at all times (unless held open by an electronic device, which is linked, to fire alarm system).

NEVER BLOCK exits and passageways, or access to emergency equipment (i.e. eye wash stations, emergency showers, fire extinguishers, first aid kits and electrical panels).

Laboratory work areas shall be kept tidy and uncluttered at all times.

Exits, aisles and corridors shall not be obstructed or blocked.

Exits and access to exits shall be illuminated with clearly visible emergency lighting and exit signs.

Proper Handling of Hazardous Chemicals

Work with materials only when you know their flammability, reactivity, toxicity, and the emergency procedures associated with these materials. Refer to MSDS.

Label reagents and samples according to WHMIS legislation.

Keep an updated inventory of all chemicals stored in the laboratory. It should be easily accessible in case of emergency.

DO NOT add, discard or remove chemicals from the laboratory without updating your chemical inventory.

Store chemicals according to chemical compatibilities rather than alphabetical order.

Store chemicals in appropriate locations (e.g. flammable storage and acid storage cabinets).

DO NOT leave reagent bottles, empty or full, on the floor or in the sink.
Resident Safety Policy

Transport hazardous chemicals (e.g. solvents) and chemical waste in approved bottle carriers or on a special waste cart.

NEVER pipette by mouth.

Clean up spills immediately only if you are trained and able to do so. Spill kits/cabinets with the proper supplies for cleanup can be found on each floor. If the spill is too large to handle or if you are unsure what to do call 1-2999(Civic) or 7-2999(General) or 8-2999 (Riverside) and state that you have a code brown emergency.

Personal Protective Clothing and Equipment

Wear appropriate personal protective clothing while inside the lab.

Use additional PPE equipment depending on the hazardous exposure levels.

It is the user’s responsibility to report to the supervisor any defective or deficient equipment.

A wide variety of gloves are available to protect against chemical exposure. Because the permeability of gloves of the same or similar material varies from manufacturer to manufacturer, as well as between gloves made from different materials, no specific recommendations are given here. Choose gloves appropriate to the chemicals being handled. Supplier catalogues provide useful information. Be aware that a chemical may diffuse through gloves increasing exposure as gloves hold the chemical against the skin.

NOTE: The use of latex gloves should be avoided due to the potential for development of allergies. However, if latex gloves must be worn, the low protein powder free variety it is recommended. Nitrile gloves are a good substitute for latex.

Gloves are to be worn when handling biological materials and as required for chemicals and other items.

Phlebotomists must wash their hands and don a fresh pair of gloves for each patient.

Always check to ensure the absence of cracks or small holes on gloves before each use.

DO NOT WEAR GLOVES IN PUBLIC AREAS. Remove gloves and wash your hands before leaving the work area and before handling such things as telephones, doorknobs, writing instruments, and laboratory notebooks. If it is necessary to carry hazardous materials through hallways from one lab to another, request assistance opening doors or use one gloved hand for carrying materials.
and one clean, glove-free hand for opening doors.

Eye Protection

EYE PROTECTION shall be provided in laboratories where corrosive or toxic chemicals are used or stored, and anywhere near high-pressure, high vacuum equipment. It is also necessary for work that can generate dusts, sprays or other projectiles.

Depending on the protection required during a specific procedure, regular safety glasses, chemical safety goggles or a full-face shield may be necessary. Consult with the supervisor.

Clothing

Be aware that there are hazards associated with materials commonly used in personal clothing. Cotton is highly permeable. Nylon, polyester and spandex are easily melted. Body hugging materials such as spandex will hold spilled chemicals close to the skin.

Evaluate the potential hazards of lab or phlebotomy activities and wear appropriate clothing.

Lab coats (knee-length) must be worn at all times in laboratories when work involves chemicals, biohazards, or radioisotopes. Lab coats should be kept closed while in the lab.

When not in use, hang or store protective clothing in the designated areas (usually wall hooks)

Change soiled or contaminated lab coats or hospital owned scrubs when necessary to ensure cleanliness and place in the pink plastic laundry bags (orange at the Riverside lab) for pickup and cleaning by the hospital laundry services. Do not take hospital lab coats home to launder.

Hearing Protection

It is recommended that hearing protection be worn if average noise levels exceed 85 dBA (decibels) over an 8-hour period. It is permissible to be at noise levels greater than 85 dBA for short periods of time without hearing protection. Contact the Health and Safety Coordinator for more information. Hearing evaluations are recommended for all employees working in a noisy environment.

Splashguards

Use splashguards or similar devices when there is the potential for splashing of
samples or reagents.

Use approved safety glasses, face shields or other eye and face protection when handling hazardous materials. Contact lenses offer no protection from splashes and can be affected by laboratory chemicals. Personnel should be advised not to wear contacts in hazardous areas. Additional eye protection shall be worn with contact lenses.

Emergency Showers

Be familiar with the location and operation of the emergency shower nearest to your laboratory.

Facilities Management is responsible for regular testing of showers in the laboratory.

The shower area must be readily accessible, and be kept clear of obstructions.

Rinse the affected area for a minimum of 20 minutes with copious amounts of cool water.

Report the use of emergency showers on an accident/incident reporting form and forward to OHSS (it must be signed by the supervisor).

The use of the showers is for chemical splashes. In case of fire use a fire blanket.

Eye Wash Stations

Be familiar with the location and operation of the eye wash stations in the laboratory.

Some eyewash stations have disposable or refillable bottles instead of a sink and tap.

Disposable eyewash bottles must be replaced after use.

The eye wash station area must be readily accessible, and kept clear of obstructions.

Eye wash equipment must be checked for proper function once a week.

Maintain a record of this activity and have it available for inspection personal.

In the event of a mishap, spray eyes for a minimum of 20 minutes with a copious and gentle flow of water.

Report the use of eyewash stations on an accident/incident reporting form and
forward it to OHSS. Incident reports must be signed by your supervisor.

**Equipment Safety**

When a piece of equipment is to be removed from service for repairs, servicing or disposal, it must be decontaminated, as thoroughly as possible before being removed. Departmental and divisional policies and procedures are available for more information and instructions.

Defective equipment is to be removed immediately from the work area or a sign posted on it to prevent it from being accidentally used, and identified that it has been decontaminated or not.

**Centrifuges**

When operating a centrifuge, be sure proper balance is maintained. Imbalance of the rotor causes vibration. Even when the imbalance is not great enough to trigger the imbalance detector, tubes break more frequently and wear on the centrifuge is increased.

Centrifugation procedures must minimize the possibility of aerosols. Avoid centrifugation of uncovered tubes of specimens or flammable liquids. Centrifuging creates a vacuum and causes liquids to become volatile and form airborne droplets. Use the covers, if they are supplied with the centrifuge.

All cultures of or specimens likely to contain agents that are infectious by aerosol inhalation should be centrifuged within sealed centrifuge tubes in tightly covered cups or rotors, to be opened only in a biological safety cabinet.

Centrifuges should be routinely cleaned with appropriate disinfectant (not bleach). Rotors should be cleaned with appropriate cleaning fluid.

Repairs and maintenance is the responsibility of Biomedical Engineering.

**Cryostats and Microtomes**

Cryostats and microtomes are potentially dangerous equipment. Both use knives, which may cause accidental cuts to the skin. Note the following recommendations for the safe handling:

Never leave knives unguarded;

Dispose of knives in a puncture-resistant sharps container;

If changing specimens without removing the knife, cover the knife with finger guards; the hand wheel must be locked.
The main difference between these two machines is that the microtome uses paraffin-embedded tissues for cutting/sectioning, which are generally not considered infective. A cryostat is considered a high-risk instrument because it uses frozen, unfixed tissue that may contain viable infectious agents. The following current recommendations describe the safe use of these instruments. Cryostats are rotary type microtomes enclosed in a mechanically refrigerated cabinet. It is intended to process fresh, unfixed tissue mainly for frozen biopsy diagnosis. Therefore, the operator and other personnel handling the machine should be protected. Two types of preventable accidents are caused by the use of cryostats namely infections and mechanical injuries. The block holder and the brush should be decontaminated by immersing in a suitable antiseptic solution. Cryostats should be surface decontaminated daily with Leica cryofect after removal of tissue debris. Cryostats should be defrosted and decontaminated with 1% hypochlorite solution once a month and/or after handling an infectious case. All parts of the microtome are wiped with 1% hypochlorite solution. Gloves, mask and proper protective equipment should be used. The window of the cryostat should be closed when trimming. The decontamination process should be documented and the record posted or kept on file.

**Electrical Safety**

Power cords and plugs should be inspected regularly. Frayed wires and cords must not be used.

Report defects/faults to your supervisor and/or Biomedical Engineering 1-4883 (Civic), 7-8454 (General) or 8-2073 (Riverside).

All electrical apparatus must be properly grounded.

Never remove the ground pin of a 3-pronged plug.

DO NOT use portable space heaters in proximity with combustible and flammable material.

DO NOT use electric wires as supports and never pull on live wires.

Ensure that all wires are dry before plugging anything into a circuit.

Electrical devices should be connected outside of a fume hood to avoid sparks, which may ignite a flammable or explosive chemical.

All electrical equipment immersed in liquids must have ground fault circuit interrupters.

Circuit breaker panels within laboratories must be easily accessible and clearly marked. Familiarize yourself with their location.
Minimize the permanent use of extension cords

Only qualified and trained people should repair or modify electrical or electronic equipment.

All electrical equipment must be CSA or Ontario Hydro approved and inspected by Biomedical Engineering.

Static Electricity and Sparks

Static electricity and sparks may cause a fire under the right circumstances.

Always be conscious of the potential for generating sparks.

Electrical equipment must have spark protection in an area where there is a danger of fire or explosion.

Proper grounding and bonding of containers and equipment provides some protection from static electricity and sparks.

A dry atmosphere promotes the formation of electrical charges.

Common sources of sparks and static electricity:

Decanting of organic liquids from one metal container to another.

Plastic aprons

Metal clamps, nipples, or wires used with non-conducting hoses.

Gases released quickly from cylinders under high pressure.

Switches and thermostats.

Electrical contacts (e.g. Light switches and thermocouples, refrigerators) may produce sparks.

CHEMICAL SAFETY

WHMIS

Employees are required to become familiar with the Workplace Hazardous Materials Information System (WHMIS). WHMIS is a Canada-wide comprehensive plan that provides information to employees and employers on the safe use of hazardous materials in the workplace. Employees must receive training on the safe use, storage and disposal of hazardous materials.
WHMIS training provides information on:

Mandatory warning labels on controlled products i.e. chemicals classified under government regulation DORS/88-66

Material Safety Data Sheets (MSDS) which provide technical details on the controlled product, hazard and first aid measures in case of exposure

Mandatory yearly WHMIS employee training on safe work practices

Each lab section is responsible for its own on-site worker education and training program.

This program will consist of various forms of training materials (including WHMIS and Fire safety), documentation of staff training and evidence of staff comprehension (test). Laboratories may develop additional safety training programs specific to their area for their employee’s safety training.

Labelling

All chemicals must be labelled as per WHMIS legislation and include the following information. When a product is transferred from the original supplier container, it must also be labelled with a workplace label that includes this information.

Name of chemical,

Safe handling procedures

Reference to the MSDS sheet

Material Safety Data Sheets (MSDS)

The Ottawa Hospital recognizes its obligations under the Ontario Occupational Health & Safety Act & Regulations and WHMIS Legislation and is dedicated to providing a safe environment for employees, patients, visitors and agents in the hospital.

To meet this requirement, TOH has an MSDS Management Service called Link2MSDS provided by WellNet Solutions. The MSDS Management Service allows TOH to maintain up-to-date MSDS throughout the organization and in so doing provide all employees with access to current health and safety information at all times. This service also protects managers, supervisors and the hospital from risk of fines or even criminal charges for non-compliance with health and safety regulations.

A notification is sent by Purchasing so that MSDSs are obtained for new products and copies sent to the WellNet program. By law, MSDS sheets/information must
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be less than three years old.

**Biohazard Safety Precautions**

Use Standard Precautions

No eating, drinking or smoking in the laboratory.

No storage of food (for example lunches) in the laboratory.

Lab coats or other protective clothing must be worn by staff when working in the laboratory, and must be closed.

Lab coats are only to be worn in other areas of the hospital if the staff member is performing patient care related duties. Wear a clean lab coat for duties outside the lab.

WHEN EXITING THE LABORATORY area, remove lab coats and protective clothing.

Wash hands frequently: after removing gloves, when hands are soiled, and before leaving the laboratory.

Long hair must be tied back in the working area of the laboratory.

Procedures should minimize the creation of aerosols, and appropriate safety procedures should be practiced (i.e. use of splashguards, fume hoods, biosafety cabinets).

NEVER pipette by mouth.

Needles MUST NOT be bent or recapped.

Follow recommended procedures for decontamination of work surfaces and equipment. This is essential to maintaining a safe work environment and must be done daily, and oftener if required.

**Standard Precautions**

Practicing Standard Precautions means that all blood, body fluids or other patient specimens are assumed to be potentially infectious and are handled using appropriate personal protective equipment and techniques designed to minimize exposure. The laboratory is required to provide workers with personal protective equipment, which includes lab coats, disposable gloves, face shields and goggles, splatter shields, and masks. Gloves must be worn whenever a laboratory worker may come in contact with blood or potentially infectious material. Hands should be washed after removal of the gloves. Eye and mouth protection should be used when there is a potential for accidental splashes and sprays during collection or
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processing. Lab coats should be worn. When centrifuging blood and body fluids, capped specimens in sealed bucket/rotor must be used. Containers must be capped when vortexing.

Each laboratory must have a plan to handle accidental biological spills and follow waste management guidelines/requirements. Each laboratory should have a biological spill kit and a response protocol. Lab personnel are required to read the Infection Prevention and Control manual for a complete understanding of infectious agents and the prevention of their spread.

Personal Protection:

Lab coat, safety glasses, disposable gloves and appropriate footwear.

Appropriate immunizations (need Hep B at a minimum). Staff are encouraged to get their annual flu shot.

Airborne

Aerosols of infectious solutions may be formed when removing the stoppers or plugs from sample tubes, when dropping solutions onto hard surfaces, by centrifuging tubes, by vortexing and by heating liquids too rapidly.

Ingestion

Infection may follow ingestion due to mouth pipetting or route of infection may be more indirect. Hand-to-mouth spread may result from failure to wash hands thoroughly before eating, drinking or smoking.

Direct Inoculation

Direct inoculation from an accidental needle “stick” is an obvious route of infection. Broken glass or animal bites may also produce direct inoculation. Small scratches or paper cuts on the fingers and broken cuticles may be easily contaminated by clinical specimens.

Mucous Membrane Contact

Certain organisms, including the hepatitis viruses and human immunodeficiency virus (HIV) may enter directly through contact with mucous membranes, e.g. ocular conjunctivae. Hands must be thoroughly washed before rubbing the eyes, changing contact lenses or applying cosmetics.

RADIATION SAFETY

General Information

Radiation Safety is managed through the Radiation Safety & Health Physics
(RSHP) Department of the Ottawa Hospital (TOH), which operates under the supervision of TOH Radiation Safety Committee. The Department coordinates issuance of internal permits, staff training, workplace inspections, inventory control and waste management. An internal permit (issued to a principal scientist) is required from the RSHP Department prior to commencing work with radioisotopes in his/her laboratory. Individuals planning to work with isotopes must have completed a TOH Radiation Safety training session, have submitted a completed Nuclear Energy Worker Form to the RSHP Department and be listed on the laboratory’s internal permit.

Training ensures laboratory personnel have the necessary information to:

- understand basic principles regarding ionizing radiation from various isotopes
- apply basic radiation protection principles
- work safely with radioactive material
- maintain required inventory and waste records
- properly receive radioactive packages
- perform proper contamination monitoring
- respond to minor spills

A permit holder is responsible for ensuring:

- hospital radiation safety policies and procedures are followed
- permit limits and conditions are observed
- a safe work environment is maintained
- designating a contact person who will liaise with the RSHP Department
- users are trained before working with radioactive material
- receivers are trained and certified for receiving radioactive shipments
- contamination monitoring is done appropriately
- reporting incidents or concerns to the RSHP Department immediately
- responding to inspection reports
- waste is disposed of appropriately
For general enquiries, contact the RSHP Department Technical Coordinator at ext.17704 or for further information on the program contact the Senior Radiation Safety Specialist at ext.12983.

For all radiation emergencies during working hours page: 715-8003; after hours contact Campus Security.

11.5 Radioactive Spill Procedure

The key point to remember is: TDSD

To Decrease Someone’s Dose

Time Distance Shielding Decay

ALWAYS ensure ‘First Aid First’: Never delay or deny necessary HEALTH CARE due to fear of radiation. Personal injury ALWAYS takes PRIORITY over radiation hazard.

Definition of a MAJOR spill:

Defined as an uncontained spill of a significant amount or magnitude of radioactive material, which has the potential to result in personnel contamination or exposure or has the potential for a spread of contamination beyond the normal work area. Such a spill is not easily controlled using the resources on hand. Constitutes a Code Brown.

If in doubt, treat it as a major spill and page the RSHP Department 715-8003 during working hours (8:00 am – 5:00 pm).

After hours, contact Security: 24-hour Emergency

Civic: 12999 General: 72999 Riverside: 82999

Ensure the RSHP Department is advised of all spills and a Radiation Incident Report Form is completed.

For further information regarding work with radioisotopes and specific policies and procedures, consult the Radiation Safety Manual.