



Faculty of Health Health, Safety and Environment Guidelines for Undergraduate Students in Q & W Block, Gardens Point H Block, Kelvin Grove

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1. Introduction

Ensuring your health and safety, and protecting the environment is an essential part of teaching and learning activities in the Faculty of Health. This guideline provides information on the requirements and practices designed to ensure your personal safety to participating in practical laboratory classes.

While in our laboratories you may be exposed to micro-organisms, human and animal tissue, biological material, chemicals, specialized equipment, and radiation which have the potential to cause harm. Procedures are in place to identify these hazards, manage the risks, minimize injury and illness, and prevent environmental harm, and you have a role in ensuring these are understood and followed.

To confirm your understanding of key practices and protocols, successful completion of the *Undergraduate Student Laboratory Induction* is required EACH SEMESTER before undertaking practicums. Certificates expire at the end of each semester.

To successfully complete the induction:

- review of the material provided (video and Guidelines booklet)
- complete the online quiz and attain a score of 100%
- Medical Radiation Sciences (L3, Q Block): read content to Section 7 of this Guideline; complete inductions specific to the area, including sign off on the QUT Radiation Safety Protection Plan.

This applies to the following laboratories:

Q Block, Gardens Point (GP)

- Q3 Medical Radiation Sciences (MRS) and Virtual Environment for Radiotherapy Training (VERT)
- Q4 Laboratory
- Q7 Laboratories
- Q8 Laboratories

W block, Gardens Point (GP)

- W101 Laboratory
- W301 Laboratory

H block, Kelvin Grove (KG)

- H2 Laboratory

2. Laboratory Specific Protocol - Quick reference chart

The below table provides an overview of the different protocols for specific laboratories:

	Q Block, GP				W block, GP	H block, KG
	Level 3 (MRS)	Level 4	Level 7	Level 8	Level 1&3	Level 2
Bags and/or personal items	✗	✗	✗	✗	Store on shelves in lab	✗
Food and drink (including water)	✗	✗	✗	✗	✗	✗
Enclosed footwear	✓	✓	✓	✓	✓	✓
Laboratory coat	✗	✓	✓	✓	✓	✓

Table 1 - Overview of laboratory requirements at Q & W block (Gardens Point), and H block (Kelvin Grove)

3. Your personal health and safety responsibilities

To ensure your health, safety and wellbeing when in laboratories, you must comply with the following:-

- inform the academic in charge if you have an underlying medical condition or are pregnant, or if attending a Medical Radiation Sciences (MRS) unit, notify the local area Radiation Safety Officer. NB: *This disclosure will be treated confidentially in line with the Privacy Act. This information may require QUT to make reasonable adjustments (alternative arrangements) to support your learning program, and to ensure the health & safety of you and your unborn child.*
- consult your Unit Coordinator or supervising academic should you have a medical condition or other personal concerns that may impact your ability to participate in practical activities
- behave in a respectful manner, and not in reckless or irresponsible way. This may lead to individuals being asked to leave the laboratory
- do not access a laboratory without the permission of the academic, demonstrator, or technical staff.

Do not attend practicums if you are sick or unwell, or under the influence of illicit drugs or alcohol

a. Security of personal belongings

Lockers are provided for storage of your personal belongings during attendance at practical classes, as these items are not permitted within most laboratories (NB: refer Table 2 for exceptions). Lockers are only provided for the duration of the class; not for daily storage. Items left in lockers for extended periods will be removed and provided to QUT Lost Property (HiQ on both campuses).

Class Location	Storage of bags / personal items	Access Details
Q block, level 3 & 4	Lockers on level 2 (Q2)	Use your student card to access locker
Q block, level 7 & 8	Lockers on Q7 (L7) and Q8 (L8)	Provide your own padlock for use. QUT will not accept responsibility for theft of items if lockers are not properly secured
W Block, level 1 & 3	Bags can be stored in bag racks located within W101 and W301 due to reduced risk of activities undertaken within these labs	Bags are stored in open shelving located within the laboratory
H Block, level 2	Lockers in the foyer of H2 Lab	Use your student card to access locker

. Table 2 - Locker location and access requirements for different laboratories

4. Emergency and First Aid Assistance

If an emergency occurs in the laboratory, supervising staff should be your first point of contact.


Medical or Other Emergency	Call 000 for Police / Fire / Ambulance then call QUT Security (Emergencies) on 3138 8888
QUT Security (emergency assistance)	Call QUT Security on 3138 8888 or use Safe-Zone app* 
QUT Security (non-emergency)	Call QUT Security on 3138 5585 / 1800 065 585 (free call)
First Aid assistance	During practicums: notify the academic or demonstrator in charge Other: Call QUT Security on 3138 8888 or use Safe-Zone App

Table 3 – Emergency contact numbers for medical or other emergencies

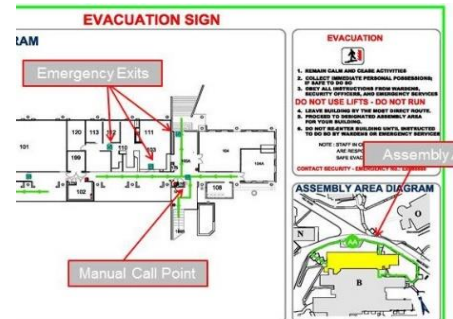
*Safe-Zone App: contact QUT Security by selecting the First Aid, Emergency or Phone icon. The app is free to students and staff and available on Apple, Windows and Android platforms.

5. Evacuation Procedures

Emergency contact numbers, evacuation procedures and the route to follow in case of an evacuation can be found on each floor of all buildings (See **Error! Reference source not found.**), and you should make yourself familiar with this information for the buildings you visit.

In the event a building or area needs to be evacuated, the evacuation alarm will be activated, and follow procedures:

- **DO NOT RUN** or use the elevators during an evacuation.
- Cease activities; where possible switch off fuel or power sources (including mobile gas canisters and Bunsen burners) and cap any open bottles and containers, including any flammable liquids.
- Proceed quickly and calmly from the laboratory, as directed by the supervising academic, demonstrator, tutor or technical staff. They will direct you to the shortest emergency exit route to the assembly area, noting this could be via an external or internal stairwell.
- Building Wardens (White Hat) or Floor Wardens (Red Hat), QUT Security or Emergency Services may also direct you. Their authority super-cedes all others, and their directions must be followed.
- Individuals with physical or hearing impairment may require assistance during an evacuation e.g. directed to the fire exit and instructed to wait there until a warden can assist them to evacuate.
- **DO NOT RE-ENTER** a building until instructed to do so by a Warden, QUT Security of Emergency Services.



Occasionally a 'non-mechanical evacuation' may occur where the evacuation alarm is not activated. If this occurs, a Warden will instruct you on what action to take. NB: this may require you to Shelter in Place in the building (not evacuate).

6. Disability services

QUT Disability Services offer support to students who have a disability, injury or health conditions which may be permanent, temporary, episodic or fluctuating. Appointments with disability services are free and confidential. Information will not appear on student record or be made available to others without your prior consent, except where required by law (eg to preserve health or safety).

Please contact Disability Services if you consider alternate or additional arrangements are needed for your participation in practical classes. You will be registered with disability services who will liaise with the academic and laboratory technical staff to assess and implement agreed measures to assist your learning, by way of a disability support plan. This will include the protocol for assistance in the event of the evacuation of a building.

Hearing loops are available. Please contact the academic in charge or Disability Services to discuss your needs.

7. Electronic devices

Use of personal mobile phones/devices in the laboratory is not permitted. Preferably store mobile phones with your personal belongings in lockers during practical classes.

Some special considerations may apply in this regard, as follows:-

- If your device needs to be on your person during class, notify and gain approval from the academic in charge
- With approval and instruction of the Academic in charge, use of a personal device may be required for a specific practical. They will instruct you on how to protect these from contamination (sealed zip-lock bag).

8. Safe laboratory practices

There are general practices and requirements that are consistent across laboratories. These include:

- It is prohibited to eat, drink, smoke or apply cosmetics (e.g. lip balm) in the laboratory
- Cover all open wounds prior to entering the laboratory
- Always keep your work area or bench clean and tidy
- Wipe down benches and dispose of waste as directed prior to and after your practical session
- Inform the academic in charge or demonstrator immediately in the event of a spill or breakage, ensure it is attended to quickly
- Report all accidents, hazards, incidents or injuries to the academic or demonstrator in charge
- Thoroughly wash your hands before leaving the laboratory.

a. Personal Protective Equipment - Footwear

As part of your personal protective equipment (PPE), the appropriate footwear must be worn. Entry into the laboratory will not be allowed if you are not wearing the correct footwear.

Footwear requirements include:

- Shoes must be non-slip and closed-in to cover the toes, upper surface of the foot and the heel
- Thongs, sandals, sling backs, high-heels, shoes with open sections or bare feet are not permitted
- Footwear with permeable sections such as fabric layers should be avoided, especially for practicums involving the use of hazardous or high volumes of chemicals.

Inappropriate Laboratory Footwear				
				
These shoes do not cover the toe, top of the foot or heel and are not suitable for the laboratory				

Appropriate Laboratory Footwear				
				
These shoes provide adequate cover and are considered fully enclosed, and are suitable for the laboratory				

b. Equipment hazards

Equipment used in the laboratory can cause serious harm if not used, handled or programmed correctly. To ensure your safety when working with laboratory equipment:-

- Do not use equipment unless you have been trained and instructed to do so by the academic in charge, demonstrator, tutor or relevant technical staff
- Do not move or carry equipment in the laboratory unless instructed by a supervising staff member, and only do so if you feel confident you are able to do so.
- Do not interfere with or change the operating conditions of equipment without approval or training.

c. Electrical hazards

Laboratories contain a range of different types of electrical equipment. This equipment may present an electrical risk if handled incorrectly or if used when damaged or defective. To ensure electrical safety:

- Visually check electrical leads before use to ensure they aren't damaged
- Report damaged or faulty equipment or installations (leads, outlets) to the academic or demonstrator in charge
- Report any electrical shocks or tingles immediately
- Take care to prevent water coming into contact with electrical equipment and connections e.g. splash from sinks, lids of water baths dripping onto equipment)
- Disconnect power supply from outlets while assembling, disassembling electrophoresis equipment.

9. PC2 laboratories – specific requirements

Physical containment (PC2) laboratories contain additional hazards that may harm people or the environment. The following protocols apply to PC2 laboratories:

WHEN YOU ENTER the laboratory:

- put your laboratory coat and glasses on when you are **IN** the laboratory (not before you enter).
- hats or peaked caps are not permitted. Cultural attire is permitted providing it does not pose a health and safety risk. If you have any concerns, talk to the Academic or demonstrator in charge
- shoulder length and long hair **must** be securely tied or clipped back; secure long fringes or hair that could hang in your eyes while working
- **do not** place pens, pencils or hands in or around the mouth, eyes, ears or nose while in the laboratory
- all substances must be regarded as potentially hazardous
- hands must be washed regularly if contamination is suspected, and the gloves disposed of and replaced with a new pair
- no equipment or materials are to be removed from the laboratory unless permitted by technical staff

- wipe down (decontaminate) your workspace **BEFORE** and **AFTER** your practical session, as well as any instruments used. This protects you and other students from potential infection or exposure to hazardous chemicals
- dispose of waste as directed; unless instructed otherwise, no waste is to be poured down sink or drain.





BEFORE LEAVING the laboratory:

- REMOVE your gloves and discard them into clinical waste bins, then
- REMOVE your safety glasses, then
- REMOVE YOUR laboratory coat and place it in a plastic bag with your safety glasses, then
- **WASH YOUR HANDS**

10. PC2 laboratories - specific PPE requirements

Unless directed otherwise by the academic or demonstrator in charge, the following personal protective equipment (PPE) **must** be worn in PC2 laboratories:-

- Laboratory coat (also referred to a laboratory gown) if possible have a spare in locker in case of spills.
- Enclosed footwear
- Safety glasses
- Gloves.

PPE	Details of what is required for a PC2 Laboratory	
Laboratory Coat (gown)	Long-sleeved cotton or cotton/polyester rear fastening must be rear closing and properly fastened (e.g tied) must protect the arms to the wrist must sufficiently protect the body so not exposing your lap/upper legs when seated stored in plastic bag when not being worn.	 Rear closing lab coat/gown
Safety Glasses	contact lenses or prescription glasses are not a suitable substitute for eye protection (safety glasses) safety over-glasses must be worn with prescription glasses to ensure adequate protection contact lenses are permeable, and if in doubt, confirm with the academic in charge that they are suitable for your practical activity	 <div style="border: 1px solid black; padding: 2px; display: inline-block;">Safety glasses</div>  <div style="border: 1px solid black; padding: 2px; display: inline-block;">Safety over-glasses</div>
Gloves	For practicums the academic or demonstrator in charge will provide the appropriate gloves to be worn that suit the particular activity. Nitrile gloves provide adequate protection for most activities, however you may be instructed to use other types of gloves (e.g., latex, neoprene, PVC) based on the nature of the practical activity.	Nitrile gloves 

	Should you suspect you may have an allergic reaction to the gloves, inform the academic in charge or demonstrators.	
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11. LABORATORY HAZARDS

a. Chemical hazards

Laboratories contain hazardous chemicals, including flammable, corrosive, toxic and carcinogenic substances, in a variety of forms (liquids, gases, vapors, dusts). Chemical containers will be GHS compliant and labelled to include the name of the substance, and risk statements and details on their handling and safe use. Request assistance if you are unable to read a label or it is missing.

Safety Data Sheets (SDS) provide detailed information on the safe handling of chemicals, including chemical and physical properties, health hazards, emergency procedures, and safe storage, use, handling and disposal procedures. Access SDS from Chem-watch on laboratory computers.

Considerations when using chemicals:

- follow instructions from the academic in charge and demonstrators regarding appropriate PPE to wear while handling specific chemicals that may present a higher risk, including gloves and safety glasses
- advise immediately if you spill chemicals on yourself or your clothing.

b. Biological hazards

Many practical activities involve the handling of biological materials, such as blood or body fluid, human or animal tissue, or bacteria, virus or fungi. DO NOT open culture plates, unless instructed to do so by the academic or demonstrator in charge.

All biological cultures and samples should be treated as potentially infectious. These should be handled using the prescribed PPE and safe laboratory practices to prevent exposure through inhalation, ingestion, absorption, or skin penetration.

- Inhalation: may occur when breathing in infectious materials which have been aerosolized during:
 - opening tubes
 - accidental spillage of solutions
 - pipetting (expelling from pipettes and other sources may create aerosols),
 - use of inoculation loops.
- Ingestion: may occur from eating, drinking or by direct hand-to-mouth spread as a result of failing to wash hands thoroughly upon completion of the task or on completing the practicum.
- Absorption or skin penetration: can occur as a result of contact with mucous membranes (e. g. touching eyes, ears and nose with contaminated hands) or penetration via broken skin.

c. Sharps hazards

Chemical and biological materials can penetrate the skin through small scratches, or lacerations, and through penetration by needle sticks or other sharps injuries. Sharps include:

- syringes, needles (even if 'clean')



- scalpels
- microtome blades
- dissecting equipment
- broken glass wear and slides
- any sharp implement with the potential to cause a penetrating injury if not handled in a safe manner.

ALL SHARPS MUST BE TREATED AS CONTAMINATED OR POTENTIALLY INFECTIOUS AND DISPOSED OF DIRECTLY INTO SHARPS CONTAINERS.

Sharps containers are provided in laboratories and are located on benches for easy access. When handling a sharp:

- NEVER re-cap needles
- Dispose of disposable needle/syringe/scalpels as a single unit (i.e., scalpel and handle as one unit)
- ALWAYS remove scalpel blades from the handle using the Click-Smart device.

Under no circumstances must sharps be directly disposed of into yellow clinical waste bags, clinical wheelie bins, general garbage bins or industrial waste bins.

d. Thermal hazards

A variety of equipment is used in laboratories, such as heating blocks, water baths, ovens, incubators, Bunsen burners, which have the potential to cause burns or scalds when used.

Implement the following safe practices to prevent potential thermal hazards:

- when raising the lid on boiling water baths, open the lid away from your body to avoid rising steam
- when inserting or removing tubes from heating blocks, open lids of tubes away from you
- carefully position tubes into heating blocks, do not force them. Tubes will expand during heating and could break or explode under pressure
- Do not touch the surface of heating blocks to determine if they are working or heated up.

e. Bunsen burners and portable gas burners

- tie back long (e.g. Long pony-tails) or loose hair to prevent them swinging forward into the flame
- When starting portable Bunsen burners and natural gas, have an igniter ready to use before turning on gas, *gradually* turn the gas knob; it is not necessary to fully open the gas valve
- If the gas does not ignite immediately, close off the gas and wait at least 30 seconds before trying again for any gas released to dissipate.



f. Gas hazards

Various gases are used throughout the laboratories for a range of practical activities. These include natural gas, CO₂, Helium, Nitrogen and Carbogen. In the event you suspect a gas leak or a gas alarm is activated, immediately notify the academic or demonstrator in charge.

Some laboratories, such as Q804 and H2, are fitted with sensor alarms to monitor gas levels in the

laboratory. In the event of a significant gas leak, alarms will trigger automatically and the gas and electricity to the laboratories will be isolated. In addition, emergency isolators (red button) located throughout the laboratories can also be manually triggered by staff in an emergency to isolate the gas and electricity.

If gas alarms are triggered (flashing light or alarm sounding), do not enter the laboratory, or evacuate if you are inside.

12. Emergency Spill Procedures

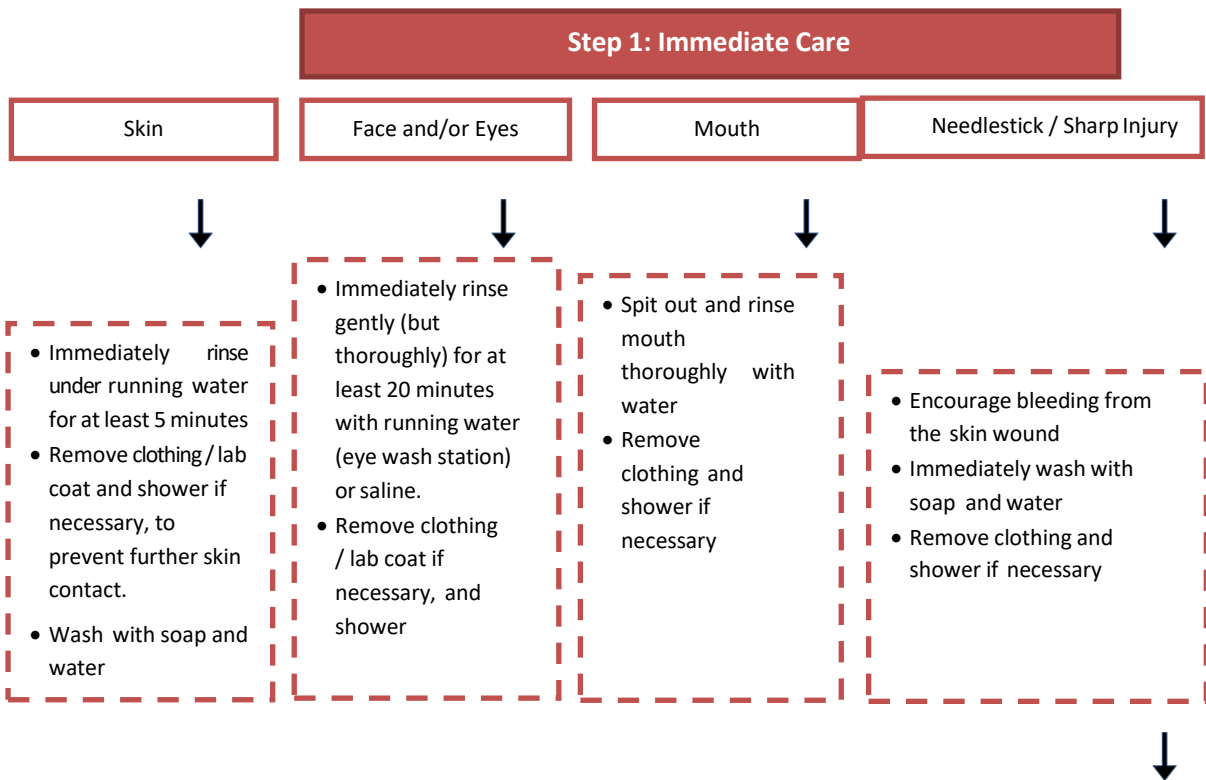
A spill in a laboratory may range from a minor to a significant hazardous incident that may result in a person(s) and/or the environment being harmed. Wearing PPE, such as laboratory coat, safety glasses, enclosed footwear, are key controls in place to prevent exposure to a spilled chemical substance or biological material.

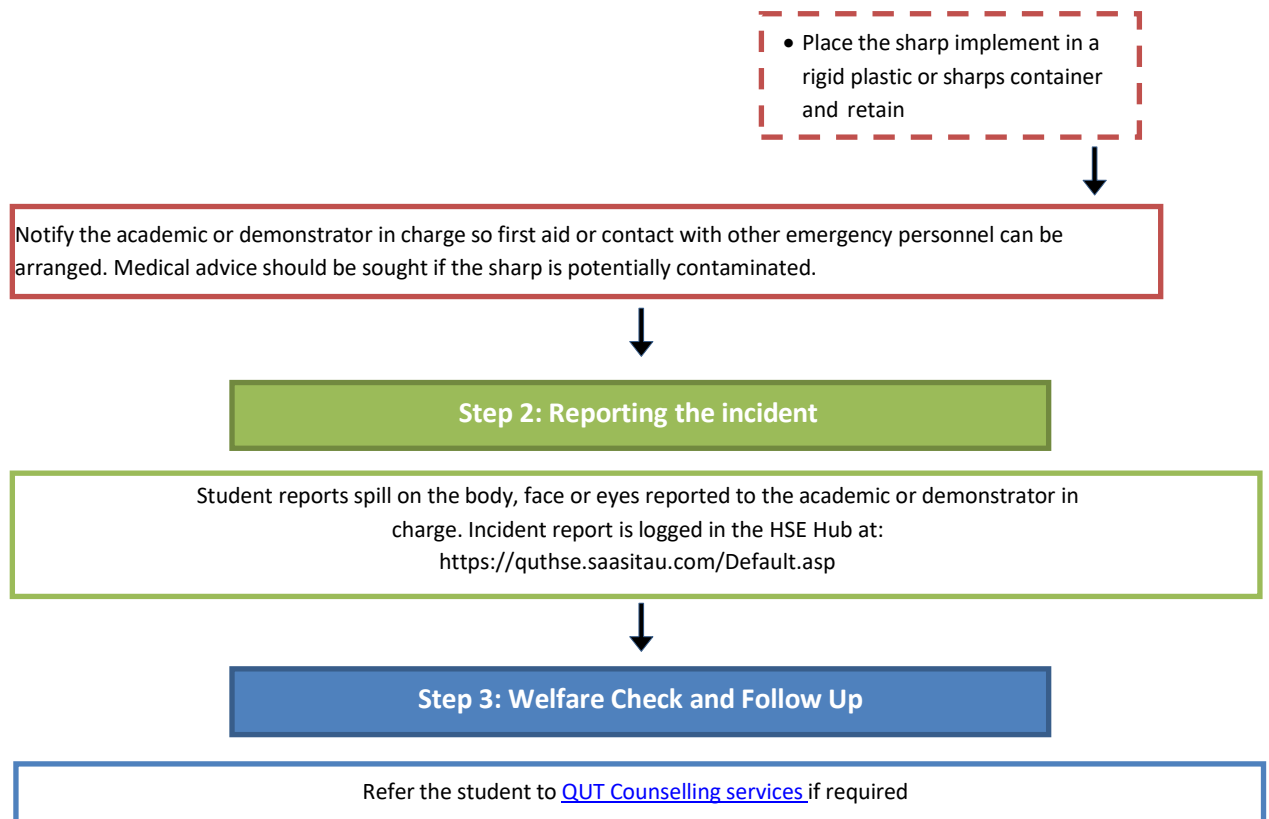
The method/s and material/s used for spill containment will depend upon a number of key factors:

- toxicity of the substance
- nature and type of substance
- size of the spill
- location of the spill
- consequences of the spill
- incompatibility with other goods that could be spilt.



Report all spills and breakages to supervising staff. This enables immediate clean up under supervision, using the appropriate spill kit (biological/chemical).





Spills should only be managed after the needs of a person involved is actioned (e.g. address spill on the body first). Only deal with the clean-up of a spill under the supervision of the academic or demonstrator in charge. Equipment and clean up kits are provided in laboratories to enable clean-up of spills.

Common factors to consider in the clean-up of spills:

- alert people around you and the academic or demonstrator
- follow instructions on how to clean up the spill
- confine and contain the spill (surround it with non-combustible material; do not create aerosols)
- neutralize the spill (e.g., bleach, 70% Ethanol; citric acid, sodium bicarbonate); refer to the SDS for details
- absorb the spill (e.g. after neutralization process complete, absorb with non-combustible material)
- collect the spill and seal in an appropriate container prior to disposal.

13. Waste disposal

Laboratories have a variety of procedures to ensure hazardous waste is disposed of in a way that protects health and safety, is environmentally responsible, and meets regulatory requirements. Follow the direction of your academic or demonstrator in charge re disposal of waste, and always ask if unsure.

Types of waste include:





- **Clinical waste:** includes waste that may harm human health and the environment, such as: clinical, cytotoxic, pharmaceutical, medicinal or poison, sharps waste disposed of in sharps containers.

- Liquid waste (e.g. chemicals)
- Hazardous waste, including solids and liquids.

General requirements associated with handling of waste include:

- As directed by supervising staff, decant liquids directly into dedicated liquid waste containers
- Unless instructed, do not dispose of any liquid waste down sinks or drains
- Dispose of transgenic material and contaminated plasticware (e.g., agar plates, culture tubes) into stainless steel containers
- Fill liquid or clinical waste container to no more than two-thirds or 60% full – do not overfill
- Unless instructed to do so, do not mix chemicals for disposal as they might be incompatible.

Table 4: Containers for disposal of different types of waste.

Waste	Yellow Biohazard Discard Bags 	Autoclavable Biohazard Bags 	Yellow Sharps Containers 	Cardboard Sharps Container 
Contaminated non sharps e.g. Gloves, paper, paper towel used to wipe down benches, used Tuffies	✓			
Non-contaminated materials e.g. hand wash paper towel, paper	✓			
Transgenic material and contaminated plastic ware e.g. Agar Plates, API strips, culture tubes,		✓		
Broken Glass			✓	X
Syringes, needles, pipette tips, coverslips, microscope slides, microfuge tubes, glass pasteur/transfer pipettes, scalpel blades*			✓	
Plastic transfer pipettes, spreaders, swabs, tongue depressors			✓	
Graduated disposable pipettes (Serological pipettes)				✓