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Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: December 18, 2003	
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LABORATORY SAFETY MANUAL

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INTRODUCTION

The Microbiology Department of Toronto Medical Laboratories / Mount Sinai Hospital is committed to the safety of its employees and to the safety of the working environment. Safe practices and working conditions are the responsibility of both the employer and the employee.

Policies in this manual are in accordance with:

- ◆ Occupational Health and Safety Act
- ◆ Hospital Corporate Policy
- ◆ Infection Control Policies
- ◆ University Health Network Laboratory Safety Manual
- ◆ Mount Sinai Hospital General Laboratory Safety Manual
- ◆ Laboratory Centre for Disease Control
- ◆ Centers for Disease Control and National Institutes of Health
- ◆ Laboratory Safety CSMLS Guidelines

The Laboratory Safety Manual is intended to address universal safety measures for achieving a safe and healthy working environment. It describes good laboratory practices that must be understood and observed by all individuals involved in the laboratory. It describes control measures essential for protecting all laboratory occupants from potential biological, chemical and physical hazards. These controls consist of, but are not limited to, policies, guidelines, training requirements, standard operating procedures, personal protective equipment, laboratory inspections, hazard evaluations, and engineering controls.

For hazards beyond the scope of this manual, specific standard operating procedures must be developed by the Laboratory Supervisor or Principle Investigator.

Additional Resources for Safety

www.ccohs.ca

www.cdc.gov/niosh/

www.saftpak.com

www.cdc.gov/od/ohs

www.hc-sc.gc.ca/hpb/lcdc/biosafety/index.html

www.hchsa.on.ca

www.safety.ubc.ca

www.whsc.on.ca

www.fishersci.ca

- Dangerous Goods Regulations
- Occupational Health and Safety Act
- Pathology Laboratory Medicine Safety Manual
- Laboratory Biosafety Guidelines 1996

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Section: Laboratory Safety Manual	Subject Title: Quality Process - Laboratory Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
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Policy:

The Quality Process outlines the responsibilities for safety

Purpose:

The policy provides direction for all staff to do their part to ensure a safe and healthy work environment.

Responsibility:

Management and employees

Key Elements:

- Establish and maintain adequate standards, policies, procedures, work practices and maintenance of buildings and equipment to ensure a safe working environment
- Orient and train all staff in safe work practices and procedures in compliance with established hospital policies and procedures
- Participate in internal responsibility system by supporting activities of JHSC

Related Documents:

<u>JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM</u>	MI\LS\03\v01
<u>EMPLOYEE SAFETY ORIENTATION AND TRAINING</u>	MI\LS\04\v01

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Procedure :

Department / Area	Responsibilities	Frequency	Supporting Documents
TML / MSH	<ul style="list-style-type: none"> • Ensure a safe and healthy work environment 		
General Manager, TML / MSH	<ul style="list-style-type: none"> • Establish and maintain adequate standards, policies, procedures, work practices and maintenance of buildings and equipment to ensure a safe working environment • Ensure that a review of all safety policies, procedures and programs, and the Laboratory Safety Manual, is undertaken • Provide to the JHSCs the results of any written reports respecting Occupational Health and Safety and advise employees of the results of any such reports 	Annually	Laboratory Safety Manual
Department Heads Managers Supervisors	<ul style="list-style-type: none"> • Establish a safety committee • Take every reasonable precaution to maintain a healthy and safe environment • Orient new staff to safety in the laboratory • Train staff in safe work practices and procedures in compliance with established hospital policies and procedures, including fire safety and WHMIS • Take appropriate action to correct any actual or potential health or safety hazard 	Fire safety - annually Training - on going	Safety committee minutes are posted under Health & Safety on the bulletin board

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Department / Area	Responsibilities	Frequency	Supporting Documents
Department Heads Managers Supervisors	<ul style="list-style-type: none"> • Update MSDS sheets • Have a designated Safety Officer • Participate in internal responsibility system by supporting activities of JHSC • Address recommendations of JHSC 	Annually	
All employees Students Visitors	<ul style="list-style-type: none"> • Observe established hospital policies and procedures • Participate in safety training, including fire safety and WHMIS • Work in a safe and prudent manner • Report any actual or potential safety hazards to his/her Supervisor/ Manager • Prevent loss of, or damage to, hospital property due to unsafe work practices • Use personal protective equipment provided 		
Joint Health and Safety Committees	<ul style="list-style-type: none"> • Promote safe work practices and conditions • Conduct regular workplace inspections • Promote educational programs to increase health and safety awareness at work • Recommend appropriate action on discovered or reported unsafe equipment, working conditions or practices and on actual or potential health or safety hazards 		Terms of Reference of JHSCs: TGH, TWH, PMH, TML, SPS

Department / Area	Responsibilities	Frequency	Supporting Documents
Infection Prevention and Control Committee	<ul style="list-style-type: none"> • Orient new staff to body substance precautions • Review new protocols for treatment of needlestick injuries • Act as resource on infection prevention and control 	Orientation as required	
Human Resources	<ul style="list-style-type: none"> • Address recommendations of JHSC 	On-going	
Occupational Health and Safety Department	<ul style="list-style-type: none"> • Provide professional assistance and guidance in achieving a safe and healthful work environment • Orient new staff to safety in the hospital • Resource for: <ul style="list-style-type: none"> • WHMIS • Transportation of dangerous goods • Spills • Designated substances • MSDS sheets • Accident investigation • Hazard assessment • Air quality • Ergonomic assessments • Physical demands studies • Special investigations • Occupational Health & Safety Clinic <ul style="list-style-type: none"> • Assess / treat workplace injuries / illness • Establish return-to-work procedures • Facilitate return-to-work 	Orientation As required	Occupational Health & Safety Act of Ontario and pursuant Regulations

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Department / Area	Responsibilities	Frequency	Supporting Documents
Emergency Department	<ul style="list-style-type: none"> Assess / treat workplace injuries / illness 		
Fire Marshal	<ul style="list-style-type: none"> Fire safety in hospital Conducts fire drills Conducts monthly fire safety seminars Trains Departmental Fire Wardens Provides input for fire safety seminars at TML St. Patrick Site 		Ontario Fire Code
Plant Operations and Maintenance	<ul style="list-style-type: none"> Address requests for necessary repairs in a timely manner Ensure adequate operation of engineering controls 		

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Section: Laboratory Safety Manual	Subject Title: Visitor and Contractor Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

When entering MSH, Visitors and Contractors may be exposed to hazards that employees have been trained to avoid. Everyone must work together to ensure safety protocols are adhered to.

Purpose:

This policy offers guidelines to reduce risks to Visitors and Contractors while they are in MSH.

Responsibility:

- All management and employees have the responsibility to ensure that this policy is enforced.
- All Visitors and Contractors must comply with this policy or they should not stay on the MSH premises.
- The local MSH Management Team must know and understand this policy and ensure its enforcement.

Key Elements:

- When this policy is to be applied.
- Definitions of Visitor and Contractor
- Specific responsibilities for Visitors, Contractors, Management and Employees

Related Documents:

<u>JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM</u>	MI\LS\03\v01
<u>EMPLOYEE SAFETY ORIENTATION AND TRAINING</u>	MI\LS\04\v01

Procedure :

This policy applies to:

- Visitors entering a hazardous Laboratory area.
- Contractors working in the MSH facility.

Definitions:

- Visitor: Anyone inspecting or being shown a hazardous Laboratory area, including; Government/Regulatory Inspectors, Sales Persons, Media Personnel, Personal Guests/Dignitaries and other people concerned being toured through the TML facility.
- Contractors: A non MSH employee contracted by MSH to perform work or provide a service on MSH premises, including; Cleaners, Service/Maintenance Technicians, Security Guards, External Couriers, Consultants, General Trades people and other people concerned.

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Specific Responsibilities

VISITORS:

- observe established hospital policies and procedures;
- participate in safety training, including fire safety and WHMIS if visiting for an extended period;
- work in a safe and prudent manner;
- report any actual or potential safety hazards to his/her Supervisor/Manager;
- prevent loss of, or damage to, hospital property due to unsafe work practices;
- use personal protective equipment provided;
- be provided with a MSH escort while in a hazardous Laboratory area;
- not create a hazardous distraction to staff;
- comply with applicable EHS program and policies;
- comply with applicable government laws, statutes and regulations;
- comply with applicable MSH requirements for any area they enter.

CONTRACTORS

- comply with applicable MSH safety policies;
- comply with applicable government laws, statutes and regulations
- provide Personal Protective Equipment (PPE), as required for their trade;
- comply with applicable MSH (PPE) requirements for any area they enter;
- provide information on their own Safety Program, if requested;
- provide copies of any required materials they bring into the MSH facility;
- remain within agreed upon boundaries while in MSH;
- comply with instructions given by a designated MSH supervisor while in MSH

MANAGEMENT

- communicate applicable EHS programs and policies to the Contractor;
- explain severity of hazards to which they may be exposed and their location;
- explain how to respond if an exposure occurs and location of emergency equipment;
- explain location's evacuation plan;
- provide hours of business and contact person while contractor is on site;
- review contractor's anticipated wastes and provide direction for disposal;
- review and maintain copies of contractor's EHS program;
- maintain a list of approved contractors who have met requirements
- maintain any relevant training documentation (WHMIS, Trade Certificate);
- acquire and maintain copies of all required work permits;
- ensure that a "Confined Space Entry" protocol is enacted, if applicable;
- periodically inspect the work site to ensure safety EHS compliance.

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EMPLOYEES

- be advised by their Supervisor what the Contractor is there to do;
- be respectful of space required by Contractor to perform their duties;
- report all real, and perceived, infractions of MSH Safety Program to MSH management;
- refer Visitor or Contractor questions to a Supervisor;
- assist the Contractor in evacuating the facility in case of an emergency

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Section: Laboratory Safety Manual	Subject Title: JHSC and Internal Responsibility System	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
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Policy:

Under the Ontario Occupational Health and Safety Act, the MSH and UHN have each established a Joint Occupational Health and Safety Committee (JHSC).

Purpose:

The primary purpose of the Joint Health and Safety Committee is to identify and evaluate health and safety hazards and recommend action to the employer in order to ensure that the hospital meets legislative health and safety requirements as well as supporting a comfortable work environment

Responsibility:

The **internal responsibility system** is based on workers and management resolving problems internally. The JHSC is the mechanism.

Key Elements:

According to the Occupational Health and Safety Act

- Identify sources of danger or hazards
- Make written recommendations
- Obtain information on hazards and on testing
- Inspect the workplace at least once a month (or a section of the workplace once a month)
- Promote awareness and education on health and safety issues
- Hold meetings at least quarterly and keep minutes of meeting.

Procedure :

1. Membership on JHSC

- The membership of each Committee includes representatives of management and workers, with workers constituting 50% or more of the members.
- One management member and one worker member jointly co-chair the committees.
- Each JHSC has its own Terms of Reference, which are available from the appropriate Co-chair.
- The names of the members of the JHSC are posted in designated locations.
- On each Committee, one worker member and one management member must be Certified under the WSIB (Workplace Safety and Insurance Board).

2. Reporting

The JHSC reports to the Vice-President, Human Resources

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3. Responsibilities of Management

The responsibilities of management are outlined in the Occupational Health and Safety Act and include the following:

- Provides and maintains a safe working environment
- Complies with relevant occupational health and safety legislation
- Develops safety policy for the laboratory
- Provides and updates safety manuals
- Provides and maintains the WHMIS program
- Provides material safety data sheets
- Provides appropriate personal protective equipment (PPE)
- Support the JHSC
- Provides safe storage for chemical and reagents
- Ensures safe disposal of laboratory waste
- Provides orientation and training with respect to safety
- Provides on-going safety training
- Disseminate new information on safety, safety policies, safety programs, and changes to OHSA or its regulations

4. Responsibilities of Workers

The responsibilities of workers are also outlined in the Occupational Health and Safety Act and include the following:

- Follow the safety rules outlined in the safety manuals
- Work at all times in a safe manner
- Be knowledgeable about healthy and safe work procedures in the laboratory
- Participate in orientation and training sessions and on-going safety training
- Report unsafe conditions to supervisor
- Wears personal protective equipment which is required and provided

5. TML St. Patrick Site JHSC - Liaison with The Michener Institute JHSC

The TML St. Patrick Site will maintain liaison with The Michener Institute JHSC, either through the TML JHSC or otherwise.

6. TML/MSH Microbiology Safety Committee– Liaison with the MSH JHSC

The TML/MSH Microbiology Safety Committee will maintain liaison with the MSH JHSC and the Clinical Laboratories Health and Safety Committee

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Section: Laboratory Safety Manual	Subject Title: Employee Safety Orientation and Training	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
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Policy:

The TML/MSH Department of Microbiology has established and maintains employee safety orientation and training.

Purpose:

Introduces new staff to the laboratory and familiarizes them with a variety of topics including; emergency and other safety related procedures, Personal Protective Equipment, and our physical layout and facilities.

Responsibility:

Management or designate

Key Elements:

All employees are required to:

- Attend all required safety orientation and training sessions and to be familiar with the location and use of all safety devices and equipment and the content of all manuals and procedures.
- Read safety manuals during their departmental orientation and whenever manuals are updated. A signature list is provided to document compliance.
- Attend yearly fire safety and WHMIS training. A signature list is provided to document compliance.

Related Documents:

Laboratory Safety Manual- Table of Contents	MI\LS\v0
FIRE SAFETY	MI\LS\25\v01
GENERAL CHEMICAL SAFETY	MI\LS\11\v01
ORIENTATION	IV-p-5-13

Procedure :

The employee and trainer will document completion of the safety orientation on the Departmental Safety Orientation Checklist and submit it to the Laboratory Manager or designate.

ORIENTATION OF NEW STAFF TO THE ORGANIZATION

Components include	
Fire safety	All new staff attend a presentation on fire safety at orientation.
WHMIS	All new staff attend a presentation on WHMIS at orientation.

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ORIENTATION OF NEW STAFF TO THE DEPARTMENT

Components include	Hospital and Institution Fire Safety / Evacuation Plans Manuals	
Safety Manuals		
	MSH TWH PMH TGH	Codes Response Policy Manual
	St. Patrick Site	The Michener Institute Fire Safety Manual
	Laboratory Safety Manual WHMIS manual MSDS Sheets (Chemical & Infectious) Guidelines for technologists for avoiding laboratory accidents are provided in the above manuals. All employees must be familiar with the material in the manuals and know their location within their department.	
Completion of Departmental Safety Orientation Checklist	Safety orientation requires that the individual be given a safety orientation to the department / area, and that the departmental safety orientation checklist be completed.	

ON-GOING SAFETY TRAINING IN THE DEPARTMENT

Components include	Responsibility	Frequency	Supporting Documents
Fire safety	Each employee must attend fire safety training and must document compliance. Such training should include fire prevention and what to do in an evacuation situation	Annual	Fire Safety Training Sheet
WHMIS	The Laboratory Manager or designate will: <ul style="list-style-type: none"> • Provide required safety training, e.g., proper handling and storage of flammable liquids and gases, proper disposal of hazardous materials • Review changes to WHMIS with staff 	As required	
Safety policies and procedures	The Laboratory Manager or designate will review new policies and procedures, and changes with staff.	As required /When revised	
Safety manuals			

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SAFETY CHECKLIST - ORIENTATION OF NEW STAFF TO THE DEPARTMENT

Knowledge of / location of:	Place check mark (Ö) in the appropriate box
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	Yes	N/A
Review of departmental fire safety and evacuation plan <ul style="list-style-type: none"> • Nature of fire alarm • Fire exits, evacuation routes and evacuation procedure, fire drill procedure • Location of pull stations • Locations and types of fire extinguishers • RACE (for MSH) • REACT (for TGH, TWH, PMH) • Location of safety manuals 		
WHMIS (MSDS)		
Body substance precautions (BSP)		
Familiarity with good laboratory practice, and the use of Personal Protective Equipment		
Employee Incident Report		

Name (print) of trainer: _____
Signature of trainer: _____
Date: _____

The trainer has reviewed the above items with me:

Name (print) of staff member: _____
Signature of staff member: _____
Date: _____

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Section: Laboratory Safety Manual	Subject Title: Good Laboratory Practice - Summary	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
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Policy:

Ensure all employees understand and recognize, report &/or respond to potential hazards while in the workplace.

Purpose:

Through the use of good laboratory practices hazards are minimized or eliminated completely

Responsibility:

Management and employees

Related Documents

EMPLOYEE SAFETY ORIENTATION AND TRAINING	MI\LS\04\v01
BODY SUBSTANCE PRECAUTIONS	MI\LS\06\v01
GENERAL CHEMICAL SAFETY	MI\LS\11\v01
GENERAL CONTROL MEASURES	MI\LS\24\v01
FIRE SAFETY	MI\LS\25\v01
PERSONAL PROTECTIVE EQUIPMENT	MI\LS\33\v01

Procedure :

Good Laboratory Practice includes the following:

Be aware / Take care	<ul style="list-style-type: none"> • Be familiar with all lab operations, procedures and equipment. • Injuries may arise from careless treatment of simple, common operations. Always endeavor to be aware of the possible implications of every action / inaction. • Work with another person present (if possible). • Caution when handling needles and syringes.
Hazardous materials	<ul style="list-style-type: none"> • Learn about the hazardous properties of all materials used in the workplace. Observe safe handling, storage, disposal and emergency procedures. Treat unknown materials as potentially hazardous.
Knowledge of emergency procedures / Location of emergency equipment	<p>Be knowledgeable about:</p> <ul style="list-style-type: none"> • Emergency reporting procedures, telephone numbers, location of telephones. • Floor lay-out, location of exits and designated evacuation routes, exit procedures, sound of fire alarm, location of fire alarm pull stations and fire extinguishers. • Location of eyewash stations, overhead and hand-held showers, spill clean-up kits. • Operating procedures for all safety and emergency equipment.

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Personal protective equipment (PPE)	<ul style="list-style-type: none"> • Wear appropriate PPE (e.g., laboratory coats or gowns, gloves, safety goggles or face shields, aprons) for the work being conducted. • Wear closed shoes, with heels not more than 1 ¼ “ in height. • Secure hair/beard if its length may interfere with laboratory work. • Restrain loose clothing. Remove jewelry when working with chemicals, biohazards, radioactive material, flames or moving machinery. • Leave laboratory coats in the lab.
Ingestion of hazardous materials	<ul style="list-style-type: none"> • Do not eat, drink or smoke in the laboratory; apply lip salve, cosmetics or contact lenses; insert fingers, pencils, etc., in the mouth; lick envelopes or labels. • Do not store food or beverages in any refrigerator that contains body substances or chemicals. Label all refrigerators and freezers that contain body substances as biohazardous. • Store food and beverages only in designated areas of the lab.
Work area	<ul style="list-style-type: none"> • Keep work area neat, organized and free of clutter. • Clean and decontaminate work surfaces at the end of each work shift. • Keep lab corridors free of obstructions and tripping hazards. • Do not use decorations that can be contaminated or present a fire hazard • Keep personal property out of the laboratory area
Chemicals	<ul style="list-style-type: none"> • Conduct procedures using volatile, toxic or flammable chemicals in a chemical fume hood.
Biohazardous aerosols	<ul style="list-style-type: none"> • Conduct procedures potentially generating aerosols in a biological safety cabinet.
Pipetting	<ul style="list-style-type: none"> • Use only mechanical pipetting devices for pipetting. Do not mouth pipette.
Access	<ul style="list-style-type: none"> • Do not allow unauthorized personnel access to the laboratory. Laboratories should be locked when unattended. • Post hazard warning signs indicating risk level of agents being used in each lab.
Equipment	<ul style="list-style-type: none"> • Check the safe working condition of all equipment before operating it.
Accidents	<ul style="list-style-type: none"> • Report all accidents, incidents and adverse health effects related to working in the laboratory within 24 h.
Immunization	<ul style="list-style-type: none"> • Workers should be protected by appropriate immunization and antibody levels documented.

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Section: Laboratory Safety Manual	Subject Title: Body Substance Precautions	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
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Policy:

All body substances from all patients must be considered potentially infectious. Use appropriate personal protective equipment when contact with body substances is deemed likely.

Purpose:

Body Substance Precautions is a system that decreases the risk of transmission of organisms by the use of barrier techniques.

Responsibility:

Management and employees

Key Elements:

- Hand washing
- Use personal protective equipment
- Use good laboratory practices

Related Documents:

GOOD LABORATORY PRACTICE - SUMMARY	MI\LS\05\01
PERSONAL PROTECTIVE EQUIPMENT	MI\LS\33\01

Procedure :

1. Handle all specimens as if they are potentially infectious. Biological safety cabinets (Class II) are used to process all specimens.
2. Wash your hands thoroughly:

<p>Before:</p> <ul style="list-style-type: none"> • Beginning work • Direct patient contact • Leaving the laboratory • Going to the washroom 	<p>After:</p> <ul style="list-style-type: none"> • Contact with biological material • Removal of gloves • Direct patient contact • Going to the washroom • Covering your mouth or nose due to cough or sneeze
--	--

3.

Hand wash sinks	<ul style="list-style-type: none"> • Designate hand wash sinks in areas close to exits • If the designated sink is a general laboratory sink, label as "Hand wash only" and enforce • Equip hand wash sinks with soap / appropriate disinfectant and disposable towels • Appropriate hand washing material provided for staff with allergies/reactions to specific compounds • Do not use hand wash sinks to dispose of any hazardous waste • It is the responsibility of the Department Head, Principal Investigator or Laboratory Supervisor to ensure that hand wash sinks are available, accessible and properly equipped at all times
Cidarinse	<ul style="list-style-type: none"> • In patient care areas where there is no hand-washing sink, use Cidarinse (an alcohol-based rinse) to wash hands

4. Wear disposable gloves when handling specimens. Remove them and wash hands before leaving the laboratory. All used gloves are disposed of in yellow biohazard bags. Do not touch your face/hair or clean areas with gloves on.
5. Wear an appropriate long sleeved cuffed laboratory coat with a closed front at all times when working in the laboratory. Remove the lab coat prior to exiting the work area or entering office areas. When not in use, hang laboratory coats on hooks provided near exits, away from fire hazards. Laboratory coats may not be worn outside the laboratory. Staff whose duties take them out of lab shall wear clean coats/gowns while with patients (eg. phlebotomists)
6. If there is potential for splashing/aerosolization with body fluids, use additional personal protective equipment such as aprons, goggles and face shields, or perform procedures in a biological safety cabinet or behind a protective shield. Keep biological safety cabinets clear of clutter.
7. To remove caps on blood specimens, gently loosen the cap and release tube from behind a shield or in a direction away from the technologist.
8. Change protective clothing when necessary to ensure cleanliness or when contaminated with hazardous material. Place soiled linen in the clear plastic soiled linen bag. If a laboratory coat becomes grossly soiled with biological material, remove it immediately and place it in the soiled linen bag.

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9. Whenever airborne infectious agents, e.g. *M. tuberculosis*, are being handled, a PCM2000 face mask must be worn in addition to other barrier protection.

10. Specimen handling:
 - Each health care facility must ensure a transport system which prevents specimen leakage and breakage, e.g., ziplock plastic bag.
 - Train personnel who transport specimens in safe handling practices and in decontamination procedures in case of a spill.
 - Place all specimens into a leak-proof primary container with a secure closure.
 - Place specimens contaminated on the outside into a secondary container.
 - Protect laboratory requisitions from contamination by separating them from the primary labeled container. If using a ziplock bag any paperwork should be placed in the outside pocket away from the specimen.
 - Personnel receiving specimens must examine them for visible contamination or breakage before opening.
 - If contaminated containers or broken specimens are received, consult the Specimen Rejection Criteria to determine how to handle these specimens.
 - Discard and replace (by rewriting) visibly contaminated laboratory requisitions.

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Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Microbiology has specific safety issues relating to risks involved from working with infectious agents. Proper laboratory procedures, equipment and facilities need to be in place.

Purpose:

Having the proper procedures, equipment and facilities in place will eliminate or at least reduce the risk involved with working with infectious agents.

Responsibility:

Management and personnel

Key Elements:

- There are 4 Biosafety levels (See Table 1) which Correspond to the 4 risk groups of infectious agents. (See list on Page 21). Biosafety level 2 is the practice level at which the Microbiology lab must operate. Most pathogens that the lab isolates are from Risk Group 2. *Mycobacterium tuberculosis* is a Risk Group 3 pathogen.
- Biological safety cabinets are the most accepted primary containment devices. The appropriate cabinet for Biosafety level 2 is a Class II cabinet.

Table 1. Summary of recommended biosafety levels for infectious agents.

Biosafety Level	Practices and Techniques	Safety Equipment	Facilities
1	Standard microbiological practices	None: primary containment provided by adherence to standard laboratory practices during open bench operations.	Basic
2	Level 1 practices plus: Laboratory coats; decontamination of all infectious wastes; limited access; protective gloves and biohazard warning signs as indicated.	Partial containment equipment (i.e., Class I or II Biological Safety Cabinets) used to conduct mechanical manipulative procedures that have high aerosol potential that may increase the risk of exposure to personnel.	Basic
3	Level 2 practices plus: Special laboratory clothing; controlled access.	Partial containment equipment used for all manipulations of infectious material.	Containment
4	Level 3 practices plus: Entrance through change room where street clothing is removed and laboratory clothing is put on; shower on exit; all wastes are decontaminated on exit from the facility.	Maximum containment equipment (i.e. Class III biological safety cabinet or partial containment equipment in combination with full-body, air-supplied, positive-pressure personnel suit) used for all procedures and activities	Maximum Containment

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Related Documents:

GOOD LABORATORY PRACTICE - SUMMARY	MI\LS\05\01
PERSONAL PROTECTIVE EQUIPMENT	MI\LS\33\v01
BODY SUBSTANCE PRECAUTIONS	MI\LS\06\v01

Procedure :

1. All specimens are to be in solid, leak resistant containers contained in a secondary container (plastic bag) that is securely closed. The plastic bag should have a pouch for the requisition.
2. Do not use dry ice, freezer pads etc. used for transportation of specimens for any other purpose as they are potentially contaminated.
3. Perform procedures that have the potential to generate aerosols or droplets in a biological safety cabinet or behind a protective shield. Keep biological safety cabinets clear of clutter.
4. Consider all quality control materials as potentially infectious.
5. **Keyboards and telephones in non-laboratory areas are designated as clean** and should not generally be accessible to individuals handling specimens or engaged in laboratory work. In the event that such a worker needs to use these keyboards or telephone, they must remove their gloves and wash their hands before doing so.

Keyboards and telephones in the laboratory should be designated as clean or contaminated.

For keyboards and telephones designated as clean, individuals handling specimens or engaged in laboratory work must remove their gloves before using these keyboards or telephones.

For keyboards and telephones designated as contaminated (all in-lab keyboards and telephones used by staff handling biohazardous material with gloves) are to be used only with gloves.

- Cover keyboards with appropriate protective covers (skins).
- Decontaminate protective covers after gross contamination (visible or known contamination) or at least weekly with an appropriate disinfectant.
- Change gloves that have been grossly contaminated with body products.
- Service personnel must use gloves prior to use of such keyboards

Wash your hands thoroughly upon leaving the laboratory.

Always change gloves if they have become grossly contaminated with blood or body fluids.

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6. Do not operate centrifuges in a biological safety cabinet since the motor may produce strong air currents and turbulence which may disrupt the laminar air flow.
7. Use only centrifuges with safety buckets. Use the safety buckets in the correct manner.
8. Perform vortexing using sealed tubes or secondary containers in an open laboratory. Do not use Parafilm as a primary closure.
9. Procedures for cleaning, disinfection and sterilization of laboratory equipment, supplies, and environmental surfaces are available.
10. Clean and disinfect equipment (water baths, test tube racks, etc.) at least once a month or after contamination with any biological material.
11. Clean and disinfect the exterior of the pipetting devices with an appropriate disinfectant if it becomes contaminated with specimen. If the pipettor is contaminated internally, the entire unit must be disassembled and decontaminated.
12. Clean and disinfect any equipment to be repaired **prior to** repair.
13. When using a syringe for inoculating bottles, do not hold the bottle by hand when puncturing the top and do not force blood or any body substance into the bottle.

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Section: Laboratory Safety Manual	Subject Title: Classification of Biological Agents According to Risk	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Provide staff with a reference for the classification of biological agents according to risk

Purpose:

The classification of biological agents according to risk allows staff to handle all specimens and organisms in a safe and responsible manner.

Responsibility:

Management

Key Elements:

- Explanation of risk groups
- Listings of organisms in each risk group

RISK GROUP 1 AGENTS: REQUIRING CONTAINMENT LEVEL 1

Risk Group 1 (low individual and community risk)

This group includes those microorganisms, bacteria, fungi, viruses and parasites, which are unlikely to cause disease in healthy workers or animals.

RISK GROUP 2 AGENTS: REQUIRING CONTAINMENT LEVEL 2

Risk Group 2 (moderate individual risk, limited community risk)

A pathogen that can cause human or animal disease but under normal circumstances, is unlikely to be a serious hazard to healthy laboratory workers, the community, livestock, or the environment. Laboratory exposures rarely cause infection leading to serious disease; effective treatment and preventive measures are available and the risk of spread is limited.

Risk Group 2 Bacteria, Chlamydia, Mycoplasma

Actinobacillus - all species

Actinomyces pyogenes (C. pyogenes)

Bacillus cereus

Bartonella bacilliformis, B. henselae, B. quintana, B. elizabethae

Bordetella pertussis, B. parapertussis and *B. bronchiseptica*

Borrelia recurrentis and *B. burgdorferi*

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Risk Group 2 Bacteria, Chlamydia, Mycoplasma continued

Campylobacter spp. (*C. coli*, *C. fetus*, *C. jejuni*)
Chlamydia pneumoniae, *C. psittaci* (non-avian strains), *C. trachomatis*,
Clostridium botulinum, *Cl. chauvoei*, *Cl. difficile*, *Cl. haemolyticum*,
Cl. histolyticum, *Cl. novyi*, *Cl. perfringens*, *Cl. septicum*,
Cl. sordellii, *Cl. tetani*
Corynebacterium diphtheriae, *C. haemolyticum*,
C. pseudotuberculosis, *C. pyogenes* (*A. pyogenes*)
Edwardsiella tarda
Erysipelothrix rhusiopathae (*insidiosa*)
Escherichia coli enterotoxigenic/invasive/hemorrhagic strains
Francisella tularensis Type B, (biovar *palaeartica*), *F. novocida*
Fusobacterium necrophorum
Haemophilus influenzae, *H. ducreyi*
Helicobacter pylori
Legionella spp.
Leptospira interrogans - all serovars
Listeria monocytogenes
Mycobacteria - all species (except *M. tuberculosis*, and *M. bovis* (non-BCG strain), which are in Risk Group 3)
Mycoplasma pneumoniae, *M. hominis* *Neisseria gonorrhoeae*, *N. meningitidis*
Nocardia asteroides, *N. brasiliensis*
Pasteurella, all species (except *P. multocida* type B in Level 3)
Pseudomonas aeruginosa
Salmonella enterica (*S. choleraesuis*)
Salmonella enterica serovar *arizonae* (*Arizona hinshawii*)
Salmonella enterica ser. *gallinarum-pullorum* (*S. gallinarum-pullorum*)
Salmonella enterica ser. *meleagridis* (*S. meleagridis*)
Salmonella enterica ser. *paratyphi B* (*S. paratyphi B*) (Schottmulleri)
Salmonella enterica ser. *typhi* (*S. typhi*)
Salmonella enterica ser. *typhimurium* (*S. typhimurium*)
Shigella boydii, *S. dysenteriae*, *S. flexneri*, *S. sonnei*
Staphylococcus aureus
Streptobacillus moniliformis
Streptococcus spp. (Lancefield Groups A, B, C, D, G)
Treponema carateum, *T. pallidum* (including *pertenue*), *T. Vincentii*
Ureaplasma urealyticum
Vibrio cholerae (incl. *El Tor*), *V. parahaemolyticus*, *V. vulnificus*
Yersinia enterocolitica, *Y. pseudotuberculosis*

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Risk Group 2 Fungi

Cryptococcaceae

Candida albicans

Cryptococcus neoformans

Moniliaceae

Aspergillus flavus

Aspergillus fumigatus

Epidermophyton floccosum

Microsporum spp.

Sporothrix schenckii

Trichophyton spp.

Risk Group 2 Viruses

***Arthropod-borne viruses are identified with an asterisk. Only those viruses which may be associated with human or animal disease have been included in this list. Agents listed in this group may be present in blood, CSF, central nervous system and other tissues, and infected arthropods, depending on the agent and the stage of infection.**

Adenoviridae

Adenoviruses, all serotypes

Arenaviridae

Lymphocytic choriomeningitis virus (laboratory-adapted strains)

Tacaribe virus complex: Tamiami, Tacaribe, Pichinde

Bunyaviridae*

Genus Bunyavirus

Bunyamwera and related viruses

California encephalitis group, including LaCrosse, Lumbo and snowshoe hare

Genus Phlebovirus

All species except Rift Valley fever virus (see Table 1)

Caliciviridae - all isolates (including Hepatitis E & Norwalk)

Coronaviridae

Human coronavirus, all strains

Transmissible gastroenteritis virus of swine

Hemagglutinating encephalomyelitis virus of swine

Mouse hepatitis virus

Bovine coronavirus

Feline infectious peritonitis virus

Avian infectious bronchitis virus

Canine, Rat and Rabbit coronaviruses

Flaviviridae*

Yellow fever virus (17D vaccine strain)

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Dengue virus (serotypes 1,2,3,4)
 Kunjin virus
 Hepadnaviridae
 Hepatitis B virus, includes Delta agen
 Herpesviridae
 Alphaherpesvirinae
 Genus Simplexvirus: all isolates, including HHV 1 and HHV 2,
 except Herpes B virus which is in Risk Group 4
 Genus Varicellovirus: all isolates, including varicella/zoster virus
 (HHV 3) and pseudorabies virus (see Table 1)
 Betaherpesvirinae
 Genus Cytomegalovirus: all isolates including CMV (HHV 5)
 Genus Muromegalovirus: all isolates
 Gammaherpesvirinae
 Genus Lymphocryptovirus: Epstein Barr Virus (HHV 4) and EB-like isolates
 Genus Rhadinovirus: all isolates (except *H. ateles* and *H. saimiri*, see Risk Group 3)
 Genus Thetalympocryptovirus: all isolates
 Unassigned Herpesviruses: includes HHV 6 (human á-lymphotrophic virus), HHV 7,
 HHV 8, etc.
 Orthomyxoviridae
 Genus Influenzavirus:
 Influenza virus type A, all isolates
 Influenza virus type B, all isolates
 Influenza virus type C, all isolates
 Papovaviridae
 Genus Papillomavirus: all isolates
 Genus Polyomavirus: all isolates
 Paramyxoviridae
 Genus Paramyxovirus: all isolates
 Genus Pneumovirus: all isolates
 Genus Morbillivirus: all isolates (except Rinderpest-see Table 1)
 Parvoviridae
 Genus Parvovirus: all isolates
 Picornaviridae
 Genus Aphthovirus - See Table 1
 Genus Cardiovirus - all isolates
 Genus Enterovirus - all isolates (see Table 1 for restrictions)
 Genus Hepatovirus - all isolates (Hepatitis A)
 Genus Rhinovirus - all isolates
 Poxviridae (see Table 1 for restrictions)
 Chordopoxvirinae (poxviruses of vertebrates)
 Genus Capripoxvirus
 Genus Molluscipoxvirus

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Genus Yatapoxvirus
 Genus Avipoxvirus - all isolates
 Genus Leporipoxvirus - all isolates
 Genus Orthopoxvirinae - all isolates (except Variola and Monkeypox in Level 4)
 Genus Parapoxvirus: all isolates
 vGenus Suipoxvirus: Swinepox (see Table 1 for restrictions)
 All other ungrouped poxviruses of vertebrates
 Reoviridae
 Genus Orbivirus - all isolates (see Table 1 for restrictions)
 Genus Orthoreovirus, types 1, 2 and 3
 Genus Rotavirus - all isolates
 Retroviridae
 Oncovirinae
 Genus Oncornavirus C
 Subgenus Oncornavirus C avian - all isolates
 Subgenus Oncornavirus C mammalian - all isolates except HTLV-I, HTLV-II
 Genus Oncornavirus B - all isolates
 Lentivirinae - all isolates except HIV-I, HIV-II
 Spumavirinae - all isolates
 Rhabdoviridae
 Genus Vesiculovirus (see Table 1 for restrictions) (All laboratory adapted strains)
 Genus Lyssavirus: Rabies virus (Fixed Virus)
 Togaviridae
 Genus Alphavirus*
 Semliki forest virus
 Sindbis
 O'Nyong-Nyong
 Ross river virus
 Venezuelan equine encephalitis (Strain TC-83 only, no animal inoculation, see Table 1)
 Genus Rubivirus
 Rubella virus
 Genus Pestivirus
 Hepatitis C virus
 Bovine diarrhoea virus
 Border disease virus
 Genus Arterivirus
 Equine arteritis virus
 Unclassified viruses
 Toroviridae
 Other Hepatitis Viruses
 Borna disease virus
 Astro viruses
 Chronic infectious neuropathic agents (CHINAs):
 Scrapie, BSE (except Kuru, CJD, see Risk Group 3)

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Risk Group 2 Parasites

Infective stages of the following parasites have caused laboratory infections by ingestion, skin or mucosal penetration or accidental injection. Preparations of these parasites known to be free of infective stages do not require this level of containment.

Protozoa

Babesia microti
Babesia divergens
Balantidium coli
Cryptosporidium spp.
Entamoeba histolytica
Giardia spp. (mammalian)
Leishmania spp. (mammalian)
Naegleria fowleri
Plasmodium spp. (human or simian)
Pneumocystis carinii
Toxoplasma gondii
Trypanosoma brucei, *T. cruzi*

Helminths

Nematodes -

Ancylostoma duodenale
Angiostrongylus spp.
Ascaris spp.
Brugia spp.
Loa loa
Necator americanus
Onchocerca volvulus
Strongyloides spp.
Toxocara canis
Trichinella spp.
Trichuris trichiura
Wuchereria bancrofti

Cestodes

Echinococcus (gravid segments)
Hymenolepis diminuta
Hymenolepis nana (human origin)
Taenia saginata
Taenia solium

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Trematodes

Clonorchis sinensis
Fasciola hepatica
Opisthorchis spp.
Paragonimus westermani
Schistosoma haematobium
Schistosoma japonicum
Schistosoma mansoni

RISK GROUP 3 AGENTS: REQUIRING CONTAINMENT LEVEL 3

Risk Group 3 (high individual risk, low community risk)

A pathogen that usually causes serious human or animal disease, or which can result in serious economic consequences but does not ordinarily spread by casual contact from one individual to another, or that can be treated by antimicrobial or antiparasitic agents.

Risk Group 3

Bacteria, Chlamydia, Rickettsia

Bacillus anthracis
Brucella - all species
Burkholderia (Pseudomonas) mallei; *B. pseudomallei*
Chlamydia psittaci - avian strains only
Coxiella burnetii
Francisella tularensis, type A (biovar tularensis)
Mycobacterium tuberculosis; *M. bovis* (non-BCG strains)
Pasteurella multocida, type B
Rickettsia - all species (also see Table 1)
Yersinia pestis

(Note: Preparation of smears and primary culture of *M. tuberculosis* may be performed at Level 2 physical containment using containment Level 3 operational requirements. All other manipulations of *M. tuberculosis* require containment Level 3 physical and operational requirements.)

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Risk Group 3 Fungi

Moniliaceae

Ajellomyces dermatitidis (*Blastomyces dermatitidis*)

Coccidioides immitis

Ajellomyces capsulatum (*Histoplasma capsulatum* including var. *duboisii*)

Paracoccidioides brasiliensis

Risk Group 3 Viruses

Arthropod-borne viruses are identified with an asterisk.

Arenaviridae

Lymphocytic choriomeningitis virus, neurotropic strains

Bunyaviridae

Unclassified Bunyavirus

Hantaan, Korean haemorrhagic fever and epidemic nephrosis viruses including virus responsible for Hantavirus pulmonary syndrome)

Rift Valley fever virus

Flaviviridae*

Yellow fever virus (Wild type)

St. Louis encephalitis virus

Japanese encephalitis virus

Murray Valley encephalitis virus

Powassan

Herpesviridae

Gammaherpesvirinae

Genus Rhadinovirus: *Herpesvirus ateles*; *Herpesvirus saimiri*

Retroviridae

Oncovirinae

Genus Oncornavirus C

Human T-cell leukemia/lymphoma virus (**see note below**)

Genus Oncornavirus D

Mason-Pfizer monkey virus

Viruses from non-human primates

Lentiviridae

Human immunodeficiency viruses (HIV - all isolates) (**see note below**)

Rhabdoviridae

Genus Vesiculovirus (see Table 1 for restrictions) (wild type strains)

Genus Lyssavirus

Rabies virus (Street virus)TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\08\v02	Page 9 of 10
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Togaviridae

Genus Alphavirus*

Eastern equine encephalitis virus

Chikungunya

Venezuelan equine encephalitis (except Strain TC-83)

Western equine encephalitis

Unclassified Viruses

Chronic infectious neuropathic agents (CHINAs): Kuru, Creutzfeldt-Jakob agent (level of precautions depends on the nature of the manipulations and the amount of sera, bio/necropsy materials handled).

Note:Laboratories engaging primary isolation and identification of HTLV or HIV may perform these activities in containment level 2 laboratories (physical requirements) using containment level 3 operational requirements. All research and production activities require containment level 3 physical and operational requirements.

Risk Group 3 Parasites

None

RISK GROUP 4 AGENTS: REQUIRING CONTAINMENT LEVEL 4

Risk Group 4 (high individual risk, high community risk)

A pathogen that usually produces very serious human animal disease, often untreatable, and may be readily transmitted from one individual to another, or from animal to human or vice-versa directly or indirectly, or casual contact.

Risk Group 4 Bacteria

None

Risk Group 4 Fungi

None

Risk Group 4 Viruses

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Arthropod-borne viruses are identified with an asterisk.

Arenaviridae

Lassa, Junin, Machupo viruses, Sabia, Guanarito

Bunyaviridae*

Genus Nairovirus

Crimean-Congo hemorrhagic fever

Filoviridae

Marburg virus

Ebola virus

Flaviviridae*

Tick-borne encephalitis complex, including -

Russian Spring-Summer Encephalitis

Kyasanur forest virus

Omsk hemorrhagic fever virus

Herpesviridae

Alphaherpesvirinae

Genus Simplexvirus: Herpes B virus (Monkey virus)

Poxviridae

Genus Orthopoxvirinae

Variola

Monkeypox

Risk Group 4 Parasites

None

Reference

1. Laboratory Biosafety Guidelines, 2nd edition, 1996. Laboratory Centre for Disease Control, Health Canada.

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Section: Laboratory Safety Manual	Subject Title: Biological Safety Cabinets	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Biological safety cabinets are provided and are to be used whenever there is risk of infection by splatter or aerosolisation. All biological safety cabinets are inspected and certified annually.

Purpose:

The policy ensures staff can safely manipulate potentially infectious specimens.

Responsibility:

Management and employees

Key Elements

- Ensure all staff are familiar with safe work practices and procedures in compliance with established hospital policies and procedures
- Establish and maintain a maintenance schedule for the biological safety cabinets

Related Documents:

<u>BODY SUBSTANCE PRECAUTIONS</u>	MI\LS\06\v01
<u>BIOLOGICAL SAFETY</u>	MI\LS\07\v01
<u>WORKPLACE HEALTH AND SAFETY INSPECTION PROCEDURES</u>	MI\LS\35\v01

Procedure:

Class II Biological Safety Cabinet

This is a ventilated cabinet for personnel, product and environmental protection which provides inward airflow and HEPA-filtered supply and exhaust air. Class II cabinets are used for low to moderate risk biological agents and for minute quantities of toxic chemicals.

**Operating Procedure for Biological Safety Cabinet
"The 10 Commandments"**

1. Preparation

- Turn off UV lamp, turn on fluorescent
- Check air grilles for obstructions, switch on blower
- Allow air to purge workspace 5 minutes
- Ensure air pressure is within allowable limits and record

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2. Disinfection

- Spray or swab all interior surfaces with appropriate disinfectant
- Allow to air dry

3. Assemble Material

- Introduce only material required to perform procedure
- Place material such that clean and contaminated items do not meet
- Place contaminated material container at right rear
- Ensure view screen is properly located and secured

4. Purge (pre-use)

- Allow air purge period with no activity inside (leave blower on!)

5. Personal Procedures

- Don protective clothing, gloves, mask, etc. as appropriate

6. Perform Procedures

- Introduce hands into work space, work carefully and methodically (i.e. from clean to work area to discard).
- DO NOT remove hands from work space until procedures are complete and all critical material is secured.
- Remove gloves into contaminated material container

7. Purge (Post-use)

- Allow air purge period with no activity inside (leave blower on!).

8. Personal Procedures

- Remove protective clothing, mask, etc. dispose as appropriate.
- Wash hands.

9. Terminal Disinfection

- Don gloves, remove materials to incubator, etc., to biohazard bag, autoclave as appropriate.
- Spray or swab all interior surfaces with appropriate disinfectant.

10. Shutdown

- Turn off blower and fluorescent lamp.
- Turn on UV lamp.

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Section: Laboratory Safety Manual	Subject Title: Disposal of Biological Waste	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

All biological waste shall be collected, separated, packaged, labeled, recorded and disposed of in strict accordance to federal and provincial legislation and the local municipality by-laws. The disposal methods will not pollute air, water, or land.

Purpose:

This policy will prevent risk of infection or injury.

Responsibility:

Management and employees

Key Elements:

- Ensure there is a procedure for both the MSH and St Patrick sites

Procedure: MSH

Place all biological waste (discarded biological specimens, culture media etc.) into double yellow plastic biohazard bags.

Place glass tubes, blood culture bottles etc. into double yellow biohazard bags in designated cardboard boxes that are sealed once filled. Do not overfill. Blood culture boxes should only be half full.

Place all contaminated sharp objects (sharp pipettes, disposable plastic pipette tips, needles, broken glass, etc.) into a designated puncture resistant biohazard sharps container. Do not shear, bend, break or recap needles. Place full biohazard sharps containers into the large plastic collection bin located in the wash-up/sterilization room (Rm 1472).

On weekday mornings the biological waste is collected from all around the microbiology laboratory by designated microbiology personnel. The bags and boxes are put into a large plastic collection bin retrieved from the area just outside of MSH Elevator #3. On weekday evenings housekeeping comes and picks up the large plastic collection bin located in the wash-up/sterilization room. The bins of waste are transported to MSH elevator #3. This elevator has been designated for waste removal. Designated housekeeping personnel then transport the waste down the elevator to the shipping area. The biological waste is picked up by Medical Management Incorporated for autoclaving prior to being sent to a landfill site. Pickup occurs twice a day on weekdays, and once a day on weekends.

Fluid effluent etc. may be disposed of directly into a sanitary sewer line or into a lab sink (NOT a hand-wash sink).

MSDS sheets for bacteria are available for reference.

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Procedure: St Patrick site

Place all biological waste (discarded biological specimens, vacutainer tubes etc.) into a single yellow plastic biohazard bag in designated discard cardboard boxes. Do not over fill bags. Close bags securely before sealing boxes. Place the sealed boxes in designated areas to await pick up.

Place all contaminated sharp objects (sharp pipettes, disposable plastic pipette tips, needles, broken glass, etc.) into a puncture resistant biohazard sharps container. Do not shear, bend, break or recap needles. Full sharps containers are placed into a single yellow plastic biohazard bag in designated cardboard discard box.

Housecleaning personnel retrieve boxes at the end of each weekday and transport them down to the shipping area. The biological waste is picked up by Stericycle Canada for autoclaving prior to being sent to a landfill site. Pickup occurs Monday, Wednesday and Friday. (416-644-3545)

Fluid effluent from instruments, samples and sample dilutions, and fluids with blood contamination may be disposed of into a laboratory sink (NOT a hand-wash sink) after decontamination with 1% sodium hypochlorite solution.

MSDS sheets for bacteria are available for reference.

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Section: Laboratory Safety Manual	Subject Title: General Chemical Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

All laboratory personnel must be familiar with the standard precautionary terms for chemicals, practices for safe handling, storage, the resources for hazard containment, disposal and risk management. All employees who work with hazardous materials must participate in training programs and use the information learned.

Purpose:

This policy will help to maintain a safe and healthy workplace.

Responsibility:

Management and employee

Key Elements:

- WHMIS
- Knowledge of hazards
- Personal practices
- Using chemicals
- Control of hazards
- Storage of chemicals

Related Documents:

HANDLING CHEMICALS	MI\LS\12\v01
LABELLING CHEMICALS	MI\LS\13\v01
CHEMICAL INVENTORY PROCEDURE	MI\LS\13B\v01
BULK DISPENSING OF FLAMMABLE LIQUIDS - 45 GALLON DRUM	MI\LS\14\v01
BULK DISPENSING OF FLAMMABLE LIQUIDS - 20 L DRUM	MI\LS\15\v01
DISPOSAL OF CHEMICAL WASTE	MI\LS\16\v01

Procedure:

WHMIS

The WHMIS (Workplace Hazardous Material Information System) Regulation, made under the Occupational Health and Safety Act of Ontario, requires that almost all of the information listed above be available in the workplace. Information under WHMIS is disseminated in three ways:

- Labels
- Material Safety Data Sheets
- Education and Training.

WHMIS requires that all hazardous products be labeled and an MSDS for every hazardous product used in the workplace be readily available. WHMIS also requires that all workers who work with or around hazardous products be trained and knowledgeable regarding the safe handling, storage and disposal of the products they may use or encounter.

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GENERAL PROCEDURES FOR THE SAFE USE OF CHEMICALS

Knowledge of hazards	<ul style="list-style-type: none"> • Know the hazards associated with the materials you are using. Review labels and MSDS sheets. • Know emergency procedures • Know the locations of safety equipment such as emergency shower, eyewash, fire extinguisher, fire alarm, and emergency phone numbers.
Personal practices	<ul style="list-style-type: none"> • Avoid working alone in the laboratory. • Do not eat, drink, smoke, chew gum, or apply cosmetics, lip salve, contact lenses in areas where laboratory chemicals are used or stored. • Do not store food items or cosmetics in areas where laboratory chemicals are used or stored. • Confine long hair and loose clothing when working with chemicals. • Wear shoes with closed toes and closed heels • Wear appropriate personal protection equipment including lab coat, gloves and eye protection. • Do not smell or taste chemicals. • Do not use mouth suction for pipetting or starting a siphon. • Always wash hands and other exposed skin after chemical use.
Using chemicals	<ul style="list-style-type: none"> • Date chemicals when received and when opened. • Ensure incoming chemicals are on the inventory list • For chemicals that degrade in quality or become unsafe after prolonged storage, also date them with the shelf-life expiration date. • When using a chemical for the first time, read the label carefully and consult the MSDS. • Ensure that all required safety equipment is available and in good working order, including materials and equipment for spill response • Conduct a visual inspection of the container and its contents routinely. Ensure that all containers are in good condition and properly labeled. Indications for disposal of the contents include: <ul style="list-style-type: none"> • cloudiness in liquids • material changing colour • evidence of liquids in solids or solids in liquids • “puddling of material around outside of container • pressure build-up within the bottle • obvious deterioration of container • Never force open or bang a chemical container. • Keep work areas clean and uncluttered, with chemicals and equipment properly labeled and stored.

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Control of hazards	<ul style="list-style-type: none"> • Use appropriate personal protective equipment. • Conduct all processes that may result in the release of toxic vapors, fumes or dust within the fume hood or other adequate containment device. • Do not leave potentially hazardous chemical processes unattended. • Handle and store laboratory glassware with care to avoid damage and dispose of any damaged glassware in an appropriate sharps container • Always rinse used glassware and plastic ware after use and before giving to wash-up staff or placing in garbage. • Wear appropriate respiratory equipment when air contaminant concentrations cannot be sufficiently restricted by engineering controls.
Storage of chemicals	<ul style="list-style-type: none"> • Store all hazardous chemicals in a secure location, accessible only to authorized laboratory workers • Store large containers of hazardous liquids securely near floor but at a height that allows safe ergonomic handling • Minimize quantities of chemicals kept in the work area. • Store chemicals under appropriate conditions: <ul style="list-style-type: none"> • at appropriate temperature and humidity levels • away from heat sources such as steam pipes or laboratory ovens • dry and adequately vented storage locations • away from direct sunlight, electric motor • on shelves and in cabinets that are secured to prevent tipping • do not store liquid chemicals above eye level • Use only explosion-proof refrigerators and freezers for storage of flammable liquids. • Do not store unsegregated chemicals alphabetically. Segregate chemicals by hazard class (e.g., flammable liquids, organic acids, oxidizers, reactive chemicals) and store separately. • Storage areas should have a one hour resistance rating

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Section: Laboratory Safety Manual	Subject Title: Handling Chemicals	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

All laboratory personnel must be able to safely handle chemicals belonging to the six different hazard classes recognized by WHMIS regulations.

Purpose:

This policy will help to maintain a safe and healthy workplace.

Responsibility:

Management and employee

Key Elements:

- Class A Chemicals - Compressed gas
- Class B Chemicals - Flammable and Combustible material
- Class C Chemicals - Oxidizing Material
- Class D1 Chemicals –Poisonous and Infectious Material: Causing Immediate and Serious Toxic effects
- Class D2 Chemicals- Poisonous and Infectious Material: Causing Other Toxic Effects
- Class D3 Chemicals- Poisonous and Infectious Material: Biohazardous and Infectious Material
- Class E Chemicals – Corrosives
- Class F Chemicals - Dangerously Reactive Material

Related Documents:

GENERAL CHEMICAL SAFETY	MI\LS\11\v01
LABELLING CHEMICALS	MI\LS\13\v01
BULK DISPENSING OF FLAMMABLE LIQUIDS - 45 GALLON DRUM	MI\LS\14\v01
BULK DISPENSING OF FLAMMABLE LIQUIDS - 20 L DRUM	MI\LS\15\v01
DISPOSAL OF CHEMICAL WASTE	MI\LS\16\v01



Class A Chemicals - Compressed gas

A compressed gas includes any product, material or substance contained under pressure greater than atmospheric pressure. This includes gases liquified by compression or refrigeration. Compressed gases may represent many hazards depending on the type of gas, i.e. toxic, flammable, corrosive, oxidizer or frostbite in the case of cryogenic gases. Compressed gas cylinders may also pose a serious physical hazard if handled improperly. Dropped or damaged cylinders may become missiles if they rupture or valves are knocked off.

GENERAL PRECAUTIONS FOR COMPRESSED GAS CYLINDERS

Identification of Contents	<ul style="list-style-type: none"> Identify the contents of any compressed gas cylinder clearly so as to be easily, quickly, and completely determined by any laboratory worker. Provide a durable label that can not be removed from the cylinder. Do not accept any compressed gas cylinder for use that does not identify its contents legibly by name. Do not rely on colour coding as a means of identification; cylinder colors vary from supplier to supplier, and labels on caps are not reliable because many caps are interchangeable. Attach tags to the gas cylinders on which the names of the users and dates of use can be entered. If the labeling on the gas cylinder becomes unclear or defaced so that the contents can not be identified, mark the cylinder "contents unknown" and contact the manufacturer regarding removal.
Transportation	<ul style="list-style-type: none"> Before moving a cylinder, close the cylinder valve, remove the regulator, and replace the protective valve cap. <ul style="list-style-type: none"> Do not transport cylinders with the regulator attached to the cylinder. Do not transport cylinders without safety caps. Screw the cylinder cap all the way down on the cylinder's neck ring. Transport cylinders on a gas cylinder transport dolly and secure the cylinder with a strap or chain. Do not use the protective valve cap for moving or lifting cylinders. The cap is for valve protection only. Do not allow cylinders to drop or to strike other cylinders violently.
Leaking cylinder	<ul style="list-style-type: none"> Tag leaking cylinders or cylinders with stuck valves and move to a safe, secure outdoor location. If the contents are flammable, keep away from any source of ignition. Inform the supervisor who will make the necessary arrangements with the supplier for removal. Do not attempt to repair cylinder valves or their relief devices while a cylinder contains gas pressure.

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Storage of Cylinders	<p>Appropriate storage conditions:</p> <ul style="list-style-type: none"> • Secure empty and full cylinders at all times to a fixed support (solid wall, cylinder truck, cylinder rack, or post) by use of chains or other substantial restraining devices • Well-ventilated areas designated and marked only for cylinders. • Away from flames, sparks or any source of heat or ignition. • In an upright position. • Away from sources of heat and ignition (e.g., open flames) or to any temperature above 125 °F • Away from electrical circuits and electrical wiring where the cylinder could become part of the circuit • Away from dampness, salt, corrosive chemicals or corrosive vapors. Corrosion may damage cylinders and cause their valve protection caps to stick. • If stored outdoors, protect cylinders from the ground to prevent bottom corrosion, and protect from the direct rays of the sun. • Store cylinders in compatible groups. Identify them by signs to prevent confusion. <ul style="list-style-type: none"> • Store flammables separately from oxidizers • Store corrosives separately from flammables • Store full cylinders separately from empties • Mark empty cylinders EMPTY or MT. • Keep valves closed on empty cylinders. • Keep protective valve caps in place when the cylinder is not in use. • Store liquefied flammable gas cylinders in an upright position or such that the pressure relief valve is in direct communication with the vapor space of the cylinder. • Do not store flammable gas cylinders with oxygen or nitrous oxide cylinders or adjacent to oxygen charging facilities. • Keep oxygen cylinders a minimum of six metres from flammable gas cylinders or combustible materials. If this can not be done, separate by a non-combustible barrier at least 1.5 metres high having a fire-rating of at least one-half hour.
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Use of Compressed Gas Cylinders	<ul style="list-style-type: none"> • Do not use cylinders for rolling, supports, or any purpose other than the transportation and supply of gas. • Do not charge, ship or use any cylinder which is not provided with a legible decal that identifies its contents. • Wipe the outlet with a clean, dry, lint-free cloth before attaching connections or regulators. The threads and mating surfaces of the regulator and hose connections should be cleaned before the regulator is attached. • Always use the proper regulator for the gas in the cylinder. Always check the regulator before attaching it to a cylinder. If the connections do not fit together readily, the wrong regulator is being used. • Before attaching cylinders to a connection, be sure that the threads on the cylinder and the connection mate are of a type intended for the gas service. • Do not permit oil or grease to come in contact with cylinders or their valves. • Attach the regulator securely before opening the valve wide. Always use a cylinder wrench or another tightly fitting wrench to tighten the regulator nut and hose connections. • Stand to the side of, and face away from, the regulator when opening the cylinder valve. • Open cylinder valves SLOWLY. Do not use a wrench to open or close a hand wheel type cylinder valve. If it cannot be operated by hand, have the valve repaired by the manufacturer. • Shut off gas cylinder valves when cylinder not in use
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Class B Chemicals - Combustible and flammable material

I. Sub-divisions

Combustible and flammable materials include the following sub-divisions;

- B1 Flammable gases
- B2 Flammable liquids
- B3 Combustible liquids
- B4 Flammable solids
- B5 Flammable aerosols
- B6 Reactive flammable materials

Flammables or combustibles are materials that under standard conditions can generate sufficient vapor to cause a fire in the presence of an ignition source.

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Special Precautions - Flammable Liquids

The use of flammable liquids in a laboratory is regulated under the Occupational Health & Safety Act and Part 4 of the Ontario Fire Code.

Flammable liquids	Materials which generate sufficient vapors to ignite at temperatures below 100 °F (38 °C)
Combustible liquids	Materials which require temperatures above 100 °F to provide sufficient vapors for ignition

Flammable and combustible liquids are classified into 3 categories. Care should be used in applying these classifications where the liquid is processed, used or stored at temperatures above ambient conditions. Increased temperatures can have the effect of moving the liquid into a classification higher than would be appropriate under ambient conditions. For example, a Class II liquid processed at higher temperatures could require application of Class I requirements.

Class I includes liquids with a flash point below 37.8 °C. These liquids are considered to have the highest risk of fire or explosion because in the summer time it is not uncommon for storage areas to reach a temperature of 37.8°C, which is the upper limit of flash points for this class of liquids.

Class I liquids are further subdivided as follows:

Class IA -flash point below 22.8°C and boiling point below 37.8°C

Class IB -flash point below 22.8°C and boiling point at or above 37.8°C

Class IC -flash point at or above 22.8°C and below 37.8°C

Under normal ambient temperatures both Class IA and Class IB liquids generate sufficient vapours to create vapour concentrations within the flammable range at all times.

In some areas and in closed spaces, the ambient temperature could exceed 37.8°C or only a moderate amount of heating would be required to heat the liquid to or above its flash point. As a result, an arbitrary division of 37.8°C to 60°C was established for liquids to be known as Class II liquids. Since liquids with flash points greater than 60°C would require considerable heating from a source other than ambient temperatures, they have been identified as Class III liquids. These combustible liquids are further subdivided as follows:

Class IIIA -flash point at or above 60°C and below 93.3°C

Class IIIB -flash point at or above 93.3°C

Since Part 4 of the Ontario Fire Code is limited to liquids with a flash point below 93.3°C, Class IIIB liquids which are not heated above their flash point do not fall within the scope of Part 4. These liquids are deemed to represent no greater fire hazard than other combustibles such as plastic, wood or paper products.

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Both Class II and Class IIIA liquids are considered as combustible liquids under Part 4. Any combustible liquid, including a Class IIIB liquid, heated to or above its flash point must be handled with the same precautions as a flammable Class I liquid.

The **maximum** volume of flammable liquid that may be stored in a lab is 235 L provided;

- Individual container sizes do not exceed 23 L
- Individual containers must be sealed or in *ULC/ORD-C30-1995*, "safety containers" **UNLESS** purity would be affected. In such cases, glass or plastic containers may be used under the following restrictions:
Class I liquid, maximum container size is 1L

Class II or III liquids, maximum container size is 5L

- Dispensing of flammable liquids in the work area may only be done from an approved *ULC/ORD-C30* "safety container". Exception as noted above for purity reasons.
- A maximum of 235 L of flammable and combustible liquids, of which not more than 50 L of Class I liquids are permitted to be in the open area of a laboratory. Quantities in excess of this amount must be stored in an approved metal flammable liquid storage cabinet, *ULC/ORD-C1275-1984*.

Store bulk volumes of flammable liquids in one of the designated flammable storage room on each site.

Flammable storage room locations:

MSH	Bunker (by Receiving)
St. Patrick Site	Bunker (by Receiving)

Warning!

Dispensing of flammable liquids from the storage rooms is restricted to persons having a thorough knowledge and understanding of the dispensing procedures.

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GENERAL PRECAUTIONS FOR FLAMMABLE & COMBUSTIBLE MATERIALS IN THE LAB

Use	<ul style="list-style-type: none"> • Know the location of the nearest Class B fire extinguisher and fire alarm pull station. • Use in well-ventilated area or in a chemical fume hood. • Eliminate ignition sources such as open flames, smoking materials, hot surfaces, sparks from welding or cutting, operation of electrical equipment and static electricity from areas in which flammable or combustible materials are used or stored. • Ensure that areas in which flammable/combustible materials are used have appropriate sprinkler systems or fire extinguishers. • Never dispose of a flammable or combustible material down a drain or sewer.
Storage in lab	<ul style="list-style-type: none"> • Minimize the quantity of these materials within the work area. See Special Precautions above for volume restrictions. • Use approved container with a spring-closing lid for storage of flammable liquids (except in exceptional and approved circumstances). Container is designed to safely relieve internal pressure when subjected to fire exposure • Store in grounded flammable liquid storage cabinets or in vented cabinets under a chemical fume hood. • Store any solvents which must be stored in glass bottles in the vented cupboard under a chemical fume hood • Never store flammable or combustible materials near oxidizing materials. • Label storage areas or cabinets clearly as DANGER - FLAMMABLE. Examples of such flammable liquids are acetone, ethanol, and glacial acetic acid • For storage of flammable liquids in refrigerators and freezers, use only explosion-proof refrigerators and freezers.
Bulk storage	<ul style="list-style-type: none"> • Ensure that areas in which flammable/combustible materials are stored have appropriate sprinkler systems or fire extinguishers. • Bond and ground metal containers whenever filling, dispensing or storing flammable liquids. • Use portable safety cans whenever possible for storing, transporting, and dispensing flammable liquids.



Class C - Oxidizing Materials

Oxidizing materials include any compound that spontaneously evolves oxygen either at room temperature or under slight heating. Oxidizing materials pose a serious fire and/or explosion risk in the presence of flammable or combustible materials. Many oxidizers may be highly corrosive or toxic.

General Precautions For Oxidizing Materials In The Lab

1. Keep oxidizers away from combustible and flammable materials.
2. Store in designated areas only. Designated areas must be cool and dry.
3. Keep away from heat and sources of ignition.
4. Always wear proper personal protective equipment, including eye, face and hand protection.

Examples of strong oxidizers include:

Chromic acid	Potassium permanganate
Hydrogen or benzoyl peroxide (any peroxide)	Sodium perchlorate (any perchlorate)
Nitric acid	Sodium hypochlorite
Perchloric acid	Sulphuric acid

Examples of incompatible chemicals:

Flammable liquids such as	AND	Oxidizing materials such as
<ul style="list-style-type: none"> • Methanol • Organic acids such as acetic acid 		<ul style="list-style-type: none"> • Sulfuric, nitric or perchloric acids • Sodium hypochlorite • Benzoyl peroxide • Potassium permanganate



Class D1 - Chemicals, poisonous and infectious material: Immediate and serious toxic effects

Chemicals which may cause acute toxic effects are classified as D1 materials. Such materials may be fatal or cause permanent damage if they are inhaled or ingested, or if they enter the body through skin contact. Less toxic substances should always be selected if an alternative is available.

Examples of D1 Chemicals

Ammonium oxalate	Iodine
Chloroform	Methanol
Crystal violet	Oxalic acid dihydrate
Ethanol	Potassium hydroxide
Giemsa's stain	Sulfuric acid
Hydrochloric acid	

General precautions for acutely toxic materials in the lab

1. Handle with caution. Always wear appropriate personal protection equipment including lab coat, gloves, eye protection, masks, and respirators as required.
2. Avoid inhaling by working in a well ventilated area or in a chemical fume hood.
3. When possible, eliminate Class D1 materials from the workplace and use substitutes.
4. Keep controlled substances such as controlled drugs, and chemicals such as cyanides in a locked cupboard. Secure narcotics and inhalant anesthetic agents as required by legislation.
5. Solution containing class D1 substances should be dispensed with burettes or automatic dispensers at low pressure.
6. Cover work surfaces with dry, absorbent plastic-backed paper, as appropriate. Dispose of it after each procedure.
7. Wash thoroughly after handling.



Class D2 - Chemicals, poisonous and infectious material: Other toxic effects

Class D2 chemicals are materials that are not immediately dangerous to health; however, repeated exposures may cause death or permanent damage over time. Many D2 chemicals will cause cancer, birth defects and sterility. Other D2 chemicals may be sensitizers, which produce a chemical allergy.

Examples of D2 Chemicals

Hexane	Sodium phosphate dibasic
Petroleum spirit	Sodium phosphate tribasic
Isopropanol	Trichloroacetic acid
2-Methoxyethanol	Acetone
Depex mounting medium	Sodium azide
Boric acid	Xylene
Potassium ferrocyanide	

General precautions for toxic materials in the lab

1. Handle with caution. Always wear proper personal protective equipment, including eye, face and hand protection.
2. Avoid inhaling by working in a well ventilated area or in a chemical fume hood.
3. When possible, eliminate Class D2 materials from the workplace and use substitutes.
4. Cover work surfaces with dry, absorbent plastic-backed paper, as appropriate. Dispose of it after each procedure.
5. Wash thoroughly after handling.

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**Class D3 - Chemicals, poisonous and infectious material:
Biohazardous and infectious material**

Biohazardous and infectious materials are any organism, or its toxins, that has been shown to cause disease or is believed to cause disease in animals or humans.

General pre cautions for use of biohazardous and infectious materials in the lab

Refer to LSM Section on Infectious Safety in this manual



Class E - Corrosives

Corrosives are materials which chemically react at the point of contact to cause visible (often burn-like) damage to tissue. Examples of corrosives include acids and bases. When handling these materials, the following precautions should be observed:

GENERAL PRECAUTIONS FOR USE OF CORROSIVE MATERIALS IN THE LAB

Transportation	<ul style="list-style-type: none"> • Use Neoprene bottle carriers or Styrofoam packing crates.
Use	<ul style="list-style-type: none"> • Wear appropriate PPE, including laboratory coat and goggles or a face shield. Consult MSDS. Additional PPE to be considered include gloves and an apron. • Limit the amount of corrosive chemicals at the bench to the amount required for testing. • Keep containers tightly closed. • Use strong corrosives in a chemical fume hood. • Always add acid to water (never the reverse), and do so slowly, to avoid a violent reaction and splattering. • Ensure that an eyewash and safety shower are readily accessible in areas where corrosives are used and stored. In the event of skin or eye contact with corrosives, immediately flush the area of contact with cool water for 15 minutes. Remove all affected clothing. Get medical help immediately.

Storage	<ul style="list-style-type: none"> • Store strong corrosives in well ventilated areas away from flammable and combustible liquids and oxidizing agents. Usually they are stored in one side of the cupboard under the fume hood • Label cabinet clearly as DANGER - CORROSIVE. • Do not store strong alkaline solutions in glass containers as glass will be etched and leachate will enter the solution. This will contaminate the solution and may dangerously weaken the container. • Because glacial acetic acid is flammable, store separately from other acids such as hydrochloric acid, nitric acid and sulphuric acid.
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Class F Chemicals - Dangerously Reactive Chemicals

Dangerously reactive chemicals are materials that react rapidly with themselves or other materials to release relatively large amounts of energy. In some situations, the reaction may be violent enough to produce a detonation.

General precautions for use of dangerously reactive materials in the lab

1. Indicate the date of purchase and date of opening on each container of peroxide forming chemicals.
2. Store reactive chemicals in a cool, well ventilated, flameproof space away from flammables and combustibles, oxidizes and corrosives.

A number of subcategories of this chemical class together with examples and precautions for handling are listed below:

	Subcategory	Hazard	Examples	Precautions
1	Pyrophorics	Ignite spontaneously upon contact with air.	Metal alkyls, phosphorus, fine powders of metals such as magnesium, aluminum and zinc.	Use or store in inert environments.
2	Oxidizers	React violently with organic materials or strong reducing agents.	Perchloric acid Chromic acid Fuming nitric acid	Use minimum amounts for procedures Store away from organic materials, flammable materials and reducers.

3	Peroxidizables	React with oxygen to form peroxides which can explode with impact, heat or friction.	Diethyl ether Tetrahydrofuran Isopropyl ether	Date all upon receipt and upon opening Dispose of within 6 months of opening or 12 months of purchase Never open a container with obvious crystal formation around the lid.
4	Water reactives	React with water to produce a flammable or toxic gas or other hazardous products.	Alkali metals such as lithium, sodium and potassium Acid anhydrides such as acetic anhydride	Avoid contact and handle away from water sources Use dry sand to smother fires Provide ventilation to disperse flammable gases

Do not store together:

Reactive materials such as those listed above	AND	Flammables, combustibles, oxidizers and corrosives
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Radioactive Chemicals

Follow the procedures outlined in the [Radiation Safety Manual](#).

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Section: Laboratory Safety Manual	Subject Title: Labeling Chemicals	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

All chemicals in the clinical laboratories must be labeled in compliance with WHMIS regulations with a supplier, workplace or laboratory label.

Purpose:

Proper chemical labeling provides the employee with the information required to recognize hazards in the workplace and to protect themselves and others from these hazards.

Responsibility:

Supplier, Management and Employees

Key Elements:

- Supplier labels
- Workplace Labels
- Laboratory labels

Related Documents:

GENERAL CHEMICAL SAFETY	MI\LS\11\v01
HANDLING CHEMICALS	MI\LS\12\v01

Procedure:

SUPPLIER LABELS

Supplier label S <i>Must have hatched border</i>	Information required
<ul style="list-style-type: none"> • Identified by its distinctive WHMIS (hatched) border. • All products (chemicals) that are controlled under the WHMIS Regulations must have a supplier's label affixed to the container. 	<ul style="list-style-type: none"> I. Product identifier II. Hazard symbol(s) III. Risk phrase(s) IV. First aid measures V. Supplier identifier VI. Reference to a MSDS VII. Precautionary measures

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WORKPLACE LABELS

Workplace label	Information required
<ul style="list-style-type: none"> Label that is produced by the employer and applied to containers at the workplace. Used when chemicals are transferred from their original container (supplier label attached) into a different (usually smaller) container 	<ol style="list-style-type: none"> I. Product identifier II. Safe handling procedures III. Reference to a MSDS

LABORATORY LABELS – may be used by Research Laboratories ONLY

These labels are meant for controlled products used in research laboratories where access is controlled.

Laboratory label	Information required
<p>A controlled product that:</p> <ul style="list-style-type: none"> Originates from a laboratory supply house, Is intended by the employer solely for use in a lab, and Is packaged in a container holding less than 10 kg 	<ol style="list-style-type: none"> I. Product identifier II. Reference to a MSDS III. Risk phrase(s) IV. Precautionary measures V. First aid measures
<p>A controlled product that is transferred from the original container into a smaller container and:</p> <ul style="list-style-type: none"> Originates from a laboratory supply house Is used only in the laboratory The MSDS for the product is readily available All workers (who may have contact with the product) have been trained to identify the product and obtain the information required on a MSDS 	<ol style="list-style-type: none"> I. Product identifier

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Section: Laboratory Safety Manual	Subject Title: Chemical Inventory Procedure	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

A current inventory of chemicals will be maintained in Microbiology in the Material Safety Data Sheet Binder (MSDS). An Inventory List of all Controlled/Hazardous/Designated materials will be submitted to the Occupational Health & Safety (annually, by February 1st). Any revisions will be submitted as necessary.

Purpose:

In the event of a fire, or other emergency, Occupational Health & Safety can provide emergency personnel with a hospital wide Inventory List of all Controlled/Hazardous/Designated materials.

Responsibility:

All laboratory personnel must ensure the chemical inventory is kept up to date. The Department Head/Manager will ensure that the inventory is current (annually, by February 1st).

Key Elements:

- Receiving New Chemicals
- Opening New Chemicals
- Emptying Chemicals
- Relocating Chemicals
- Disposing Chemicals to Hazardous Waste
- Verifying Chemical Inventory

Related Documents:

<u>GENERAL CHEMICAL SAFETY</u>	MI\LS\11\v01
<u>HANDLING CHEMICALS</u>	MI\LS\12\v01
<u>LABELLING CHEMICALS</u>	MI\LS\13\v01
<u>DISPOSAL OF CHEMICAL WASTE</u>	MI\LS\16\v01
W\OH&S\Safety\Hazardous Materials Inventory\600 University\14 Level\Microbiology	

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Laboratory Safety Manual	Revision Date: December 18, 2003	

Procedure:

Receiving New Chemicals

1. Record date received on bottle as well as supervisor in charge of project. Use labels located on the Chemical Inventory List clipboard.
2. Determine appropriate storage location using MSDS and WHIMIS labels.
3. Add new chemicals to the Chemical Inventory List that is posted in Media Prep Room 1475.
4. Place chemical in appropriate storage location in alphabetical order.
5. File MSDS in the binder in room 1470. If no MSDS was received with the new chemical, check the MSDS binder to see if current MSDS is already filed. If not available, download and print the MSDS using the internet.
6. Designated person will periodically update computerized list and print and post a new list when warranted.

Opening New Chemicals

1. Record the date a chemical is opened on the container. Also record the expiry date on the container if appropriate.

Emptying Chemicals

1. When a chemical is emptied, record the date and initial the Chemical Inventory List posted in Media Prep Room 1475.
2. Dispose of empty containers appropriately.

Relocating Chemicals

1. When a chemical is moved, record the new location, the date and initial the Chemical Inventory List posted in Media Prep Room 1475.

Disposing of Chemicals to Hazardous Waste

1. When a chemical is removed from usage and is being held for hazardous waste removal/pickup, record the date and initial the Chemical Inventory List posted in Media Prep room 1475.
2. Place Chemical in Designated area to await disposal.

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Verifying Chemical Inventory

1. The Designated person will update the computerized inventory list using the Chemical Inventory List posted in Media Prep room 1475.
2. Print out a new list.
3. Physically verify that all chemicals on the list are present.
4. Visually inspect chemicals for signs of deterioration and past expiry dates.
5. Remove all expired or unfit chemicals
6. Correct any errors on computerized inventory
7. Print and post new list

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\14\v02	Page 1 of 5
Section: Laboratory Safety Manual	Subject Title: Bulk Dispensing of Flammable Liquids - 45 Gallon Drum	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

No person shall dispense, collect or dispose of flammable liquids into or from drums unless they have received specific training on the handling of flammable and combustible liquids and WHMIS. Training shall be conducted annually. All employees required to handle, dispense or dispose of flammable solvents in bulk shall attend training sessions annually and be required to demonstrate their knowledge.

Access to The Hospital's flammable storage room shall be restricted to workers who have received specific training related to the bulk dispensing and disposal of flammable liquids and where such duties are defined within their current job description.

Purpose:

This policy ensures safe handling and dispensing of flammable and combustible liquids.

Responsibility:

Management and personnel

Key Elements:

- Definitions
- Preliminary Dispensing Procedures
- Drum Faucet and Vent Installation
- Drum Handling
- Drum Dispensing

Related Documents:

GENERAL CHEMICAL SAFETY	MI\LS\11\v01
HANDLING CHEMICALS	MI\LS\12\v01

Procedure:

DEFINITIONS

Bonding	Provision of metal to metal contact - usually by wire - between two containers to prevent generation of static electrical sparks
Bung	Threaded hole in top of drum
Spill Tray	A wide mouthed receptacle equipped with a perforated metal flame arrester across the opening to catch drips or spills from faucets or valves on flammable drums
Drum cradle	A steel frame on wheels for storing and moving drums in the horizontal position
Drum chime	Rim of steel drum

DEFINITIONS CONTINUED:

Faucet extension	A flexible metal hose with flame arrester screen which screws into the outlet of a safety faucet
FM	Factory Mutual Research (FM). Independent testing laboratory
Grounding	Provision of metal to “ground” contact - usually by wire - between two containers to prevent generation of static electrical sparks
Non-sparking tools	Tools made from beryllium-copper or aluminum-bronze greatly reduce the possibility of igniting dusts, gases, or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids
PPE	Personal Protective Equipment
Safety can	Portable device for transferring or storing up to 5 gallons of a flammable liquid. A safety can must: 1. Be leak tight 2. Automatically vent vapor at approximately 5 psig internal pressure to prevent rupture 3. Prevent flame from reaching the flammable liquid contents through the spout 4. Automatically close after filling or pouring
Safety faucet	Faucet for drawing flammable liquids from drums. Must be self-closing with replaceable, drip-proof seals and a built-in flame arrester
Vent cap	Valve designed to equalize drum and atmospheric pressure

Preliminary Dispensing Procedures

1. Inspect room. Check for:
 - Unauthorized access
 - Noticeable odors
 - Proper illumination
 - Evidence of spills
 - Physical damage to facility
 - Tripping hazards
 - Floor drain area is clear of obstructions
2. Inspect all required personal protective equipment:
 - Eye goggles (splash type) and/or Face shield
 - Nitrile gloves
 - Apron
 - Foot protection (if moving drums)
3. Organize work
 - Ensure all safety cans are labeled with the name of the product to be dispensed.
 - Where possible, use only metal safety cans
 - Ensure spill tray is present
 - Know the location of absorbent spill materials
 - Ensure a clear route of escape is maintained at all times

Drum Faucet and Vent Installation

WARNING

- Use only non-sparking tools to install, adjust, or remove any valves, bungs or caps on flammable liquid drums.
- Only FM approved faucets and vents caps may be used.
- Drum faucets and vents must be installed while the drum is in the vertical position.
- Do not tilt drum until both faucet and vent cap and secured in placed



Fig. 1

Steps

1. Eye goggles must be worn
2. Drum must be in vertical position. Fig. 1
3. Attach one end of grounding wire to edge of drum. Other end should be securely attached to room ground bar.
4. Remove steel bung caps. Store in safe place - Do not discard.
5. Apply Teflon tape onto threads of faucet and vent cap.
6. Using non-sparking tools, screw faucet into bung cap hole tightly. When drum is placed horizontal in cradle, faucet must face downward (toward immediate edge of drum). (Fig 2 & 3)
7. Using non-sparking tools, screw vent cap into bung hole. When drum is placed horizontal in cradle, arrow on vent cap must be pointing up (toward immediate edge of drum). (Fig 2 & 3)
8. Remove grounding wire.

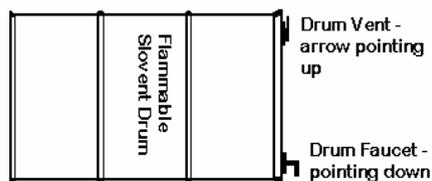


Fig. 2

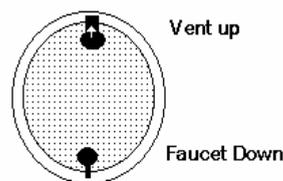


Fig. 3

Drum Handling

1. Foot protection must be worn
2. Ensure faucets, vent caps, or bung caps are secured in place on the drum.
3. Position drum cradle next to drum.
4. Engage the hook on the handle of drum cradle onto the drum chime.
5. Pull drum cradle handle down, rotating cradle on curved bottom until cradle wheels are flat on floor.

6. Inspect faucet and vent for leaks. If a leak is detected, return drum to vertical position, attach ground lead and tighten vent or faucet. If necessary, unscrew faucet or vent completed, re-apply Teflon tape to device, then re-install. Repeat step 5 after devices are securely attached. If no leaks are detected, proceed to step 7. If leak is still present, repeat step 6.
7. Wheel drum into desired position.
8. Clamp ground lead to drum chime.

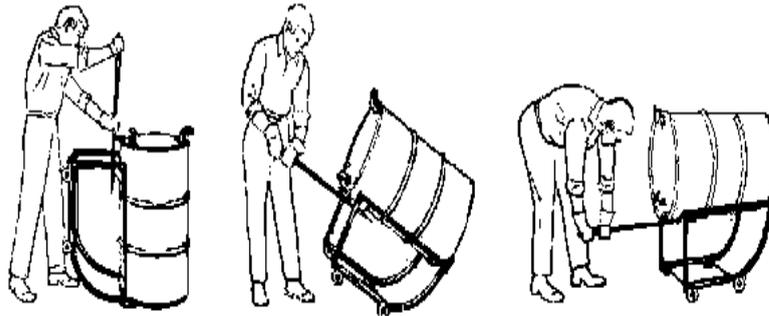


Fig. 4

Drum Dispensing

WARNING

- Use only non-sparking tools to install, adjust, or remove any valves, bungs or caps on flammable liquid drums.
- Always ground and bond

1. Drum Pressure relief

- Ensure drums being dispensed from have a drum vent correctly installed (drum vent should be screwed securely into bung with valve pointing up when drum is horizontal in drum cradle. (see Fig. 2 & 3)

2. Static Discharge Prevention

- Ensure drums are properly grounded (see Fig 5). Grounding wire must be securely attached to drum at one end and the other attached to the wall mounted metal bus strip. Verify screw clamps are tight before proceeding. Determine whether a faucet extension is attached to drum faucet.

If a drum faucet extension is in place, follow steps b, c, & d

- Ensure bonding wire is securely attached to drum at one end. Attach free end to the safety can being dispensed into.
- Place safety can on spill tray on floor.
- Open safety can lid. Guide drum faucet extension into throat of safety can. Release safety can lid trigger and allow lid to close on faucet extension.

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If a funnel is to be used, follow steps e, f, & g

- Ensure bonding wire is securely attached to drum at one end. Attach free end to the Funnel. Only metal funnels shall be used.
- Place safety can on spill tray on floor.
- Open safety can lid. Guide funnel end into throat of safety can. Release safety can lid trigger and allow lid to close on funnel.

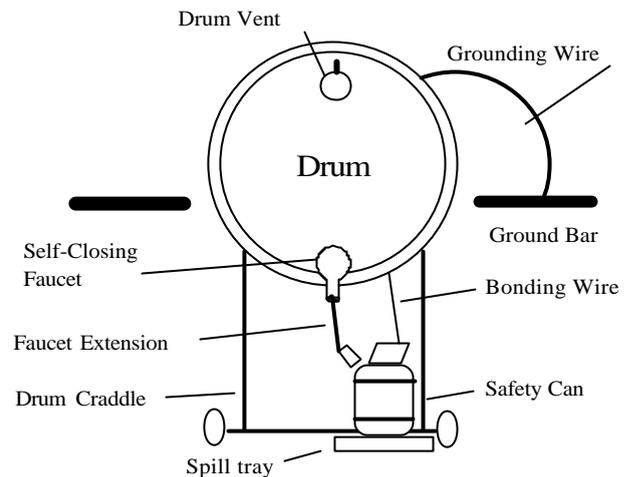


Fig. 5

3. Dispensing

- Ensure spill tray is under safety can
- Position body and head at arms length from the faucet. Hold self-closing faucet on drum open to fill safety can.
- Fill safety can up to fill level mark or up to the seam that joins the top of the can to the body of the can. Release valve and remove faucet extension or funnel. Remove bonding wire from safety can and place can on appropriate transportation device.

4. Recording (hospital sites)

Fill out dispensing log out sheet with the following information:

- Your name
- Name of your department or department in which dispensed material will be used
- Time and date of dispensing
- Amount dispensed in liters.

5. Equipment list

- Safety Cans: Available from Lab Safety Supply, 1 gal. to 5 gal. Sizes
- Spill Tray: Available from Lab Safety Supply, 9C-7606
- Bonding and Grounding wires: Available from Lab Safety Supply, various lengths
- Drum Vent: Justrite, Available from Seton (#08300) brass
- Drum Faucet: Available from Seton, Justrite, (#08910) brass, self closing, adjustable
- Drum Faucet Extension 8: Available from, Justrite, (#08930) brass, flexible
- Non-Sparking Tools: Available from Seton

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\15v02	Page 1 of 4
Section: Laboratory Safety Manual	Subject Title: Bulk Dispensing of Flammable Liquids - 20 L Drum	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

No person shall dispense, collect or dispose of flammable liquids into or from drums unless they have received specific training on the handling of flammable and combustible liquids and WHMIS. Training shall be conducted annually. All employees required to handle, dispense or dispose of flammable solvents in bulk shall attend training sessions annually and be required to demonstrate their knowledge.

Access to The Hospital's flammable storage room shall be restricted to workers who have received specific training related to the bulk dispensing and disposal of flammable liquids and where such duties are defined within their current job description.

Purpose:

This policy ensures safe handling and dispensing of flammable and combustible liquids.

Responsibility:

Management and employee

Key Elements:

- Definitions
- Preliminary Dispensing Procedures
- Drum Handling
- Drum Dispensing

Related Documents:

GENERAL CHEMICAL SAFETY	MI\LS\11\v01
HANDLING CHEMICALS	MI\LS\12\v01

Procedure:

DEFINITIONS

Bonding	Provision of metal to metal contact - usually by wire - between two containers to prevent generation of static electrical sparks.
Spill Tray	A wide mouthed receptacle equipped with a perforated metal flame arrester across the opening to catch drips or spills from faucets or valves on flammable drums.

DEFINITIONS CONTINUED:

Grounding	Provision of metal to “ground” contact - usually by wire - between two containers to prevent generation of static electrical sparks.
Non-Sparking Tools	Tools made from beryllium-copper or aluminum-bronze greatly reduce the possibility of igniting dusts, gases, or flammable vapors. Although these tools may emit some sparks when striking metal, the sparks have a low heat content and are not likely to ignite most flammable liquids.
Pail Rack	Device used to hold and dispense 20 - 25 L cans of flammable liquids.
PPE	Personal Protective Equipment
Safety Can	Portable device for transferring or storing up to 5 gallons of a flammable liquid. A safety can must: <ul style="list-style-type: none"> • Be leak tight; • Automatically vent vapor at approximately 5 psig internal pressure to prevent rupture; • Prevent flame from reaching the flammable liquid contents through the spout; • Automatically close after filling or pouring.

1. Inspect room. Check for:
 - Unauthorized access
 - Noticeable odors
 - Proper illumination
 - Evidence of spills
 - Physical damage to facility
 - Tripping hazards
 - Floor drain area is clear of obstructions
2. Inspect all required personal protective equipment:
 - Eye goggles (splash type) and/or Face shield
 - Nitrile gloves
 - Apron
 - Foot protection (if moving drums)
3. Organize work
 - Ensure all safety cans are labeled with the name of the product to be dispensed.
 - Where possible, use only metal safety cans
 - Ensure spill tray is present
 - Know the location of absorbent spill materials
 - Ensure a clear route of escape is maintained at all times

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20 L Drum Handling

1. Static Discharge Prevention

- Ensure cans are properly grounded (see Fig. 1). Grounding wire must be securely attached to 20 L can one end and the other attached to the wall mounted metal bus strip. Verify screw clamps are tight before proceeding.
- Attach bonding wire from 20 L can to safety can. (see Fig. 1)

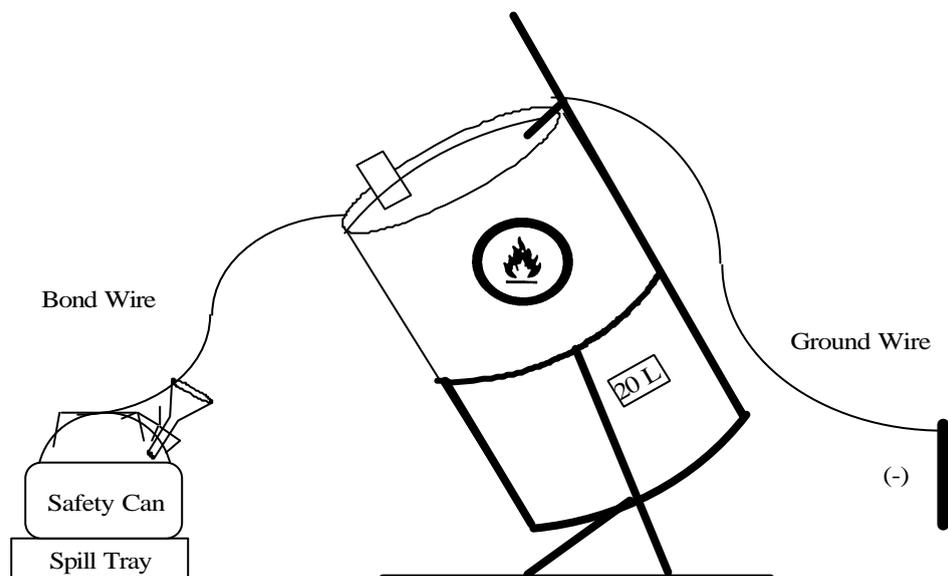


Figure 1

2. Dispensing

WARNING!

Before removing screw cap from 20 L can, ensure safety can is in correct position. Tip can into pouring position to locate correct placement of safety can.

- Ensure spill tray is under safety can. Elevate spill tray and safety can if necessary.
- Insert funnel into throat of safety can.
- Remove screw lid from 20 L can.
- Using arm of pail rack, slowly rotate can down to pouring position. (see Fig. 2).
- Fill safety can up to fill level mark or up to the seam that joins the top of the can to the body of the can.
- Replace 20 L can into upright position and replace screw cap.
- Remove bonding wire from safety can and place can on appropriate transportation device.

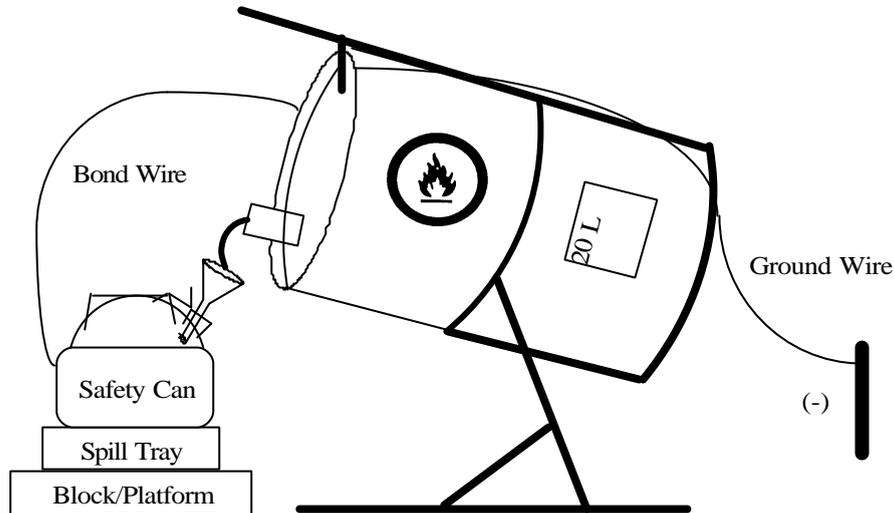


Figure 2

3. Recording

Fill out dispensing log out sheet with the following information:

- your name
- name of your department or department for which dispensed material will be used
- time and date of dispensing
- amount dispensed in liters.

4. Equipment list

- Pail Rack: Available from Lab Safety Supply, 9C-10347
- Safety Cans: Available from Lab Safety Supply, 1 gal. To 5 gal. Sizes
- Spill Tray: Available from Lab Safety Supply, 9C-7606
- Bonding and Grounding wires: Available from Lab Safety Supply, various lengths

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\16\02	Page 1 of 4
Section: Laboratory Safety Manual	Subject Title: Disposal of Chemical Waste	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

At MSH the disposal of chemical waste shall be done in a manner that is safe, environmentally sensitive and in compliance with MSH policies, government regulations and legislation. Chemical waste includes flammable liquids, acids and bases.

Purpose:

The objectives of chemical waste disposal are minimizing hazards to those handling, transporting and disposing of waste and minimizing expense.

Responsibility:

Management and employees

Key Elements:

- General procedures for the preparation of flammable liquids, acids and bases for disposal. These apply to both sites
- Procedure for disposal of chemical waste at MSH
- Procedure for disposal of chemical waste at St Patrick site
- Bunker locations
- Chemical Waste disposal Form SOP 17

Related Documents:

GENERAL CHEMICAL SAFETY	MI\LS\11\v01
HANDLING CHEMICALS	MI\LS\12\v01

General Procedures:

Laboratory

- Do not dispose of chemical waste down the drain or with the regular garbage.
- Do not allow chemical waste to accumulate in the lab. Once a few liters (3 – 5 L) of waste have accumulated, have it transported for removal using portable waste safety cans or carriers.
- Clearly identify the contents of any container of waste.
- If in doubt as to correct disposal procedures, contact the Laboratory Supervisor for advice.

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Flammable Liquids

- Place waste solvent in approved waste solvent disposal cans with the flame arresters in good condition.
- Do not over fill these cans.
- Do not remove the flame arresters.

Acids and Alkali

- Dilute small volumes of acids and alkalis before disposal down the drain.
- Collect large volumes of acids or alkalis in labeled plastic bottles.

Handling Chemical Waste

Only designated staff who have been specifically trained to handle chemical waste shall do so. Access to the bunker always requires two persons. While one person works in the bunker, the other person observes at the doorway and holds the bunker door keys.

- Use 22 L plastic carboys to collect chemical waste.
- Label each carboy with its contents, for example, mixed alcohol waste. Chemicals with similar characteristics may be mixed together.
- Wear personal protective equipment. (See MSDS).
- Use bonding and grounding procedures when transferring, handling flammable waste.
- Large volumes of acids or alkalis that have been collected in labeled plastic bottles are transported to the corrosive room of the bunker for disposal

Procedure for Disposal of Chemical Waste at MSH

- List the chemicals to be disposed of on Form SOP 17 page 4 of 4, including: Name of chemical, Amount of chemical i.e. grams/litres, Name sub department and room number
- All chemicals must be properly labeled and sealed
- E-mail the completed form to lquaranto@mt.sinai.on.ca
- A master list will be generated from all the lists received from throughout MSH
- The master list is submitted to the purchasing department, who in turn contacts the chemical removal company with the PO# and request for pick up.
- The company will request a list of chemicals and volumes and will schedule the pickup.
- Collection of the chemicals from throughout MSH will take place the day before the scheduled pickup date. The waste will be placed in the chemical bunker to await pickup.
- Receiving area will provide access to the chemical bunker
- **Do not drop off any chemicals to room 619**
- Chemical waste is removed by a waste hauler registered by the Ontario Ministry of the Environment to handle and transport chemical waste.
- The waste hauler utilized by MSH is Great Lakes Clean Harbour Canada Inc (905-227-7872)
- A copy of the hazardous waste manifest provided by the registered waste hauler must be mailed to the Ontario Ministry of the Environment as per the instructions listed on the back of the manifest.

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Procedure for Disposal of Chemical Waste at St Patrick site

- Once a certain volume of waste has accumulated in the bunker, inform Gordon Taylor at the St Patrick site. He will contact the chemical removal company
- The company will request a list of chemicals and volumes and will schedule the pickup
- Receiving area will provide access to the chemical bunker
- Chemical waste is removed by a waste hauler registered by the Ontario Ministry of the Environment to handle and transport chemical waste.
- The waste hauler utilized by the St Patrick site is Safety Kleen (1-800-263-2436)
- The hazardous waste manifests provided by the registered waste hauler must contain the information listed below, as applicable:

Location	Address	MOE Waste Generator #
TML SPS	222 St Patrick St	ON0226300

- A copy of the hazardous waste manifest must be mailed to the Ontario Ministry of the Environment as per the instructions listed on the back of the manifest.

Bunker Locations

MSH	Next to shipping and receiving	South west side of MSH
St Patrick site	Next to the parking garage entrance door	South west side of Michener Institute

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Section: Laboratory Safety Manual	Subject Title: Ergonomics - Lifting	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

The number one cause of back injury is lifting. Proper body mechanics and lifting principles should be employed whenever possible to reduce the likelihood of injury.

Purpose:

The policy provides direction for all staff to do their part to prevent back injuries.

Responsibility:

Management and employees

Related Documents:

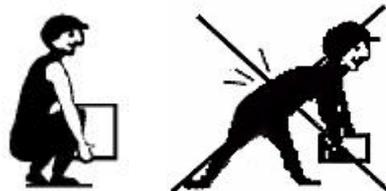
COMPUTER WORKSTATION ERGONOMIC PRINCIPLES	MI\LS\18\v01

Procedure:

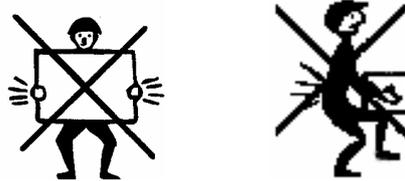
Principles of Manual Material Handling:

- Size up or test load to see if you can handle it.
- Avoid heavy loads - split larger loads into smaller ones, use mechanical aids or get additional help.
- Determine where you are lifting the object to, and where you will place it.
- Make sure the route or path that you will take is clear.
- Tighten your abdominal muscles to help brace your back as you lift.

- Keep your back straight. Bend at your knees as far as you can and still be able to return to an upright position.
- Initiate the lift with your leg and buttock muscles.
- Keep the object close to your body
- Keep your head higher than your shoulders.



- Grip with your whole hand - not just your fingers



- Lift with controlled speed.
- Come to an upright position using your leg and buttock muscles.
- Keep object close to your body



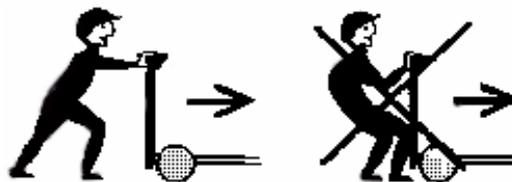
- Never twist at the waist when lifting or carrying. Pivot using your feet.



- Do not over extend when reaching. Get a ladder or tool to handle high objects.



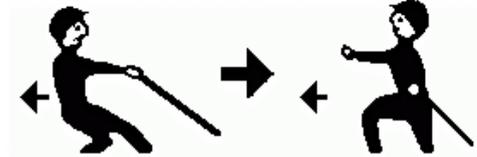
- Push instead of pull.



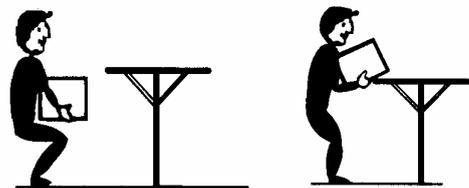
- Keep your back straight at all times



- When pulling, avoiding extending arm behind shoulder
- Face the direction of travel when possible



- Try to store objects between shoulder and knuckle height whenever possible
- When lifting to shoulder height:
Lift the object to your waist. Brace object to allow you to bend your knees and place both hands under item. Straighten your legs to raise the item and slide it onto the shelf.



- Place objects on shelf by extending arm while keeping your back straight.



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Section: Laboratory Safety Manual	Subject Title: Ergonomics - Computer Work Station	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Through prevention and engineering controls work stations should be designed to reduce the risk of ergonomic distress disorders and accidents.

Purpose:

Proper ergonomics will prevent work related musculoskeletal disorders

Responsibility:

Management and employees

Key Elements:

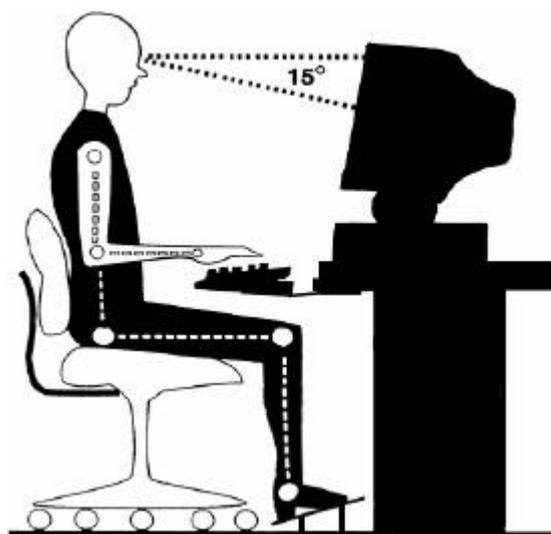
- Workstation ergonomic principals
- Workstation layout/body position
- Chair adjustment
- Work surface/keyboard adjustment
- Monitor adjustment
- Workstation accessory adjustment

Related Documents:

ERGONOMICS - LIFTING	MI\LS\17\v01

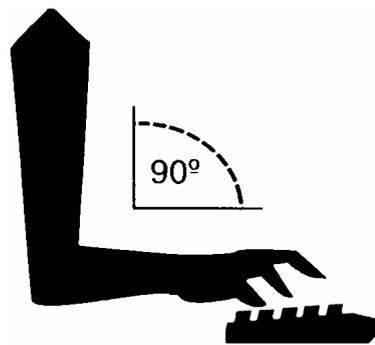
Procedure:

COMPUTER WORKSTATION ERGONOMIC PRINCIPLES

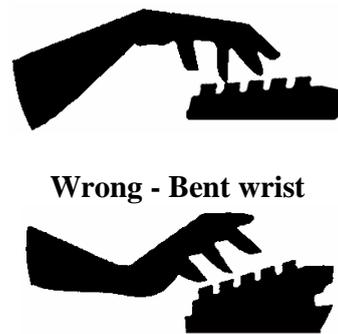


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COMPUTER WORKSTATION LAYOUT/BODY POSITION



Right - Flat wrist



Wrong - Bent wrist

Wrong - Bent wrist

CHAIR ADJUSTMENT

- Is your chair height adjustable?
- Is the backrest height adjustable?
- Does your chair support your lower back?
- Is there room between the front edge of the chair seat and the back of your knees?
- Can you easily reach your work without interference from the arms of your chair?
- When using the keyboard or mouse, are you able to keep your arms in a comfortable position with elbows in at your sides?
- Do your feet rest flat on the floor or footrest?
- Are your knees bent at approximately 90-degree angles?

Sitting with your feet flat on the floor (or supported by a footrest) will help support your spine. Having your thighs parallel to the seat with knees bent at approximately a 90-degree angle, and having adequate clearance behind your knees, will keep the chair from interfering with the circulation to your legs.

If the back of your chair is adjustable, raise or lower it so that the contour of the chair provides maximum lumbar (lower back) support. If possible, adjust the tilt of the backrest to support your body in an upright position. A slight angle, either forward or back is also acceptable. Adjust the chair according to what is most comfortable for you.

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If your chair has arms, they should allow you to get close to your work without getting in the way. If you are typing, they should be at a height where they barely contact your elbows when your arms are resting comfortably at your side. Chair arms should not force you to elevate your shoulders or wing your arms to the side. If the arms of the chair restrict you from adopting a comfortable position, remove them.

WORK SURFACE/KEYBOARD ADJUSTMENT

- With your chair adjusted properly, is your keyboard at approximately elbow level?
- Are your arms in at your sides rather than stretched out in front of you?
- Are your shoulders relaxed and not elevated when you work at your work surface?
- When using the computer, is there approximately a 90-degree angle between your forearms and upper arms?
- When using the computer, are your wrists in line with your forearms and not bent upwards, downwards, or to one side or another?
- Is there at least 2 inches of clearance between the bottom of your work surface and the top of your thighs?

Ideally, with your arms resting comfortably at your sides, the bottom of your elbow should be at the same height as the surface the keyboard is on. To easily check this, turn sideways to your keyboard. If your work surface is too high and cannot be adjusted, raise the chair to bring your elbows to the home row level of the keyboard and support your feet with a footrest if necessary. Do not raise/use the folding legs of the keyboard as this will promote a bent wrist position. If your work surface is adjustable, start by adjusting your chair as described in the first section. Once the chair is adjusted, then adjust the work surface and finally the monitor.

MONITOR ADJUSTMENT

- Is your monitor aligned in front of your keyboard rather than off to the side?
- Is the viewing distance to your computer monitor at least 18 inches?
- Is the top of the computer screen at or just below eye level?
- Is your computer monitor protected from excess glare?
- If you wear bifocals or trifocals, are you able to look at the monitor without tilting your head?

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Position your monitor so it is aligned in front or nearly in front of your keyboard to allow your neck to remain straight when viewing the monitor. Raise or lower your computer monitor so that the top of the screen is at or just below eye level. You may need to unstack the monitor from the CPU to lower the monitor to the correct height or place a book or ream of paper between the monitor and CPU to raise it to the correct height. People who wear bifocals or trifocals often end up tilting their heads back to read through the lower portion of their glasses. Lowering the computer monitor by placing it directly on the desk surface typically helps. Bifocal users may want to discuss with their eye doctor the possibility of obtaining glasses specifically designed for computer use.

WORKSTATION ACCESSORY ADJUSTMENTS

- Are your input devices (mouse, trackball, digitizing tablet) at the same level and next to your keyboard?
- Are your primary work materials located in front of you?
- Are your most frequently accessed items (phone, manuals, etc.) easy to reach?
- Do you have a document or copyholder to hold reference material?
- Are you able to keep your arms from resting on any sharp, square edges of your work surface?
- If a large percentage of your time involves using a phone, do you use a phone headset?

Computer input devices such as a mouse or trackball should be located at the same level and next to the keyboard to avoid reaching. This can sometimes be a problem if using a keyboard tray, which is not wide enough to accommodate the keyboard and mouse. Modification or replacement of the keyboard tray may be necessary.

As you change tasks, remember to move primary materials in front of you. If you must frequently look at reference materials as you type, you should consider a document holder to allow your head to remain in a more upright position. Position the document holder at the same height and distance as your monitor. If doing a lot of reading or writing on the desk, inclining the material by placing it on a 3-ring binder notebook helps reduce the need to bend the neck forward.

The wrists should remain straight when typing. Wrist rests are sometimes used to rest wrists on during non-keying breaks. Do not rest wrists on a wrist rest while keying. The height of the wrist rest should not exceed the height of the space bar on the keyboard. Avoid wrist rests, which are wider than 3 inches since this results in the need to reach further for the keyboard.

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When talking on the phone, it is not good for the neck to cradle the phone between your ear and shoulder.

For jobs with a high volume of phone calls, headsets are recommended since they allow you to maintain the head in an upright position when talking on the phone.

WORK HABITS

- When using the computer, do you have a light touch on the keys?
- When using the keyboard or mouse, do your fingers, forearms and shoulders remain relaxed?
- When using the mouse, do you move your arm from your shoulder instead of reaching excessively with your wrist or fingers?
- Do you take short and frequent breaks throughout the day to reduce fatigue?
- Do you frequently change body positions while working?
- Do you provide your eyes with vision breaks every hour?
- Do you work fairly regular hours without a lot of overtime?
- Are you able to meet deadlines without excessive stress?
- Are you comfortable and free of pain while working?

When typing, it is important to use a light touch on the computer keys. Sometimes, slowing your typing speed just 5-10% helps you use a lighter touch and reduces tension in the fingers, forearms, and shoulders. During mouse use, hold the mouse lightly. Movement of the mouse should occur from the shoulder instead of only at the wrist. When not actively using the mouse, ease your grip on the mouse to let your hand relax.

Periodic breaks help alleviate fatigue and strain to your eyes and upper body. Taking a break does not mean that you have to stop working. Rather, it allows you to integrate other activities such as making phone calls, making copies or talking with a co-worker. Changing positions periodically helps maintain circulation and prevents putting pressure on any one area of the body for an extended period of time.

Working overtime, or working under stress to meet deadlines can add to tension or discomfort. In addition to taking breaks and frequently changing positions, you should pay attention to how your body responds to discomfort. Discomfort that goes away overnight can be a sign of fatigue. Discomfort that is continuous may build to a more serious problem. If you experience lasting discomfort, please discuss this with your supervisor or contact Occupational Health Clinic. Aches and pains which are addressed early, typically resolve quickly. Ignoring pain prolongs and may worsen the problem.

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Finally, develop good habits outside of work. While you may not be able to adjust all of the work surfaces at home, you may be able to make minor adjustments that are significant to your body. Good posture and good work habits are just as important outside of work, whether you are using your home computer, doing chores around the house or involved in special projects or hobbies.

Occupational Health and Safety	Location	Phone number
MSH	60 Murray St. South Side entrance	17-1572
TGH	Mulark Larkin Wing 3 rd Floor Rm 16	14-3267
TWH	MP 2-314	13-5121
PMH	3B-203	16-2090

The Safety Officer for MSH is Richard Cromarty. He can be reached at: 416-586-4741, pager 416-664-6617 and e-mail rcromarty@mtsinai.on.ca.

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Section: Laboratory Safety Manual	Subject Title: Equipment Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

It is essential to have adequate knowledge of the various types of equipment used including operation, maintenance and initial trouble shooting. New, modified, or repaired equipment shall be checked for safe operation before being placed into service.

Purpose:

A program of preventative maintenance including function and safety will ensure proper equipment safety.

Responsibility:

Manufacturer, management and employee

Key Elements:

- General principals of equipment safety
- Specific equipment safety

Related Documents:

<u>ELECTRICAL SAFETY</u>	MI\LS\20\v01
<u>LABORATORY DISINFECTANTS</u>	MI\LS\34\v01

Procedure:

General Principles of Equipment Safety

1. Reasonable efforts should be made to ensure that all equipment has appropriate safety features and that such features are properly utilized.
2. A program of preventative maintenance including function and safety checks should be developed and monitored as appropriate for all equipment.
3. The choice of location for an item of equipment should consider also its environmental implications (noise, fume / vapour generation etc.).
4. Equipment, which can be left unattended, should be monitored by occasional inspection to determine any significant malfunctions.
5. Consider safety, cleaning and maintenance requirements prior to purchase.
6. Review and follow manufacturers' instructions to ensure proper set-up.
7. Establish and maintain preventive maintenance schedules as per manufacturers' recommendations
8. Keep complete and detailed service records for each piece of equipment.
9. Decontaminate all equipment appropriately prior to servicing.

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SPECIFIC EQUIPMENT	
Centrifuges	<ul style="list-style-type: none"> • Use only centrifuges with sealed centrifuge buckets / compartment / rotors. Use the safety buckets in the correct manner. • Use only centrifuges with interlocks. • Do not operate centrifuges in a biological safety cabinet because the motor may produce strong air currents and turbulence, which may disrupt the laminar air flow. • Procedure for handling a broken tube <ul style="list-style-type: none"> ▪ Do not open centrifuge for 30 min if centrifuge does not have sealed buckets / compartment ▪ Open sealed centrifuge bucket in biological safety cabinet ▪ Wearing nitrile gloves, remove unbroken tubes and wipe exterior with 1.0% hypochlorite. Remove broken glass with forceps and discard into sharps container ▪ Soak bucket / rotor in non-corrosive disinfectant. Disinfect centrifuge parts with a non-corrosive disinfectant. (Virox 5)
Water baths	<ul style="list-style-type: none"> • Unplug before filling or emptying. • Clean on a regular basis and document • Check continuity of the ground on a regular basis and document
Mixers, homogenizers, sonicators, lyophilizers	<ul style="list-style-type: none"> • Take steps to minimize generation of aerosols <ul style="list-style-type: none"> ▪ Open in biological safety cabinet ▪ Filter vacuum pump exhaust where appropriate
Suction equipment	<ul style="list-style-type: none"> • Use a trap containing 0.1% hypochlorite when using suction equipment.
Pipetting devices	<ul style="list-style-type: none"> • Take steps to minimize generation of aerosols (expel liquids down the side of the tube, perform in biological safety cabinet) • Clean and disinfect pipettes and pipetting aids when contaminated and on a regular basis. • Shorter pipettes may be helpful for work in a biological safety cabinet. • Use appropriate pipetting aids and use in the correct manner
Microscopes	<ul style="list-style-type: none"> • Wipe the stage, eyepieces and focus adjustment controls with an appropriate disinfectant routinely and in the event of spills or contamination. • Inspect cords, plugs, etc., regularly. • To change a fluorescent high pressure mercury bulb, e.g., immunofluorescence microscope, wear a face shield and gloves and follow directions carefully.

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Automated equipment	<ul style="list-style-type: none"> • Ensure that waste line discharges meet municipal regulations • Clean spill trays regularly • Disinfect lines on a regular basis as recommended by the manufacturer
Microtomes	<ul style="list-style-type: none"> • Use safety guards • Always lock the handwheel when microtome is not attended • Remove blades or knives when microtome is not attended.
Electrophoresis	<ul style="list-style-type: none"> • Check continuity of the ground on a regular basis and document • Post warning sign regarding voltage.
Equipment with flames	<ul style="list-style-type: none"> • Ensure tubing connected to gas cylinder and instrument is secure • Inspect hose connections regularly <p>Examples: Atomic absorption spectrophotometers, Bunsen burners</p>
Refrigerators	<ul style="list-style-type: none"> • Do not store flammable or combustible liquids in a domestic refrigerator. Use only an explosion-proof refrigerator.
Autoclaves	<ul style="list-style-type: none"> • To be effective the steam must penetrate the wrapping. The length of time required for sterilization of biological material is determined by the quantity of the load, the volume of liquid in the load and the density of the material. • Read the operating manual carefully • Post the operation procedures near the autoclave • After the pressure has been released, open the door only slightly to allow steam to escape before unloading • Wear insulated gloves when unloading the material • Monitor all autoclaves routinely for efficacy and maintain records.

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Section: Laboratory Safety Manual	Subject Title: Electrical Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

It is essential to have adequate knowledge of electrical safety as it applies to the various types of equipment used during operation, maintenance and trouble shooting. New, modified, or repaired equipment shall be checked for safe operation before being placed into service.

Purpose:

The policy provides direction for all staff to do their part to ensure a safe and healthy work environment.

Responsibility:

Manufacturer, management and personnel

Key Elements:

- Precautions required when working with electrical equipment.

Related Documents:

EQUIPMENT SAFETY	MI\LS\19\v01

Procedure:

Precautions required when working with electrical equipment.

1. Ensure that hands and work surfaces are dry before touching electrical equipment or connecting cords.
2. Use ground fault interrupter (GFI) receptacles where equipment is located around moisture.
3. Use only equipment that is equipped with a three-pronged grounded plug (the ground pin should never be removed).
4. Examine all wiring, plugs, and extension cords for any signs of exposed wires, fraying or deteriorating insulation. Replace if necessary.
5. Check all electrical outlets for current, grounding and polarity at least annually.
6. Ensure there are a sufficient amount of electrical outlets to avoid multi plug adaptor use.

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7. In the event of a shock (even if minor) or emission of smoke or a burning smell, immediately tag the equipment “out of order” and remove it for servicing.
8. Ground portable equipment to prevent shock
8. Do not over-ride fuses, circuit breakers or interlock switches.
9. Remove cords from receptacles by grasping and pulling the plug, not the cord.
10. Ensure that extension cords consist of three separate insulated wires and 3-pronged connectors in good condition and that they are of the appropriate amperage for the purpose for which they are being used.
11. Do not use extension cords through walls, doorways, ceilings and floors as they are not substitutes for permanent wiring.
12. Ensure that all cords are kept off walkway floors where they can become tripping hazards or be damaged; protect cords by running them along perimeter walls or enclosing them in protective covers.
13. For all electrical equipment (including radios, kettles, etc.), check to see if they have a CSA-approved identifier or other approved identifier. If so, they may be used. If not, contact Engineering to arrange an inspection.
14. At TML/MSH :
 - ◆ Black electrical outlets are for regular electrical power needs.
 - ◆ Red electrical outlets are for emergency power. Only critical equipment is connected to these outlets permanently.

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\20B\v02	Page 1 of 4
Section: Laboratory Safety Manual	Subject Title: Power Failure	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Staff should be aware of actions to be taken in the event of a power failure.

Purpose:

This policy enables all staff to know what their role will be during a power failure.

Responsibility:

Management and employees

Key Elements:

- Procedure for a power failure at MSH
 - Types of power failures
 - How to identify the extent of a power failure
 - Role of microbiology department upon hearing power failure announcement
- Procedure for a power failure at St Patrick site

Related Documents:

Emergency Procedure Manuals Home	MSH Intranet

Procedure: MSH

TYPES OF POWER FAILURES	<p>Level I Failure</p> <p>Hydro supply to Hospital has been interrupted, AND</p> <ul style="list-style-type: none"> • Hospital's Emergency Generators have started and are providing SOME power to critical systems and equipment. • Black Electrical outlets do not work. • Red Electrical outlets are working. • Some ceiling lights (about 1/3) are on. • All phones are working • Selected elevators in each area are working
	<p>Level II Failure</p> <p>Hydro supply to Hospital has been interrupted AND</p> <ul style="list-style-type: none"> • NONE of the Hospital's Emergency Generators have started or they have stopped working, resulting in NO POWER available throughout the Hospital. <p>Battery Pack Emergency Lights and Systems Supplied with Back-Up: Battery Systems such as Computer Uninterruptible Power Supplies will work for limited duration.</p>

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<p>TYPES OF POWER FAILURES</p>	<p>Level II Failure continued</p> <ul style="list-style-type: none"> • Neither Black nor Red Electrical Outlets work. • All ceiling lights are off. • Overhead speaker system has a battery backup, will operate for about 30 minutes • Phones system has a UPS (Battery backup) that will operate for about 30 minutes. • Elevators will NOT work.
<p>HOW TO IDENTIFY THE EXTENT OF A POWER FAILURE</p>	<p>Level 1 Failure</p> <p>If SOME of the ceiling lights come back on the following conditions will confirm a Level I Failure:</p> <ul style="list-style-type: none"> • Any equipment or appliance plugged into a BLACK outlet DOES NOT WORK • Any equipment or appliance plugged into a RED outlet WILL WORK <p>Level II Failure</p> <p>If None of the ceiling lights come back on the following conditions will confirm a Level II Failure:</p> <ul style="list-style-type: none"> • Equipment or appliances plugged into a BLACK OR RED outlet will NOT WORK (unless there is a battery back-up/UPS associated with it) • Battery pack type emergency lights come on • NOTE: The best indication that a Hospital Wide Power Failure has occurred is: • All Ceiling Lights go off for more than 3 SECONDS
<p>RECOMMENDED ACTION IF YOU SUSPECT A POWER FAILURE</p>	<ul style="list-style-type: none"> • Immediately inform Locating that your area has experienced a Power Failure. • Give your location, Area/Department/Floor AND • Describe the extent of the Power Failure (e.g. all or some lights off, all or some equipment off, nothing works, only some lights have come back on. etc). <p>Locating will determine if this is a LOCAL or a HOSPITAL-WIDE Power Problem based on the number of calls and their location.</p> <ul style="list-style-type: none"> • If only a single area reports a problem, Locating may conclude it is a local problem and will dispatch Building Services personnel to your Area/Department/Floor.

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<p>RECOMMENDED ACTION IF YOU SUSPECT A POWER FAILURE CONTINUED</p>	<ul style="list-style-type: none"> If multiple reports are received in Locating from different floors (along with certain conditions that are evident in the Communications Room), they will initiate the Power Failure Plan by making the following overhead announcement: <i>ATTENTION ALL STAFF! WE ARE CURRENTLY EXPERIENCING ELECTRICAL POWER PROBLEMS. PLEASE IMPLEMENT POWER FAILURE PLAN. THIS ANNOUNCEMENT WILL BE REPEATED 2 TIMES EVERY 10 MINUTES</i>
<p>ROLE OF MICROBIOLOGY DEPARTMENT UPON HEARING THE ANNOUNCEMENT</p>	<p>During Weekdays (Monday to Friday 0900-1700 hours) on hearing the announcement:</p> <ul style="list-style-type: none"> All Medical Staff and Housestaff are to report to their respective clinical areas. Any procedure that is dependent on electricity should be postponed or discontinued, if possible. Any meetings that are taking place should be adjourned and staff should report to their respective Area/Department/Floor. The person in charge of the department will: <ul style="list-style-type: none"> Assess the impact of the power problem on patients in consultation with the appropriate medical, nursing and other staff as appropriate Assess the impact of the power problem on staff; If assistance is required, call Ext. 5075 (Nursing Office, Command Centre.) Be prepared to indicate that you need staff, equipment, supplies, etc; If no assistance is required, listen to further announcements. After 30-45 minutes, call Ext. 5075 to report the status of your area. Be prepared to report what staff and equipment may be available to assist elsewhere in the hospital <p>During evenings, nights, weekends and statutory holidays (i.e. after normal office hours 0900 - 1700), on hearing the announcement, follow the procedure as listed below:</p> <ul style="list-style-type: none"> The Technologist on-call will contact the following individuals and ask them to report to the Microbiology Lab: <ul style="list-style-type: none"> Chief of Microbiology. Manager of Microbiology, or delegate. Additional staff will be called by the Chief or Manager, or their delegates. Available staff will report to the Microbiology Lab.

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Procedure for a Power Failure at St Patrick site

When the main power fails there is a 5 to 7 second delay and then emergency power engages. All large equipment is already permanently plugged into emergency power outlets or connected to a UPS. Emergency power outlets are red.

Any procedure that is dependent on electricity should be postponed or discontinued, if possible.

The person in charge of the department will assess the impact of the power problem on staff.

The integrity of the power grid is assessed annually.

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Section: Laboratory Safety Manual	Subject Title: Radiation Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

RADIATION SAFETY

Follow the procedures outlined in the [Radiation Safety Manual](#).

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Section: Laboratory Safety Manual	Subject Title: Transportation of Specimens	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

All specimens transferred between laboratory sites of the TML/ MSH Microbiology Department and the client hospitals are transported by MDS Courier Services or other designated courier systems. All specimens are transported in accordance to the policy for Transportation of Dangerous Goods and Material.

Purpose:

This policy ensures the safe transportation of specimens and minimizes potential biohazards to staff handling the specimens.

Responsibility:

Management and employees

Key Elements:

- Internal Transportation
- Site to site Transportation
- Receiving of Transported Specimens

Related Documents:

General Information: Transport of Specimens	MI\GEN\07\v01

Procedure:

Internal Transportation

1. All specimens must be placed into leak-proof non-breakable containers and labeled in accordance with W.H.M.I.S. guidelines.
2. Assure that specimen containers are securely closed and clean on the outside (if not, wipe with alcohol).
3. Personnel must be trained in the safe handling practices and decontamination of spills in accordance with the Hospital's Spills Policy
4. Specimens, in their leak proof containers, must be placed into a sealable secondary container, which will contain the specimen if the primary container breaks in transit (eg. plastic zip lock bags).
5. Laboratory requisitions must be protected from contamination. If necessary, put in to a separate bag or container. Do not place requisition in same bag as specimen
6. Hold specimens in the designated holding area at the nursing station until pickup.
7. Do not send specimens with needles attached to any lab, these will not be processed.

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Procedure:

Site to Site Transportation

1. Specimens in biohazard bags are placed in rigid, leak proof containers. Place vacutainer tubes or universal containers for other body fluids and/or pathological specimens into a foam insert. The foam insert restricts the specimens from contact with each other and will absorb any liquid should breakage occur during transit.
2. Place the foam inserts into leak proof plastic containers with a rubber seal.
3. Place the plastic containers into a MDS Transport box with a zipper closure.
 - **Blue boxes** are designated for the transport of virology, serology and parasitology specimens to the TML site at St. Patrick Street
 - **Yellow boxes** are designated for the transportation of Bacteriology specimens to the Mount Sinai Hospital site.
4. Insert an “Infectious Substance” label into the clear plastic holder on top of the box.
5. Place a colored card into the box indicating the time the box was prepared for transport and the employee who packed the box.

Receiving of Transported Specimens

1. At the receiving end remove the first card and keep in a storage file. Place a second colored card with staff initial and a time stamp in the box to verify that the box has been emptied. Check that all specimens have been removed from the carrier box.
2. Where large numbers of specimens are received, a separate designated area must be provided for their receipt. In a small facility this may be part of a laboratory.
3. Appropriate gloves must be worn when handling all specimens. Gloves should be discarded before answering phone or opening doors.
4. All packages received via mail, air freight or common carrier must be opened in a biological safety cabinet.
5. Personnel must be trained in the safe handling practices and decontamination of spills in accordance with the Hospital's Spills Policy.
6. 1% hypochlorite must be used to wipe contaminated tubes.
7. Visibly contaminated laboratory requisitions must be discarded and replaced.
8. Tubes must be stoppered while centrifuged. Aerosol containment buckets must be used.

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Section: Laboratory Safety Manual	Subject Title: Transportation of Dangerous Goods	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Transportation of all **infectious substances** outside this hospital must comply with the Transportation of Dangerous Goods Regulations (**TDGR**). For air transport, International Civil Aviation Organization (ICAO) technical instructions must be followed. The requirements for ICAO can be found in the IATA Dangerous Goods Regulations. A copy of the IATA DGR can be found in Microbiology Room 1470. Each shipment must be properly packaged, labeled and include appropriate documentation.

Purpose:

To ensure that all shipments transported outside this hospital comply with the Transportation of Dangerous Goods Regulations (TDGR) when shipping within Canada.

Responsibility:

Certified shippers, or a person under the direct supervision of a trained individual.

Key Elements:

The Regulations address

- Classification
- Packaging
- Labeling
- Documentation
- Training
- Emergency response
- Shipping with Dry Ice

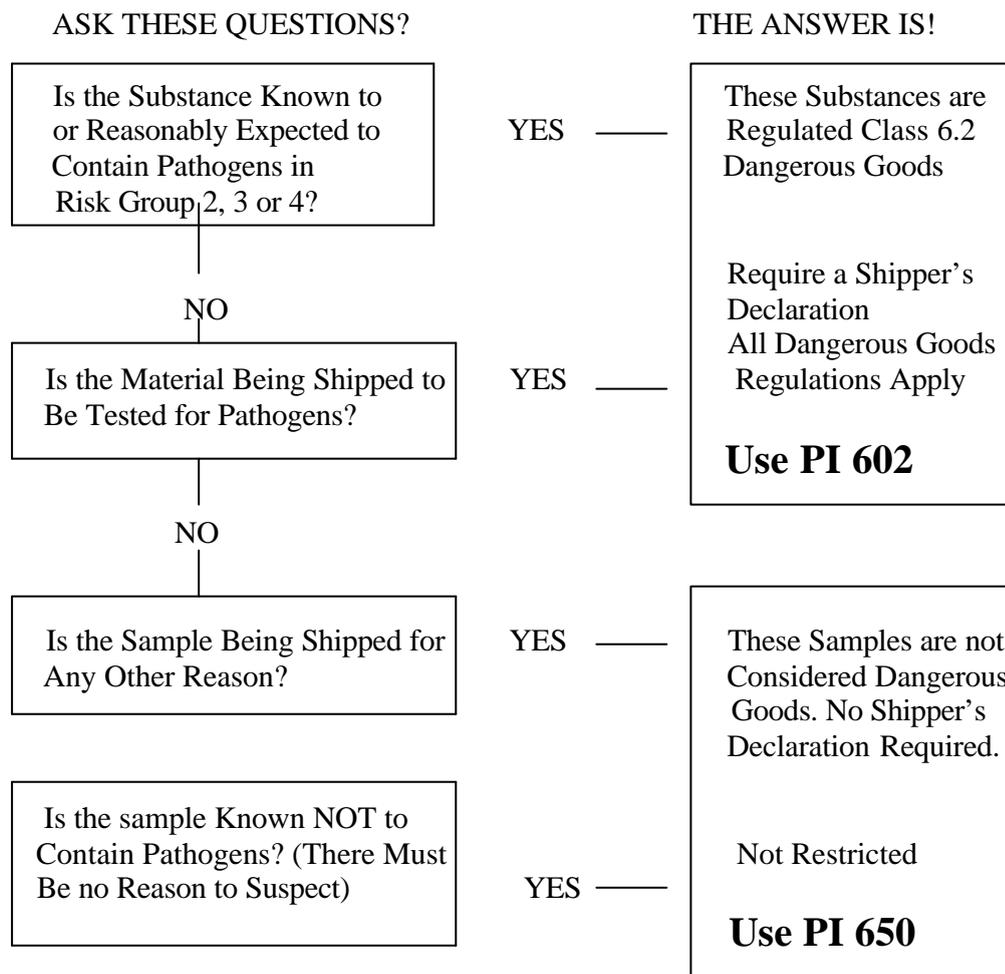
Related Documents:

<u>GENERAL CHEMICAL SAFETY</u>	MI\LS\11\v01
<u>CLASSIFICATION OF BIOLOGICAL AGENTS ACCORDING TO RISK</u>	MI\LS\08\v01

Procedures:

CLASSIFICATION

The shipper must determine with each shipment, for air or road transport, whether the material being shipped is dangerous goods or not. The flow chart below can be used to assist with this decision.



The TDGR classifications that the microbiology laboratory handles are:

- Class 6, Division 2 – Infectious Substances
- Class 9 – Miscellaneous such as dry ice

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TDGR Classes

Class 1-	Explosives
Class 2-	Gasses
Class 3-	Flammable liquids
Class 4-	Flammable solids
Class 5-	Oxidizing substances
Class 6-	Poisonous substances, Infectious Substances
Class 7-	Radioactive substances
Class 8-	Corrosives
Class 9-	Miscellaneous (including dry ice)

TDGR separates **diagnostic specimens** from **infectious substances**. They require different documentations and labeling but similar packaging. (Both require the use of the commercially available transport container e.g. SAF-T-PAK company).

Infectious Substances

Patient specimens containing viable microorganisms, or reasonably believed to be positive with organisms belonging to RISK GROUP II, III, IV as outlined in the Medical Research Council (MRC) / Health and Welfare Canada (HWC) Laboratory Biosafety Guidelines (This virtually includes all human infectious agents seen in the Labs). Use packing instruction 602.

Diagnostic Specimens

Patient specimens reasonably believed NOT to contain Risk Groups II-IV agents. Use packing instruction 650.

Risk Group I organisms are unlikely to cause human disease and are therefore not regulated by TDGR.

EXEMPTIONS for Risk Group II for ROAD transport ONLY:

Only the organisms listed below are considered dangerous goods and require

Type 1A containment. All other Risk group II organisms, including cultures, can be shipped in **Type 1B** containment.

Risk Group II

- a) *Corynebacterium diphtheriae*
- b) *Echinococcus* (gravid segments)
- c) Genus Vesiculovirus: VSV Indiana lab strain or other proven lab- adapted strains
- d) Hepatitis B virus
- e) *Cowdria ruminatum* that affects only animals: *R.bovis* and *R. Ovina*
- f) *Salmonella typhi*
- g) *Vibrio cholerae* (including El Tor)
- h) Any organism that exhibits similar characteristics to those on this list

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EXEMPTIONS for Risk Group III for ROAD transport ONLY:

All Risk Group III organisms including cultures are considered dangerous goods EXCEPT the following in diagnostic specimens ONLY:

Risk Group III

- a) Chlamydia psittaci
- b) Ehrlichia canis
- c) Eperythrozoon species
- d) Haemobartenella species(e)
- e) Mycobacterium avium
- f) Neorickettsia helminthoeca

Summaries of Send-out Requirements

1. DIAGNOSTIC SPECIMENS:

Postal Requirements

- Shipping Dangerous Goods by regular mail is **NOT LEGAL** in Canada.
- If you are **absolutely sure** the sample is **free of any infectious agent** it may be mailed to anywhere in Canada only by:
 - using Security Regulated or Priority Post
 - meeting Canada Post's **minimum packaging requirements**
 - **phone 1-800-661-3434 to determine best way to pack the samples**
 - **BE PREPARED TO ASSUME FULL LIABILITY**

Courier (Federal Express)

- Must be packaged according to International Air Transportation Association (IATA) **packaging instruction 650**
- Requires no special hazard of infectious labels, nor special shipping documents
- **NOTE:** even if sending package to another place in Canada: package may be diverted through the States, then you must follow the IATA rules. Always check with courier company to see how the package will be routed.

2. INFECTIOUS SUBSTANCES:

Microorganisms or specimens known or thought to likely contain infectious substances, **CANNOT** be mailed via regular Canada Post.

Infectious substances and diagnostic specimens can be shipped by First Class, Priority Mail or Express Mail only if in compliance with the regulations. Infectious substances must be packaged, labeled, marked and have shipping documents. They must be able to be tracked as in Registered Mail.

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For Provincial Health Lab (PHL) pickups, "PHL plastic containers" are acceptable. Trained personnel **ONLY** must prepare the samples, etc for send out and fill out and sign the proper Dangerous Goods Declaration forms.

TRANSPORTATION PROTOCOLS FOR DIAGNOSTIC & INFECTIOUS SPECIMENS:

The Transportation of Dangerous Goods Regulations (TDGR)

The transportation of Dangerous Goods Regulations is the extension of the protection under universal precautions of the healthcare worker, public and environment. The dangerous goods regulations operate on the premise that while all specimens require a minimum level of containment, infectious substances present a higher degree of risk and therefore, require a much higher level of containment during transport. The health care professional, who in many cases is also the shipper, is best qualified to make the decision regarding the level of hazard that a shipment presents.

PACKAGING

Infectious substances require **Type 1A** containment (Packaging instruction 602), and Diagnostic specimens require **Type 1B** containment (Packaging instruction 650) for safe transport of specimens.

To make the decision, the shipper must take into account the hazard that would occur in the event of an accident during the transportation of the specimen from point of origin to destination.

TRANSPORTATION OF ROUTINE DIAGNOSTIC SPECIMENS (NON-INFECTIOUS) PACKING INSTRUCTION 650 (TYPE 1B)

REGULATIONS

- Canadian CGSB 43, 125-M 90 Specification (TC-125-1B Packaging)
- IATA Packing Instruction 650
- US Postal Regulations
- Canadian Postal Requirements

SPECIMENS

The specimens are those that are reasonably believed **not** to contain infectious substance. These specimens are not subject to TDGR or IATA regulations. Examples:

Diagnostic - Routine test samples: Blood tubes, Swabs, Urine samples

Shipments to arrive at their destination with no hazard to the public and environment during shipment.

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The packaging must include:

Inner packaging comprising

- A leak/shock-proof primary receptacle(s) - (Single or Multiple Bubble Wrap)
- For multiple specimens packing, wrap tubes individually to prevent contact.
- Use an airtight, leak-proof, re-closable double-locked (zip) polyethylene bag with document pouch for secondary packaging.
- Place an absorbent material between the primary receptacle and the secondary packaging. (Sufficient to absorb the entire content)

Outer packaging comprising

- A sturdy box of adequate strength for its capacity, weight and intended use.
- The completed package must be capable of withstanding at least a 1.2 metre drop test on a hard unyielding surface without release of its contents.

LABELING

Label the package appropriately with sender's and receiver's

Name

Telephone #

Address

(A Shipper's Declaration for Dangerous Goods is **not** required for diagnostic specimen transport)

DOCUMENTATION

Fill out airline waybill if required.

On waybill add phrase:

- ◆ “Dangerous Goods Shipper’s Declaration Not Required” in the “Handling Instructions” column.
- ◆ Add the quantity being shipped in “Nature and Quantity of Goods” column.
- ◆ Also in “Nature and Quantity of Goods column” and on the PACKAGE “Diagnostic Specimen Packed in Compliance with IATA Packing Instruction 650”.

TRANSPORTATION OF INFECTIOUS SUBSTANCES: PACKING INSTRUCTION 602 (TYPE 1A)

REGULATIONS:

- UN recommendations
- ICAO Technical Instructions
- IATA Packing Instruction 602
- Canadian - CGSB 43.125 - M90
- 1A Containment for Infectious Substances
- Canada - Transportation of Dangerous Goods Act & Regulations
- U.S.A. - 39 CFR, 42 CFR and 49 CFR (Including HM 181-the adoption of UN recommendations as regulations)

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Infectious Substances

Substances containing viable micro-organisms including a bacterium, viurs, rickettsia, parasite, fungus, or a recombinant, hybrid or mutant, that are known or reasonably believed to cause disease in humans or animals. Shippers of infectious substances must comply with the above regulations and must ensure that shipments are prepared in such a manner that they arrive at their destination in good condition and that they present no hazard to persons or animals during shipment.

SPECIMENS

Known to contain viable microorganisms (Risk groups II, III & IV listed in Laboratory Biosfety Guidelines, 1996)

PACKAGING

The package must have a UN Specification Mark on it.

The packaging must include:

- A watertight, shock proof primary receptacle(s).
Firstly, secure the tube/container cap with a piece of parafilm, place it in a single/multiple bubble wrap and secure it with a tape. For multiple tube packing, individual wrapping is done to prevent the contact.
(Do not exceed the maximum of 50 ml total net volume)

A watertight secondary package (Pressure Vessel). Place the wrapped tubes in a leak-proof container (ISS-1) with absorbent material and the lid is securely closed. Insert the container back into a corrugated cushioning material box. (Absorbent material placed between the primary and secondary packaging, should be sufficient to absorb the content).

- Place itemized list of contents between secondary and outer packaging.
- Close box flaps in numbered sequence

LABELING

Label Type 1A package to include:

- ◆ UN number
- ◆ Proper shipping name - Infectious substance, affecting humans
- ◆ Technical name in brackets (name of pathogen)
- ◆ Risk group
- ◆ Name, address and telephone number of the shipper and the consignee
- ◆ Name and telephone number of a person responsible for the shipment which could be the shipper or another person
- ◆ Infection substance hazard label
- ◆ Orientation label if not pre printed on box

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DOCUMENTATION

- ◆ Fill out “Shipper’s Declaration for Dangerous Goods” form from computer template
- ◆ Refer to Shipper’s Document Checklist
- ◆ Print 4 copies
- ◆ Fill out air waybill and in “Handling Information” box add “Dangerous Goods as per attached “Shipper’s Declaration”
- ◆ Print copy
- ◆ File one copy of each in shipping binder in Microbiology Room 1470

SHIPPER’S DOCUMENT CHECKLIST

Document	YES
Name, address and phone number of shipper	
Name, address and phone number of consignee	
Name and phone number of Person Responsible	
Page of page	
Airport of departure (if known)	
Airport of destination (if known)	
DELETE radioactive box	
DELETE aircraft limitation box	
Proper shipping Name (Infectious substance, affecting humans)	
Technical name (in brackets)	
Class (6.2, 9)	
UN Number (UN 2814, UN 2900)	
Packing Group (Dry Ice only PG III)	
Quantity (ml ,g, kg)	
Type and number of packages	
Packing Instruction (602, 904)	
Authorization (NA)	
“Prior arrangements...” statement	
24 hour emergency contact number	
“ If package damaged....phone Canutec (613- 996- 6666)” statement	
Name and title of signatory	
Place and date	
Shipper’s signature	
“Prepared according to...” statement	

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TRAINING

- Each person who offers for transport must be properly trained and hold a current training certificate.
- The certificates are filed with management and held for 2 years past expiry.
- Certification is valid for 2 years for air and 3 years for ground transport.
- A shipper must be able to classify dangerous goods, package them accordingly and prepare appropriate documentation.
- They must be prepared to assume full liability.
- Transport Canada has the authority to inspect, seize and in cases of non-compliance, administer fees.

EMERGENCY RESPONSE

In the event of a spill or an accident involving infectious substances while being transported phone:

- ◆ CANUTEC 613-966-6666

This number is entered in the Handling box on the “Shipper’s Declaration for Dangerous Goods” form

- ◆ Local Police

A 24 hour monitored phone number is required on the “Shipper’s Declaration” when

- ◆ Shipping to the USA (check operator variations for each country)
- ◆ Shipping risk group 4 organisms

Use Microbiologist-on-call phone number. Shipper must notify the Microbiologist on-call what they are shipping and the destination.

Current Certificate Holders are:

Judith Cunningham	Helen Dedier
Cindy Larocque	Lillian Law
John Ng	Wayne Marshall
Sylvia Pong-Porter	Jo-Anne Sverha

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SHIPPING WITH DRY ICE

Dry ice is regulated dangerous goods and must always be declared by marking, labeling and documentation.

Mark package to include:

- ◆ Dry Ice
- ◆ UN 1845
- ◆ Net Weight

Label package to include:

- ◆ Class 9 Miscellaneous Dangerous Goods hazard label
- * It is important that the package is not sealed as it may explode

Document Waybill to include:

In Nature and Quantity of Goods column:

- ◆ Dry Ice
- ◆ Class 9
- ◆ UN 1845
- ◆ Quantity being shipped

For Diagnostic specimens add the phrases

a) "Diagnostic specimen packed in compliance with Packing Instruction 650".

In Handling Information column add phrase

b) Dangerous Goods - Shipper's Declaration not required".

For Infectious substances being packaged with dry ice a Shipper's Declaration is required and must include on form:

- ◆ Dry ice
- ◆ Class 9
- ◆ UN 1845
- ◆ Packing Group- III
- ◆ Quantity being shipped
- ◆ Packing Inst.- 904

Dry ice can be obtained from the 9th floor at MSH

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Section: Laboratory Safety Manual	Subject Title: General Control Measures	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

By the provision of comprehensive health, safety, communicable disease and environmental control measures MSH is able to protect employees against any health or safety hazard in the workplace.

Purpose:

This policy ensures a hazard free work environment for all employees

Responsibility:

Management and personnel

Key Elements:

- Location of the control
- Types of controls

Related Documents:

GOOD LABORATORY PRACTICE - SUMMARY	MI\GEN\05\01

Procedure:

Location of the control	Control	Examples
At the source of the hazard	<ul style="list-style-type: none"> • Elimination • Substitution • Isolation 	<ul style="list-style-type: none"> • Redesign work station, equipment or work process • Use non-hazardous or less hazardous material or process • Closed tube system in automated analyzer • Interlocks on centrifuges
Along the path between the hazard and the worker	<ul style="list-style-type: none"> • Local ventilation • Portable barrier or screen which prevent exposure to energy hazards, e.g., heat, noise, electricity, some forms of ionizing radiation • General housekeeping measures 	<ul style="list-style-type: none"> • Biological safety cabinet, chemical fume hood, vents at rear of bench • Sound baffles • Cleaning up spills, disposal of waste, proper cleaning
At the worker	<ul style="list-style-type: none"> • Administrative controls • Personal protective equipment 	<ul style="list-style-type: none"> • Safety policies and procedures • Lab coats, gloves, aprons, safety goggles, face mask

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Types of Controls	Examples
Engineering controls	Preferred method of control because they eliminate or significantly reduce exposure to workplace hazards, e.g., design of workstation, equipment, tools or environmental surroundings
Administrative controls	<p>Actions taken by management to reduce employee exposure to hazards, e.g.,</p> <ul style="list-style-type: none"> • Job design • Policies and procedures for safe work practices • Personal controls, e.g., Use of personal protective equipment, • Hygiene practices and facilities, e.g., Hand wash sinks

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Section: Laboratory Safety Manual	Subject Title: Fire Safety and Prevention	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

The fire plan is based on the requirements of Section 2.8 of the Ontario Fire Code. It provides an audit of Fire Safety resources in the building, emergency procedures and actions to be taken in the event of a fire, training schedule and duties of designated personnel and details maintenance procedure and fire protection measures.

Purpose:

The information of a properly prepared Fire Safety Plan will help the occupants in utilizing life safety features in the building, ensure an orderly evacuation at the time of an emergency and provide a maximum degree of flexibility to achieve the necessary fire safety for the building.

Responsibility:

Management and personnel

Key elements:

- Classification of Fire
- Extinguisher Operation
- Fire Alarm Signals
- Fire Safety Information
- Evacuation Routes and Procedures
- What to do If You Discover a Fire
- Fire Wardens

Related Documents:

Emergency Procedure Manuals Home	Code Red
TML Fire Safety Manual	St Patrick Site

Procedure:

CLASSIFICATION OF FIRE	EXAMPLES	EXTINGUISHERS
Class A	Ordinary combustibles Wood, paper, cloth, etc.	Pressurized water and dry chemical
Class B	Flammable liquids Gases, greases, paints	Dry chemical and carbon dioxide
Class C	Electrical Instruments, computer	Dry chemical and carbon dioxide

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EXTINGUISHER OPERATION	WATER	CARBON DIOXIDE	DRY CHEMICAL
	1. Pull pin 2. Aim nozzle 3. Squeeze handle 4. Sweep extinguisher	1. Pull pin 2. Aim nozzle 3. Squeeze handle	1. Pull pin 2. Aim nozzle 3. Squeeze handle
Discharge Range	30 - 40 feet	3 - 8 feet	5 - 20 feet
Discharge Time	60 sec	30 sec	30 sec
Inspected	monthly	monthly	monthly

Fire Alarm Signals	MSH	ST. PATRICK SITE	TGH	TWH	PMH
1st stage (fire alarm)	20 beats /min x 1 min	1 stage Alarm and evacuation 20 cycles /min	20 beats/min* Exceptions: Bell Wing 30 tones Eaton Wing 20 tones Maz Bell and Residence 120 beats	20 tones/min*	20 beats/min x 30 seconds
2nd stage (total evacuation)	60 beats/ min x 1 min		120 tones/min	Siren	120 beats/min x 5 min

FIRE SAFETY INFORMATION

Site Map	Posted by elevators Shows locations of pull stations, fire exits, fire hoses and extinguishers, evacuation routes, emergency showers, fire blankets
Pull Stations	Beside all exits to the outdoors
Fire Exits	Marked with EXIT. Clearly illuminated with emergency lighting Each floor has a minimum of 2 exits Know location of fire exits, i.e., all stairwells to the outdoors MSH: Stairwell # 5 is by the men's washroom. South East corner. Stairwell # 7 is by the Wheelchair access washroom. North East corner. TML: Stairwell by the elevators. South East corner. Stairwell in North West corner.
Fire Doors	Self closing fire doors limit the spread of fire from floor to floor
Fire Detection	Automatic smoke or heat detection systems are provided. Sprinkler systems engage automatically
Fire Drills	Employees must participate in a fire drill at least once a year

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WHAT TO DO IF YOU DISCOVER A FIRE

MSH	<p>R. Remove anyone in the room while calling out "Code Red, location..." for assistance. Close the door to the fire room and any room connecting doors.</p> <p>A. Activate the fire alarm. Call Communications Centre (5555). Give exact location and nature of fire.</p> <p>C. Close all remaining doors and windows in the fire zone, placing patients into rooms. Clear halls of equipment (do not place equipment in patient rooms).</p> <p>E. Evacuate as directed by person in charge.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. If the fire is small and you know you can put it out quickly, do so using available sources (bed spread, blanket, sheet, fire extinguisher, etc.). Otherwise, do not attempt to extinguish the fire. Shut the door and leave it closed. 2. Order of the above steps is somewhat flexible. However, the evacuation of the room's occupant(s) and confinement of the fire shall be the top priorities. 3. Oxygen shut-down at the bedside will be the responsibility of Nursing or Respiratory Therapy. Oxygen shut-down of the zone valves will be the responsibility of Respiratory Therapy. 4. Mark the door to the fire room with a fire extinguisher to indicate the fire room should not be re-entered. Extinguishers are stored in the hose cabinets or on the walls. If the room has been evacuated, additionally mark the door with a wastebasket.
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ST PATRICK SITE	<p>Upon Discovery of Fire</p> <ul style="list-style-type: none"> • Leave fire area immediately • Close all doors behind you • Pull fire alarm station located at all fire exits • Dial 9-911 AND 596-3101 x 3333 Michener Security to give location • Leave building via nearest exit stairs <p>Michener Security MUST be informed about the requested external response in order to direct emergency personnel to the required location in the Institute.</p> <p>Upon Hearing Fire Alarm</p> <ul style="list-style-type: none"> • Turn off equipment (where applicable) • Close all doors behind you • Leave building via nearest exit stairs <p>Other Information</p> <ul style="list-style-type: none"> • Remain calm • Use a fire extinguisher if there is a reasonable chance of putting out the primary fire with one extinguisher, or to gain time to evacuate people from the area. • Do not use elevators. • If smoke is heavy in the corridor or if you encounter smoke in the stairway, use an alternate stairway. • In inclement weather an Institute Fire Official may direct evacuees to the Schatz Hall gymnasium. 	
UHN	<p>R. Remove occupants</p> <p>E. Enclose area</p> <p>A. Activate alarm</p> <p>C. Call 5555</p> <p>T. Try to fight fire</p>	
Fire Wardens	<p>MSH /TGH / TWH / PMH</p> <p>Fire Wardens</p> <p>Refer to Code Red for MSH and UHN</p>	<p>St. Patrick Site</p> <p>Floor Wardens on each floor are responsible for checking all areas and ensuring evacuation of staff prior to leaving themselves. They bring attendance list to Main Reception on the ground floor.</p>

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Section: Laboratory Safety Manual	Subject Title: Evacuation Plan	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

In the event of a fire, training schedule, or other internal disaster staff must be familiar with evacuation procedures and duties of designated personnel. Assistance for non-ambulatory personnel, patients and visitors are included.

Purpose:

The information of a properly prepared Evacuation Plan will help the occupants in utilizing life safety features in the building to ensure an orderly evacuation at the time of an emergency.

Key elements:

- Evacuation routes HORIZONTAL
- Evacuation routes VERTICAL
- Evacuation procedure VERTICAL
- NON-AMBULATORY Evacuation MSH
- NON-AMBULATORY Evacuation St Patrick Site

Related Documents:

MSH Emergency Procedure Manuals Home	Code Red
St Patrick Site TML Standard Operating Procedures	IV-20, IV-21

Procedure:

Evacuation routes HORIZONTAL	MSH A complete evacuation of all people in the Fire Area beyond designated Fire Doors to a previously designated safe area <u>on the same floor</u> CODE GREEN
Evacuation routes VERTICAL	All SITES Use stairs. Do not use elevators.
Evacuation procedure VERTICAL	Walk down stairs in single file on outside (beside wall) of stairwell 1. At MSH meet at Murray St. entrance CODE GREEN- STAT 2. At St Patrick site meet outside front entrance across street
NON-AMBULATORY Evacuation	MSH If non-ambulatory personnel, patients or visitors are in the area, evacuate them past two (2) sets of fire doors <u>on the same floor</u>

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NON-AMBULATORY Evacuation	<p>St Patrick Site</p> <p>Wait in the stairwell but do not block others leaving.</p> <p>The fire department will evacuate staff requiring assistance.</p> <p>Other Information</p> <p>Staff who require assistance need to register with the Michener nurse located in Room 442, or phone 596-3101 x 3320. She will leave staff member's names (with their permission) in a sealed envelope at reception.</p> <p>Staff should seek assistance if walking down the stairs is not possible or might exacerbate a health problem.</p> <p>Evacuation is under the control of the Institute Fire Official. Floor Wardens are appointed to ensure the safe evacuation of staff on each floor. The names are posted with the Site Plan in each elevator lobby.</p> <p>The receptionists and security staff open the sealed envelope if the need for evacuation arises. They inform the fire department and/or the Institute Fire Official about staff members requiring assistance.</p>
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Section: Laboratory Safety Manual	Subject Title: Emergency Wash Facilities	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Staff should be trained and familiar with what actions should be taken in the event of accidental exposure to potentially hazardous materials.

Purpose:

To reduce the possibility of personal injury.

Key Elements :

- Eyewash facilities
- Emergency showers

Related Documents:

<u>REPORTING WORK RELATED INCIDENTS</u>	MI\LS\31\v01
<u>WORKPLACE ACCIDENT INVESTIGATION</u>	MI\LS\32\v01

Procedure:

Eyewash Facilities	<p>Know location of eyewash facilities and how to use them</p> <p>If eye protection fails, go to eyewash facility:</p> <p>Eyewash fountain (preferred)</p> <ul style="list-style-type: none"> • Press handle to activate. Plastic covers will pop off. • Wash eyes / face continuously for 15 min, to prevent serious damage to the eyes.
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Eyewash Facilities	<p>Eyewash station (Sterile Isotonic Eyewash Solution)</p> <ul style="list-style-type: none"> • Remove bottle from station and twist off cap, break seal. • Hold a few inches above eye or affected body area and flush as needed. Control flow rate by pressure on bottle. • Move to eyewash fountain and continue flushing eyes / face or continue flushing with bottles from other eyewash stations. • Wash eyes / face continuously for 15 min, to prevent serious damage to the eyes. <p>Seek medical attention immediately thereafter.</p> <p>Eyewash fountains are at designated laboratory sinks. They are located near potentially hazardous areas. They must be inspected once weekly and documented. If possible, eyewash fountains should be plumbed with tepid water.</p> <p>Eyewash stations with Sterile Isotonic Eyewash Solution are at other locations in the laboratory at TML St. Patrick Site. They contain 1 L bottles of sterile isotonic eyewash solution. They must be inspected with respect to unbroken seal and expiration date. Replace at expiration date. Do not reuse. Once opened, discard. Do not use if seal is broken. Contents - A colorless solution containing dibasic sodium phosphate, sodium chloride, sodium phosphate monobasic preserved with disodium EDTA and benzalkonium chloride.</p>
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Emergency showers	<p>Know locations of emergency showers and how to use them. Every laboratory must be equipped with or have ready access to a safety shower. They are located near potentially hazardous areas.</p> <p>In case of chemical burns, go to nearest shower.</p> <ul style="list-style-type: none"> • For ceiling shower, pull handle to activate. • For hand-held shower, pull out and press handle to activate. • Shower, washing affected areas, for 15 min. • Seek medical attention immediately thereafter. <p>Ceiling shower must be inspected twice per year and documented</p> <p>Hand-held showers must be inspected once weekly and documented</p>
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Section: Laboratory Safety Manual	Subject Title: Biological Spill Control	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

MSH is responsible to protect patients, visitors, staff and property from hazardous or potentially hazardous biological spills. MSH will provide a fast and safe means of containment and clean up of hazardous spills.

Purpose:

In the event of a spill, competent, prompt action is necessary for immediate clean-up to reduce and eliminate the hazards present.

Responsibility:

Management and employees

Key Elements:

- Small spill at MSH
- Large spill at MSH
- Small spill at St Patrick Site
- Large Spill at St Patrick Site

Related Documents:

Emergency Procedure Manuals Home	Code Brown

Procedure:

1. Mount Sinai Hospital

Small Spill

1. If the spill is in a public area such as a corridor, warn others to leave and start the clean up immediately.
2. Use appropriate personal protective equipment (laboratory coat, gloves, face shield or goggles, etc.).
3. Use forceps or heavy gloves to pick up any broken glass and discard into a sharps container.
4. Cover spill with paper towels to avoid splashing during the addition of disinfectant.
5. Squirt disinfectant (1% hypochlorite) onto paper towels with circular motion, from the outside towards the centre.
6. Let stand for 30 minutes.
7. Clean up paper towels and place them in a yellow biohazard bag.
8. Disinfect contaminated surface with appropriate disinfectant and wipe with additional paper towels. Place paper towels in a yellow biohazard bag.

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MSH	Biological Spill Kits for small spills. Room 1470 planting area	1 Pair Nitrile Gloves 1 Pair Goggles Yellow biohazard bags Bleach with 2 squirt bottles	Forceps (2) N95 respirator – 1 box Paper towels
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1. Mount Sinai Hospital

Large Spill

1. Hold breath, leave area, allow 10 to 30 minutes for aerosol to settle.
2. If the spill is in a public area such as a corridor, warn others to leave.
3. Obtain the spill control materials.
4. Any individual involved in the clean-up of a spill must determine the nature of the spill and the appropriate clean-up procedure before beginning clean-up.
5. The person in charge in the department where the spill has occurred (i.e. the user department) is responsible for ensuring that information about the material spilled is available for those involved in the clean-up to ensure:
 - proper classification
 - appropriate equipment is available
 - necessary precautions are taken
 - appropriate expertise is available
 - external resources are requested, if necessary.
6. The user department is responsible for ensuring that any spill is safely and effectively cleaned up. This includes situations which involve the assistance of staff from other departments.
7. An Employee Incident Report will be completed by the user department following the clean-up of a spill involving a hazardous material or substance. The incident report should be forwarded to Employee Health Services within 24 hours following the spill. Employee Health Services will forward a copy of the Employee Incident Report to the office of the Vice-President/Risk Manager, Room 333.
8. If Housekeeping is to be involved in a spill clean-up of a hazardous or an identified chemical or substance, the Housekeeping Supervisor must be notified by the user department before Housekeeping staff begin clean-up.
9. When Housekeeping is notified of a spill, the Housekeeping Department Supervisor will determine the classification of the spill, in consultation with the user department.
10. Once the spill has been classified by a Housekeeping Supervisor, the clean-up may proceed.
11. If the spill involves a chemical or a toxic substance, the user department will ensure that the Material Safety Data Sheet is available.
12. The user Department Head and the Housekeeping Supervisor will ensure that the clean-up is done in a safe manner, using the information available on the Material Safety Data Sheet.

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IN ALL INSTANCES, IF IT HAS BEEN DETERMINED BY THE PERSON IN CHARGE THAT A SPILL CANNOT BE HANDLED IN A SAFE, COMPETENT MANNER BY HOSPITAL STAFF, OR, IF THE NATURE OF THE SUBSTANCE CANNOT BE DETERMINED, THE USER DEPARTMENT WILL ACTIVATE THE FIRE ALARM/PULL STATION AND CALL LOCAL 5555 IN ORDER TO OBTAIN THE ASSISTANCE OF THE EMERGENCY RESPONSE TEAM OR THE FIRE DEPARTMENT.

INDICATE: **CODE BROWN**

- THE TYPE OF SPILL (IF KNOWN)
- THE LOCATION OF THE SPILL
- THE NAME OF THE PERSON IN CHARGE IN THE USER DEPARTMENT

The Fire Department, when they arrive, will assume responsibility for co-ordinating and directing the clean-up procedure.

2. TML St. Patrick Site

Small Spill

1. If the spill is in a public area such as a corridor, warn others to leave and start the clean up immediately.
2. Use appropriate personal protective equipment (laboratory coat, gloves, face shield or goggles, etc.).
3. Use forceps or heavy gloves to pick up any broken glass and discard into a sharps container or yellow sharps bucket.
4. Clean up with paper towels. Place paper towels in a yellow biohazard bag.
5. Disinfect contaminated surface with an appropriate disinfectant and wipe with additional paper towels. Place paper towels in a yellow biohazard bag.

Large Spill

1. Obtain the spill control materials.
2. If the spill is in a public area such as a corridor, warn others to leave and start the clean up immediately. Barricade the spill area with floor signs.
3. Use appropriate personnel protective equipment (protective clothing, gloves, face shield or goggles, footwear).
4. Use forceps or heavy gloves to pick up any broken glass and discard into a sharps container or yellow sharps bucket.
5. Estimate the volume of the spill and place an appropriate number of spill control pillows or similar products on the spill or encircle large spills to prevent their spread. Allow the absorptive action of the spill control pillow to absorb the spill.
6. Place pillows in a yellow biohazard bag.

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7. Disinfect contaminated surface with an appropriate disinfectant and wipe with additional pillows. Place pillows in a yellow biohazard bag and seal.
8. Inform the Supervisor or designate. Document the spill on the Employee Incident Report and give it to the Supervisor.

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Section: Laboratory Safety Manual	Subject Title: Chemical Spill Control	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

The Mount Sinai Hospital (MSH) is responsible to protect patients, visitors, staff and property from hazardous or potentially hazardous chemical spills. MSH will provide a fast and safe means of containment and clean up of hazardous spills.

Purpose:

In the event of a spill, competent, prompt action is necessary for immediate clean-up to reduce and eliminate the hazards present.

Responsibility:

Management and employees

Key Elements:

- Chemical spills at MSH
- Chemical spills at St Patrick Site
- Spill Control Materials

Related Documents:

Emergency Procedure Manuals Home	Code Brown

Procedure:

1. Mount Sinai Hospital

Small Spill: A small spill will be defined as less than 1 litre and no toxic fumes/vapours. A **manageable spill** is a situation in which an individual who is competent and has been trained, can safely contain, clean up and dispose of the spill without risk to themselves or others.

1. If the spill is in a public area such as a corridor, warn others to leave the area.
2. If the spill is manageable the individual may initiate the clean up process, using items found in Spill Kits, in accordance with the specific guidelines of the material or MSDS (material safety data sheet) and advise their supervisor/manager.
3. Use appropriate personal protective equipment (laboratory coat, gloves, face shield or goggles, etc.).
4. Use forceps or heavy gloves to pick up any broken glass and discard into a sharps container.
5. Environmental services may be paged through locating to provide further clean-up of the spill.

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2. Mount Sinai Hospital

Large spill: A large spill will be defined as more than 1 litre and/or toxic fumes/vapours. **An unmanageable spill** is a situation in which an individual is not competent, untrained or simply unable to safely contain, clean up and dispose of the spill without risk to themselves or others.

IN ALL INSTANCES, IF IT HAS BEEN DETERMINED BY THE PERSON IN CHARGE THAT A SPILL CANNOT BE HANDLED IN A SAFE, COMPETENT MANNER BY HOSPITAL STAFF, OR, IF THE NATURE OF THE SUBSTANCE CANNOT BE DETERMINED, THE USER DEPARTMENT WILL ACTIVATE THE FIRE ALARM/PULL STATION AND CALL LOCAL 5555 IN ORDER TO OBTAIN THE ASSISTANCE OF THE EMERGENCY RESPONSE TEAM, OR THE FIRE DEPARTMENT.

INDICATE: **CODE BROWN**

1. The individual will provide communications with the following information (repeat twice):
 - < Name of reporter
 - < Name of Supervisor or person in charge in the user department
 - < Location of spill
 - < Substance involved and type of spill
 - < Extent of spill
2. If safe to do so the reporter will remain at the scene until the arrival of the Emergency Response Team, or leave the safety zone only when directed to by the ERT Leader, the Toronto Fire Department or when a Code Green is announced.
3. The Supervisor/Manager must ensure that the following information about the material spilled is available for those involved in the clean-up:
 - < proper classification
 - < appropriate equipment is available
 - < necessary precautions are taken
 - < appropriate expertise is available
 - < external resources are requested, if necessary
4. Ensure that clean-up is done in a safe manner, using the information available on the MSDS.
5. If a Code Brown is called the supervisor will provide the appropriate information pertaining to the spill to the Emergency Response Team and will assist in clearing the area of visitors, non-emergency response personnel and workers as directed by the Team.
6. Will initiate an Incident Report and an investigation process, which will be forwarded to the Department of Occupational Health & Safety

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TML St. Patrick Site

1. Notify all individuals in the immediate vicinity of the spill. If necessary, they should move a safe distance away from the spill location. Barricade the spill area with floor signs or yellow barrier tape to notify people to keep away from the hazard.
2. Identify the spilled material, if necessary by checking labels, shipping papers and/or Material Safety Data Sheets. Identify any immediate hazards, including: flammability, toxicity and any surrounding or contributing hazards.
3. For flammable or combustible liquids, eliminate all potential sources of ignition immediately.
4. Obtain the spill control materials. Each laboratory should have basic spill control materials, as a minimum, spill control pillows, plastic bags and nitrile gloves.
5. Wear appropriate personal protective equipment (protective clothing, goggles or face shield, gloves, footwear [and respirator if indicated]).

Note: Ventilate the spill area if possible. Vapors will be emitted from the spill, regardless of the size. Open doors, and if possible windows, to an outdoor fresh air environment.

6. Estimate the volume of the spill and place an appropriate number of spill control pillows on the spill or encircle large spills with spill control socks to prevent their spread. Place the pillow on the spill and allow the absorptive action of the spill control pillow to absorb the spill.
7. Use forceps or heavy gloves to pick up any broken glass. Discard the glass into the broken glass bucket.
8. Place pillows in yellow polyethylene bags. Seal and label contents.

Note: Spill control pillows DO NOT contain any chemicals designed to make liquids less toxic, hazardous or flammable. Liquids, when contained in any absorbent material, will continue to be unsafe. Therefore, exercise extreme care when handling, storing or disposing of spill control pillows containing such liquids.

9. For a spill of liquid acid or alkali, use the appropriate neutralizer to finish the cleanup. See instructions on neutralizer bottle.
10. For a spill of a dry chemical, sweep up the chemical with a dustpan and broom and dispose of into a yellow polyethylene bag. Label
11. For a spill of a dry chemical or after the use of neutralizers, wash the surface with detergent and water and clean by ordinary means.
12. Double bag the yellow polyethylene bag with a second yellow polyethylene bag. Label it and transfer it to the appropriate room of the chemical storage area (bunker).

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13. Inform the Supervisor or designate. Document the spill on the Employee Incident Report and give it to the Supervisor.

RESOURCE INFORMATION

For further information, see Hazardous Chemicals: Information and Disposal Guide. 2nd or 3^d edition.

SPILL CONTROL MATERIALS

Clean up spills in accordance with MSDS.

MSH	Spill Kit - Microbiology Room 1470	12 pads, 16" x 20" 3 SOCs, 3" x 12" 2 Pillows, 18" x 18" Forceps 2 Flammable Solvent Pure-Paks	Goggles Nitrile Gloves 3 Disposal bags Emergency Response Handbook
	Spill Kits - Chemistry Lab Supply Room 653	Caustic (Alkaline) Spill Kit 1 Alkali Neutralizer Unit Spill Pacs 3 Absorbent Unit Spill Pacs 5 Plastic Disposal Bags & ties 1 Goggles 1 Pair Gloves 1 Sponge 2 Scoops Product Insert (Instruction Sheet) Acid Spill Kit 1 Acid Neutralizer Unit Spill Pacs 3 Absorbent Unit Spill Pacs 5 Plastic Disposal Bags & ties 1 Goggles 1 Pair Gloves 1 Sponge 2 Scoops Product Insert (Instruction Sheet)	Flammable Solvent Spill Kit 1 Flammable Solvent Pure-Pak 3 Absorbent Unit Spill Pacs 5 Plastic Disposal Bags & ties 1 Goggles 1 Pair Gloves 1 Sponge 2 Scoops Product Insert (Instruction Sheet)
St Patrick Site	Spill Cart - 12th floor Reagent room	3" x 4' spill socks - 10	1 L spill pillows - 12
		2 lb dry bottle of NeutraAcid	2 lb dry bottle of NeutraBase
		1 qt non-sparking scoop Tyvek QC Overalls	Jumbo pH paper Goggles
		Silvershield gloves	Nitrile gloves
	Spill Control Bins - 12th and 13th floors	20 Sorbent pads 17" x 19 2 Sorbent socks 3" x 48" 2 Sorbent pillows 8" x 18" 1 Pair Nitrile Gloves	Spill response pocket guide

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\29\v02	Page 1 of 2
Section: Laboratory Safety Manual	Subject Title: First Aid	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Requirements for first aid training and availability of a first aid kit depend on legal requirements, degree of hazard involved in the work, and proximity to a hospital emergency department. Because the St. Patrick Site is off-site from the hospital, additional procedures are necessary. The St. Patrick Site is required to have first aid equipment that meets the requirements of the WSIB Act, Regulation 1101. It must be inspected and re-supplied at least quarterly.

Purpose:

The policy provides direction for all staff who may require first aid to ensure a safe and healthy work environment.

Responsibility:

Management and employees

Key Elements:

- MSH First Aid
- St Patrick Site First Aid

Related Documents:

Emergency Procedure Manuals Home	Code Blue
MEDICAL EMERGENCY	MI\LS\30\v01
REPORTING WORK RELATED INCIDENTS	MI\LS\31\v01
WORKPLACE ACCIDENT INVESTIGATION	MI\LS\32\v01

Procedure:

MSH

For minor cuts a box of bandages is available in the cupboard above the main handwash sink. Any other incidents should be taken care of in Occupational Health and Safety or after hours report to the Emergency Department. Refer to [MEDICAL EMERGENCY](#) for further information.

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St Patrick Site

First aid equipment	Location
First aid kit and stretcher	In the First Aid room on the 12 th floor
Small first aid kit with disinfectant and bandages	Parasitology on the 12 th floor (By the handwash sink) In Specimen Management on the 13 th floor (in cupboard opposite the unpacking bench) Receiving, Basement, The Michener Institute

TML St. Patrick Site is required to have personnel trained in first aid available to deal with emergencies.

Trained First Aider	Contact Information
A number of staff members as posted beside the First Aid Room Michener Institute security staff	<ul style="list-style-type: none"> • Contact the Supervisor or another individual on the list of trained staff members • When a staff member is not available, contact security staff by calling 596-3101 Ext 0 or Ext 3308 if the telephone is not answered in person.

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\30\v02	Page 1 of 3
Section: Laboratory Safety Manual	Subject Title: Medical Emergency	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

All injuries/incidents/accidents however slight, must be reported immediately to your Supervisor and to Occupational Health and Safety using the Hospital's '**Employee Incident Report**' form.

An incident or accident is any personal injury, illness or condition sustained by an employee as a result of work-related trauma, inhalation or contamination.

Purpose:

Timely reporting of a work-related injury/incident/accident is necessary to comply with the provincial Workplace Safety & Insurance Act, which requires employers' to submit a written signed report within three work days of learning of a work-related injury/incident/accident.

Responsibility:

Employer and employee

Key Elements:

- Medical Emergency Requiring Immediate Assistance
- Where to Report Monday to Friday, 0730-1530 hours
- Where to Report After Hours
- Quick Guide to MSH Emergency Codes

Related Documents:

Emergency Procedure Manuals Home	Code Blue
REPORTING WORK RELATED INCIDENTS	MI\LS\31\v01
WORKPLACE ACCIDENT INVESTIGATION	MI\LS\32\v01

Procedure:

Medical Emergency Requiring Immediate Assistance

MSH

Go to Emergency or call [Code Blue](#), ext. **5555**, depending on circumstances.

Call [Code Blue](#) for a person who is having a cardiac arrest, seizure, or who has fainted.

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ST PATRICK SITE

St. Patrick site must have additional procedures in place to address a medical emergency.

- **Dial 9 - 911** for an ambulance
- **Dial 9 - 596-3101 x 3333 to inform Michener Security of location**

NOTE: Michener Security must be informed about the requested external response in order to direct emergency personnel to the required location in the Institute.

WHERE TO REPORT MONDAY TO FRIDAY AT MSH,

0730-1530 hours: Report to: **MSH Occupational Health and Safety**

Hours: Monday to Friday, 0730-1530 hours, **Closed** 1200-1300
 Location: 60 Murray St, South Side Entrance
 Telephone: 416-586-1572

Occupational Health and Safety provides assessment(s), treatment(s) and referral(s), as is/are necessary, for employees who have sustained an injury/incident/accident.

WHERE TO REPORT AFTER HOURS AT MSH

Report to the **MSH Emergency Department** at ext. #5054, who will follow-up and notify Occupational Health and Safety.

The Emergency Department responds only when the incident is obviously serious or Occupational Health and Safety is closed.

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QUICK GUIDE TO MSH EMERGENCY CODES

TO INITIATE, DIAL 5555

BLUE	CARDIAC ARREST
PINK	INFANT EMERGENCY
RED	FIRE
GREEN	HORIZONTAL EVACUATION
GREEN STAT	VERTICAL EVACUATION
WHITE	VIOLENT PERSON
BLACK	BOMB THREAT
YELLOW	MISSING PATIENT
ORANGE	EXTERNAL DISASTER
BROWN	HAZARDOUS SPILL

THE PERSON INITIATING AN EMERGENCY CODE IS INSTRUCTED TO STATE:

TYPE OF EMERGENCY AND

LOCATION OF EMERGENCY, IF KNOWN

MICROBIOLOGY IS ON THE 14TH FLOOR, **ROOM 1470**

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\31\v02	Page 1 of 3
Section: Laboratory Safety Manual	Subject Title: Reporting Work Related Incidents	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Mount Sinai Hospital supports that all workplace employee accidents/incidents resulting in personal injury, in potential for injury and / or loss of process (damage to equipment) are reported to their Manager/supervisor and to Occupational Health and Safety using the Hospital's '**Employee Incident Report**'. Following the completion of the Employee Incident Report, the responsible Manager/supervisor must assist with the investigation/debriefing into the causes of the accident/incident. This policy includes everything from needle stick injuries to cuts and falls.

Purpose:

Timely reporting of a work related accidents/incidents is necessary to comply with the provincial Workplace Safety & Insurance Act, which requires employers' to submit a written signed report within three work days of learning of a work-related accident/incident.

Responsibility:

Employee, Manager/supervisor, Occupational Health Nurse, WSIB Case Coordinator

Key Elements:

- Procedure for the Employee
- Procedure for the Manager/supervisor
- Where to Report Monday to Friday, 0730-1530 hours
- Where to Report After Hours
- Employee Incident Report Form

Related Documents:

Emergency Procedure Manuals Home	Code Blue
FIRST AID	MI\LS\29\v01
MEDICAL EMERGENCY	MI\LS\30\v01
WORKPLACE ACCIDENT INVESTIGATION	MI\LS\32\v01
INCIDENT REPORTING, EMPLOYEE	V-d-11
EMPLOYEE INCIDENT REPORT FORM: MSH GENERAL MANUAL	APPENDIX 9
MANAGEMENT OF NEEDLE STICK INJURIES AND SIGNIFICANT BODY FLUID EXPOSURE	VI-e-10
FOLLOWING ACCIDENTAL PUNCTURE WITH A USED NEEDLE OR INSTRUMENT OR MUCOSAL EXPOSURE	4.50.001

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Procedure:

EMPLOYEE

- Completes the employee portion of the Employee Incident Report ensuring that all sections of the form are completed and details are accurate.
- If unable to work or first aid treatment required, reports to Occupational Health & Safety for assessment and treatment. If Occupational Health and Safety is closed the employee may report to the Emergency Department.
- Advises Occupational Health and Safety when a workplace incident has resulted in lost time or the need to see a medical practitioner for treatment.

MANAGER/SUPERVISOR

- Ensures that an Employee Incident Report is completed when a workplace incident occurs that has or could have caused an employee injury or illness.
- Reviews the completed Employee Incident Report Form to ensure that all sections of the report are complete.
- Reviews incident details with employee and identifies any corrective actions needed or taken. As required, utilizes other resources such as witnesses to the incident, union representatives, health and safety representatives and Risk Management. Occupational Health & Safety is available to assist with the investigation as required.
- Signs and dates the report in the Manager Signature Area.
- Sends the original of the Employee Incident Report to the Occupational Health & Safety Department.
- Sends a copy to the Safety Committee for review.
- Notifies Risk Management as required.

Where to Report Monday to Friday,

0730-1530 hours: Report to: **MSH Occupational Health and Safety**

Hours: Monday to Friday, 0730-1530 hours, **Closed** 1200-1300
 Location: 60 Murray St, South Side Entrance
 Telephone: 416-586-1572

Occupational Health and Safety provides assessment(s), treatment(s) and referral(s), as is/are necessary, for employees who have sustained an injury/incident/accident.

Where to Report After hours

Report to the **MSH Emergency Department** at ext. #5054, who will follow-up and notify Occupational Health and Safety.

The Emergency Department responds only when the incident is obviously serious or Occupational Health and Safety is closed.

Employee Incident Report

EMPLOYEE INCIDENT REPORT

NO INJURY
hazardous situation

INJURY
NO W.C.B. CLAIM
 first aid

W.C.B. CLAIM (ISSUE FORM 156)
 health care (medical aid)
 lost time

8. Last Name _____ **First Name** _____ **Sex** _____ **Marital Status** _____ **Area Code** _____ **Phone No.** _____ **Date of Birth** _____

Address (no., street, apt.) _____ **City/Town** _____ **Province** _____ **Postal Code** _____ **Department/Unit** _____

Date of Employment _____ **Occupation at time of the injury and years of experience in that occupation** _____ **Years Exp.** _____ **Language Spoken if not English** _____ **Social Insurance No.** _____

C. D/M/Y OF INCIDENT _____ **TIME OF DAY** _____ **D/M/Y REPORTED** _____ **TIME OF DAY** _____

D. STATE EXACTLY -- WHAT WAS THE SEQUENCE OF EVENTS LEADING UP TO THE INCIDENT. WHERE INCIDENT OCCURRED. WHAT EMPLOYEE WAS DOING, SIZE, WEIGHT AND TYPE OF EQUIPMENT OR MATERIALS INVOLVED, ETC.

E. TYPE OF INCIDENT (✓)
 SEE DEFINITION ON REVERSE OF WHITE COPY

1 STRUCK OR CONTACT BY
 2 STRUCK AGAINST/CONTACT WITH
 3 CAUGHT IN, ON, OR BETWEEN
 4 FALL
 5 OVER EXERTION / STRAIN
 6 EXPOSURE
 7 PATIENT ACTION

F. NAMES AND ADDRESSES OF WITNESSES OR PERSONS HAVING KNOWLEDGE OF THE INCIDENT

G. WHAT CONDITIONS CONTRIBUTED TO THE INCIDENT (✓) (Number all contributing causes in order of importance)

1 <input type="checkbox"/> OPERATING WITHOUT AUTHORITY	7 <input type="checkbox"/> WORKING ON MOVING OR DANGEROUS EQUIPMENT	13 <input type="checkbox"/> INADEQUATE ILLUMINATION
2 <input type="checkbox"/> FAILURE TO SECURE OR WARN	8 <input type="checkbox"/> DISTRACTING TEASING, WILFUL MISCONDUCT	14 <input type="checkbox"/> FIRE, EXPLOSION, ATMOSPHERIC HAZARD
3 <input type="checkbox"/> WORKING AT UNSAFE SPEED	9 <input type="checkbox"/> FAILURE TO USE PERSONAL PROTECTIVE DEVICES	15 <input type="checkbox"/> HAZARDOUS PERSONAL ATTIRE
4 <input type="checkbox"/> UNSAFE EQUIPMENT	10 <input type="checkbox"/> WHEELED EQUIPMENT OPERATION	16 <input type="checkbox"/> UNSAFE DESIGN OR ARRANGEMENT
5 <input type="checkbox"/> UNSAFE LOADING PLACING ITEMS COMBING ETC.	11 <input type="checkbox"/> NOT GUARDED OR IMPROPERLY GUARDED	17 <input type="checkbox"/> HAZARDOUS METHOD OR PROCEDURE
6 <input type="checkbox"/> UNSAFE POSITION OR POSTURE	12 <input type="checkbox"/> PATIENT ACTION	18 <input type="checkbox"/> OUTSIDE HAZARDOUS CONDITION
		19 <input type="checkbox"/> OTHER (specify)

DETAILS OF PROPERTY DAMAGE

H. ACTIONS TO PREVENT INCIDENT RECURRENCE - MARK WITH (✓) THOSE ACTIONS TAKEN TO PREVENT RECURRENCE. MARK WITH (P) OTHER CORRECTIVE ACTIONS DECIDED UPON OR PLANNED BUT NOT YET CARRIED OUT. MORE THAN ONE ITEM MAY APPLY

1 <input type="checkbox"/> REINSTRUCTION OF PERSON INVOLVED	5 <input type="checkbox"/> ACTION TO IMPROVE INSPECTION	9 <input type="checkbox"/> ACTIONS TO IMPROVE DESIGN / PROCEDURE
2 <input type="checkbox"/> REASSIGNMENT OF PERSON	6 <input type="checkbox"/> EQUIPMENT REPAIR OR REPLACEMENT	10 <input type="checkbox"/> CHECK WITH MANUFACTURER
3 <input type="checkbox"/> ORDER JOB SAFETY ANALYSIS DONE	7 <input type="checkbox"/> CORRECTION OF CONGESTED AREA	11 <input type="checkbox"/> INFORM ALL DEPARTMENT SUPERVISION
4 <input type="checkbox"/> IMPROVED PERSONAL PROTECTIVE EQUIPMENT	8 <input type="checkbox"/> INSTALLATION OF GUARD OR SAFETY DEVICE	12 <input type="checkbox"/> DISCIPLINE OF PERSONS INVOLVED
		13 <input type="checkbox"/> OTHER (specify)

DESCRIBE ACTIONS TAKEN TO PREVENT RECURRENCE

I. DESCRIBE INJURY, PART OF BODY INVOLVED AND SPECIFY LEFT OR RIGHT SIDE

NAME OF: A) ATTENDING PHYSICIAN AND B) EMPLOYEE'S PHYSICIAN

TO YOUR KNOWLEDGE, HAS THE EMPLOYEE HAD A PREVIOUS SIMILAR DISABILITY? YES NO

To be completed by Employee Health Service

VISITED EMPLOYEE HEALTH SERVICE YES NO

IF YES, THIS EMPLOYEE PROBABLY SHOULD

UNDERTAKE REGULAR DUTIES MODIFIED DUTIES REMAIN OFF WORK FOR _____ DAYS

SIGNATURE _____ **POSITION** _____

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Section: Laboratory Safety Manual	Subject Title: Workplace Accident Investigation	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Following the occurrence of a workplace accident and completion of the Employee Incident Report, the responsible Manager/Supervisor must assist with the investigation/debriefing into the causes of the incident. Timely reporting of a workplace accident is necessary to comply with the provincial Workplace Safety & Insurance Act.

Purpose:

The objective of the investigation is to investigate the circumstances related to an accident, determine the causes and to implement corrective actions to prevent reoccurrence. The investigation provides an opportunity for the Manager/supervisor and employee to discuss concerns related to the incident.

Responsibility:

Immediate Supervisor or Manager, Joint Health and Safety Committee, Occupational Health and Safety, OPSEU or representing union, Ministry of Labour

Key Elements:

- Person(s) Conducting Investigation
- Steps Involved in Accident Investigation
- Critical Injury Definition

Related Documents:

<u>JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM</u>	MI\LS\03\v01
<u>MEDICAL EMERGENCY</u>	MI\LS\30\v01
<u>REPORTING WORK RELATED INCIDENTS</u>	MI\LS\31\v01
<u>WORKPLACE ACCIDENT INVESTIGATION</u>	MI\LS\32\v01

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Procedure:

PERSON(S) CONDUCTING INVESTIGATION

Nature of accident	Person(s) Conducting Investigation				
	Immediate Supervisor or Manager	JHSC Joint Health and Safety Committee	Occupational Health and Safety	OPSEU or representing union	Ministry of Labour
First aid accident	✓		As required*		
Lost time accident	✓		As required*		
Medical aid accident	✓		As required*		
Loss of process (damage to equipment)	✓		✓		
<u>Critical injury</u> ** or death	✓	✓	✓	✓	✓

STEPS INVOLVED IN ACCIDENT INVESTIGATION

The level of investigation required depends largely on the seriousness or potential seriousness of the outcome of the accident. Investigations may be finished in minutes or may take weeks to conclude.

Once the injured worker has received medical attention:

1. Secure and manage the accident scene, if required. If possible, neutralize any hazards or dangers that may be present.
2. Notify required parties as per the chart above.
3. Collect the names of any and all persons who witnessed the accident or may have knowledge of the accident.
4. Do not restart any machinery involved in an accident or disturb any physical evidence unless cleared by the Supervisor / Manager.
5. Investigation may include;
 - Completed Employee Incident Form
 - Witness Statements
 - Drawings, pictures and or descriptions of all equipment involved.
6. For more information, see Module 6: Accident Investigations in the Manufacturing Sector Certification Training Program Manual.

* As required - May depend on the nature of the accident, frequency and / or potential for a more serious outcome / injury.

** Critical injury – see below

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CRITICAL INJURY - DEFINITION

Regulation 834 under the Occupational Health and Safety Act

“Critically injured” means an injury of a serious nature that,

- a) places life in jeopardy
- b) produces unconsciousness
- c) results in substantial loss of blood
- d) includes the fracture of a leg or arm but not a finger or toe
- e) involves the amputation of a leg, arm, hand or foot but not a finger or toe
- f) consists of burns to a major portion of the body
- g) causes the loss of sight in an eye

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\33\v02	Page 1 of 3
Section: Laboratory Safety Manual	Subject Title: Personal Protective Equipment	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

MSH provides and employees must use appropriate personal protective equipment (PPE) when contact with body substances/chemicals is deemed likely. All human blood or body fluids are capable of harbouring infectious pathogens. Employ proper personal hygiene. Frequent hand washing is the single most important measure to reduce the risks of transmitting organisms. Wash your hands whenever you leave the laboratory and remove laboratory coats/gowns before entering other non-laboratory facilities or areas which are considered to be clean.

Purpose:

Use of personal protective equipment will minimize the risk of transmission of diseases to patients, visitors and staff at Mount Sinai Hospital.

Responsibility:

Employer and employee

Key Elements:

- Clothing
- Hand protection
- Footwear
- Eye and face protection

Related Documents:

<u>GOOD LABORATORY PRACTICE - SUMMARY</u>	MI\LS\05\01
<u>BODY SUBSTANCE PRECAUTIONS</u>	MI\LS\06\v01
<u>BIOLOGICAL SAFETY</u>	MI\LS\07\v01

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Laboratory Safety Manual	Revision Date: December 18, 2003	

PPE	PROCEDURE	PRECAUTIONS
Clothing	<p>Laboratory coat</p> <ul style="list-style-type: none"> Wear an appropriate long sleeved cuffed laboratory coat with a closed front at all times when working in the laboratory. Minimum PPE, along with gloves <p>Apron</p> <ul style="list-style-type: none"> Use if there is potential for splashing / aerosolization with body fluids <p>Warm clothing</p> <ul style="list-style-type: none"> For extended work in cold rooms 	<ul style="list-style-type: none"> Remove the lab coat worn in the laboratory prior to exiting the work area or entering office areas. Treat all linen used in the laboratory as biohazardous. Place soiled linen in the clear plastic soiled linen bag. If a laboratory coat becomes grossly soiled with biological material, remove it immediately and place it in the soiled linen bag The lab aid transports lab coats to receiving for cleaning MSH linen is cleaned by Faster Linen 416-252-2030. Bleach is used in the chemical formula for lab coats
Hand protection	<p>Disposable gloves</p> <ul style="list-style-type: none"> Staff trained in appropriate use/treatment of gloves Wear disposable gloves when handling biological specimens. Minimum PPE, along with lab coat For staff with allergies/reactions (latex/talc/starch/vinyl), unpowdered gloves &/or alternatives provided Wash hands after removing gloves <p>Other gloves</p> <ul style="list-style-type: none"> Purpose of gloves varies - to protect against chemical burns; abrasions, cuts, punctures; temperature extremes in the work environment (e.g., autoclave, -80°C freezer) 	<p>Disposable gloves</p> <ul style="list-style-type: none"> Provide a protective barrier Prevent gross contamination of hands to blood or body fluids. Remove before leaving the laboratory Dispose of used gloves into yellow biohazard bags. Do not touch your face/hair or clean areas with gloves on. <p>Non-sterile gloves should be non-latex, according to Mount Sinai Hospital latex sensitivity policy.</p>
Footwear	<p>Wear closed nonslip shoes in the laboratory. Closed shoes have:</p> <ul style="list-style-type: none"> Closed toes. The material should be non absorbent, i.e., leather and not canvas Closed heels. Heels not more than 1 ¼ “ in height <p>Safety shoes may be required for work with: bulk chemicals/ hazardous activities/areas with regular use of knives/sharps</p>	<p>Sandals and other open-toed shoes are prohibited.</p>

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PPE	PROCEDURE	PRECAUTIONS
Eye and face protection	<p>Eye protection should be used, especially if contact lenses are worn.</p> <p>If there is a risk of splashing samples/reagents, use one of the following:</p> <ul style="list-style-type: none"> • Face shield/splashguards • Safety goggles that protect the top, bottom, front and sides of the eyes <p>Masks/personal respirators used when appropriate</p> <p>Respirators fit tested by CSA std Z94.4-93, "Selection, use, & care of respirators"</p> <p>Protective goggles should be worn where UV light used</p>	<ul style="list-style-type: none"> • If contact lenses are worn, the supervisor / principal investigator / co-workers should be aware of this, in the event that, following an accidental splash, the individual requires assistance in removal of the lenses • Whenever airborne infectious agents, e.g., M tuberculosis, are being handled, a PCM 2000 face mask must be worn in addition to other barrier protection.

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Section: Laboratory Safety Manual	Subject Title: Laboratory Disinfectants	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Biological hazards are present in clinical laboratories. The risk of exposure and subsequent infection by these agents can be significantly reduced through the use of specific protocols for decontamination/cleaning/disinfection of each piece of equipment after spills, before servicing, and at the end of each shift.

Purpose:

The principle is to clean and disinfect. Some compounds clean only, some disinfect only and some do both.

Virox is a new cleaner and disinfectant recommended by MSH that may be used for most disinfecting purposes. It is non-corrosive and non-irritating. It comes as a liquid and in a disposable wipe format (user friendly).

Responsibility:

Management and employees

Key Elements:

- Application
- Recommended Product(s)
- Ordering Information
- Preparation, Procedure & Precautions

Related Documents:

<u>LABORATORY SAFETY</u>	MI\LS\02\v01
<u>GOOD LABORATORY PRACTICE - SUMMARY</u>	MI\LS\05\v01
<u>BIOLOGICAL SPILL CONTROL</u>	MI\LS\27\v01

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Procedure:

Application	Recommended Product(s)	Ordering Information	Preparation, Procedure & Precautions
Benches Biological safety cabinets Centrifuges, metal surfaces, Autoloop Microscopes Telephone and keyboards / keyboard covers	Virox 5 Wipes RTU Virox 5 RTU	Ready to use dispenser system Virox 5 Wipes RTU (6" x 6.25") 160 / pail. Vendor code 50338 Hospital #701129 Ready to use spray bottles Virox 5 Ready to use (RTU). Vendor code 50309	Wipe surfaces. Allow to dry. Spray surfaces. Wipe dry.
Water baths	Benzalkonium chloride 10%)	Media Room	Dilute 10mL in 4L of water. Clean and descale water bath. Disinfect with wipes. Fill with deionized water. Clean and disinfect a minimum of once a month.
Pipettes Test Tube Racks	Alcotab Phosphate content 4% Divermax M9 Machine Dish Powder	VWR Stores	Add 2 tablets to the pipette washer. Mix and dissolve. Soak for 1 hr. Rinse with deionized water. Autoclaved if contaminated and then washed in dishwasher
Floors	Hydrox	Housekeeping orders from Stores - MSH - UHN	Hydorx is the hospital-approved cleaner and disinfectant for low-risk areas.

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Application	Recommended Product(s)	Ordering Information	Preparation, Procedure & Precautions
Spilled (wet) or dried biological material	Hypochlorite 1%	Stores Note: Full strength sodium hypochlorite (Javax) is 5%, 50,000 mg/L free available chlorine. Other forms of hypochlorite (e.g., Haztabs, stabilized solutions) are acceptable if they give the same amount of free available chlorine.	Dilute full strength sodium hypochlorite 1:5 Make up fresh daily OR Dilution is stable 1 month if stored in a dark bottle. <ul style="list-style-type: none"> Refer to BIOLOGICAL SPILL CONTROL for procedure <p>Hypochlorite is inactivated by organic matter. Remove as much blood / protein matter as possible before decontamination or use a concentration of disinfectant higher than 1%.</p>
BacT/ALERT Cell Decontamination after Bottle Breakage	Hypochlorite 1%		<ul style="list-style-type: none"> Disable cell Insert absorbent material, such as gauze, into the cell to remove any remaining fluid Use caution around LED at bottom of cell Wipe cell with gauze soaked in Hypochlorite 1% Let soaked gauze sit in cell for 15-30 minutes Remove gauze Wipe cell with gauze soaked in distilled water Let cell air dry Calibrate cell Enable the cell if it passes calibration

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Application	Recommended Product(s)	Ordering Information	Preparation, Procedure & Precautions
Broken Tube(s) in Centrifuge	Virox 5 RTU	Ready to use spray bottles Virox 5 Ready to use (RTU). Vendor code 50309	<ol style="list-style-type: none"> 1. Turn off centrifuge 2. If in sealed safety buckets, go to step 7; if in unsealed cups, inform others in vicinity and do not open the centrifuge for 30 minutes to allow aerosols to disperse or settle 3. Slowly open centrifuge lid, remove all broken tubes, buckets, rotors, etc. to a basin of disinfectant which is non-corrosive; let stand for time recommended for selected disinfectant. Alternatively, these items may be autoclaved 4. Place any unbroken capped specimens in disinfectant for 60 minutes and then remove, rinse, and process 5. Wipe down the bowl of the centrifuge twice with disinfectant and rinse with water; dry 6. Dispose of wipe-down cloths as infectious 7. Remove sealed bucket to biological safety cabinet 8. If any tubes are broken, leave in bucket, replace lid of bucket loosely and autoclave entire contents or place in disinfectant (see steps 3 & 4)
Cleaning hands	Bactosol with Triclosan Betadine Providone iodine 7.5% Alcohol-based antimicrobial hand rinse	Stores Stores Stores-various manufacturers	Use in areas where there is no hand-washing sink.

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Section: Laboratory Safety Manual	Subject Title: Workplace Health and Safety Inspection Procedures	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

According to the Occupational Health and Safety Act inspections are carried out by a worker member and a management member of the JHSC. Inspect the workplace at least once a month (or a section of the workplace once a month).

Purpose:

The purpose of the inspection is to identify actual and potential hazards that can cause injury, illness or damage.

Responsibility:

The JHSC is responsible for inspecting the physical condition of the workplace on a regular basis.

Key Elements:

- Frequency of Inspections
- Initial Inspection Preparation
- Regular Safety Audits Required in the Laboratory
- General Inspection Information
- Lab Inspection Guide
- Inspection Record Form
- Lab Inspection Checklist

Related Documents:

JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM	MI\LS\03\v01
GENERAL CONTROL MEASURES	MI\LS\24\v01

Procedure:

FREQUENCY OF INSPECTIONS

Location	Frequency	What to Inspect
MSH	Monthly or at least annually	All clinical and research laboratories
Toronto Medical Laboratories St. Patrick Site	Monthly	All areas of TML St Patrick Site at The Michener Institute: <ul style="list-style-type: none"> • 12th floor • 13th floor • Receiving (basement) and bunker (solvent storage)

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INITIAL INSPECTION PREPARATION

Prior to the initial inspection, the member should read Module 5: Workplace Inspections in the Manufacturing Sector Certification Training Program Manual. Obtain from Certified member.

REGULAR SAFETY AUDITS REQUIRED IN THE LABORATORY

As part of the inspection process, the JHSC checks that the audits listed below are carried out with the frequency indicated and are documented.

The JHSC inspectors record their observations on an inspection audit form.

- Documents hazards on this form as they are identified.
- **Immediate Hazards:** These are hazards that could cause injury or illness unless they are corrected right away. Inform the Supervisor responsible for the area immediately and asked him/her to take action to correct the problem.
- Forward the completed inspection record to one of the co-chairs for inclusion on the agenda of the next JHSC meeting.

The Manager / Supervisor is responsible for ensuring that the following are checked with the frequency indicated.

AREA	FREQUENCY
Eye wash stations	Weekly
Hand-held showers	Weekly
Water bath cleaning * * Not required under the OH&S Act but is required by other bodies	At least once a month
Fire extinguishers	Monthly
Inspections	Monthly on institutional basis <ul style="list-style-type: none"> • Hospital sites – once per year • TML St. Patrick Site – monthly
First aid kit	Quarterly
Deluge shower	6 monthly
Biological safety cabinets	Yearly
Fume hoods	Yearly
MSDS	Yearly
Chemical inventory	Yearly

GENERAL INSPECTION INFORMATION

Laboratories are subject to inspection by the following:

1. Joint Health and Safety Committee
2. Occupational Health and Safety Department
3. Fire Marshall
4. Ministry of Health

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5. Ministry of Labour
6. Atomic Energy Control Board

LABORATORY INSPECTION GUIDE

The following guide has been developed to assist you in your scheduled safety surveillance of laboratories and departments under your auspices as lab supervisor. This guide is by no means all encompassing, however information contained after each item should assist you in determining whether your area may be in full, partial or non-compliance. This is designed for use with the **LABORATORY INSPECTION FORM** that follows.

1. Entrances, Exits, Hallways and Stairways - All entrances, exits, hallways and stairways must be clear and unobstructed.
2. Showers/Eye Wash Operative – Weekly inspections (every 6 months for overhead showers) are required. Any area, which deals with corrosive, flammable or otherwise hazardous material is required to have immediate access to eyewash and drench shower facilities. All showers and eye wash equipment must be in full operational order and unobstructed. Eye wash bottles are not adequate equipment.
3. Personal Protective Equipment - Personal Protective Equipment such as goggles, masks, gloves and cover gowns must be readily available and not worn outside the immediate work areas. Lab coats and appropriate shoes shall be worn to avoid any contact with harmful materials.
4. Fire Extinguisher/Inspection and Location - All fire extinguishers must be inspected monthly. Extinguishers must be properly mounted, unobstructed and be properly labeled for the intended use. Training classes are offered through the MSH Fire Marshal.
5. Pressurized Cylinders - All cylinders must be stored in proper locations. All cylinders must be secured in an upright position and properly restrained to prevent falling. Containers must be labeled for contents and usage.
6. Room Use Identification - All access doors must be marked when rooms or areas are being used for chemical, biological or radioactive purposes. All doors must remain closed and the vision panel must remain unobstructed. Unattended labs shall be locked at all times.
7. Electrical Equipment and Cords - Only Canadian Standards Association approved equipment and cords are authorized for use.
8. Fume Hood Operation - Face Velocities should be between 80 and 150 FPM at the working sash height with an optimum level of 100 FPM. The sash should never be higher than 12 inches except when accessing equipment. Hoods should not be located in high traffic areas or under air supply vents. The hood must have user spill protection and cup sinks must have spill guards.
9. Biological Safety Cabinets - Certification is required annually or any time the hood is moved or has had maintenance performed. Cabinets must not be located near high traffic areas or air supply ducts.

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10. Hazardous Chemicals - All chemicals must be appropriately labeled and shall not be placed near or over floor drains. Flammable liquids must be stored in appropriate containers.
11. Equipment and Utility Labeling - Refrigerators, ice machines and microwaves must be labeled for intended use. Food, personal medication and hazardous materials shall not be housed in the same refrigerator. All utility and plumbing lines need to be labeled and indicate the product contained; i.e., gas, water, etc.
12. Location of Cut-off Valves/Circuit Breakers - All cut off valves and breakers must be properly labeled.
13. General Safety (Dress, Eating, Smoking, etc.) - Eating, drinking, smoking and applying cosmetics is not permitted in the lab. Lab personnel shall not wear loose clothing, perforated shoes, sandals, or cloth sneakers.
14. Use of Flame and Heat - No heat generating devices should be left unattended.
15. Ventilation - Airflow in most labs should be "negative" with respect to the corridor. Laboratory doors shall be kept closed when laboratory procedures are in progress. Volatile hazardous materials shall not be used on the open bench top.
16. Housekeeping/Drains Flushed - All unnecessary material, boxes, and containers must be disposed of in the appropriate manner. All drains, including floor drains and cup sinks should be flushed with water on a weekly basis to eliminate sewer odors. Proper housekeeping must be maintained to provide adequate clearance of sprinkler systems and emergency equipment.
17. Sharps (Glass, Scalpel, Blades, Syringes, Etc.) - All sharps, needles and glass must be disposed of in an approved labeled container. Glass containers and other potentially sharp objects shall not be disposed of in common office refuse. Containers must not be overfilled and must be labeled and sealed for proper handling and disposal.
18. Emergency lighting - Where necessary, emergency lighting units shall be properly mounted and unobstructed. If emergency lighting exists, it should be checked periodically to ensure it is functional.
19. Emergency Plans/Posted Numbers - All emergency and contingency plans and evacuation routes shall be clearly posted in conspicuous places. A list of emergency numbers and contacts must be kept updated and posted along side the emergency plans.
20. Safety Manuals - Manuals must be current and readily available for all employees.

INSPECTION RECORD FORM

Two examples of checklists are included.

- ◆ File completed inspection forms in the Health and Safety Binder
- ◆ Send a copy of the completed inspection forms to management

LABORATORY INSPECTION FORM
Policy: OP.11.70.022

Policy # MILS\35\01\v02

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Department/Lab: _____ Building/Room #: _____ Lab Supervisor/PI: _____

Inspected by: _____ Inspection Date: _____

Item	S	U	Comments	Corrective Action Taken
Entrances, exits, hallways, stairways				
Showers/eye wash operative				
Personal protective equipment				
Fire extinguishers/inspection & location				
Pressurized cylinders: storage/usage label				
Room use identification/labeling				
Electrical equipment & cords				
Fume hood operation				
Biological safety cabinets				
Certification				
Use				
Hazardous Chemicals				
Labeling				
Storage/amount/location				
Handling				
Hazardous Waste Disposal				
Equipment and utility labeling				
Location of cut-off valves/circuit breakers				
General safety (dress, smoking, etc.)				
Use of flame and heat				
Ventilation				
Housekeeping/drains flushed				
Sharps (glass, scalpel, blades, etc.)				
Emergency lighting				
Emergency plan/posted numbers				
Safety manuals				

S = Satisfactory; U = Unsatisfactory

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LABORATORY INSPECTION CHECKLIST

		S	U	N/A
1	Are general signs and information properly posted?			
2	Are all floors clean and dry?			
3	Are passageways, storerooms, work areas & aisles clear?			
4	Is proper illumination provided in the work area?			
5	Is proper clothing being worn by employees in the work area?			
6	Do work areas have at least two exits available?			
7	Are exits visible and unobstructed?			
8	Are MSDS readily available to the employees?			
9	Are fire safety and WHMIS training for all employees documented?			
10	Are standard operating procedures readily available to workers?			
11	Do employees know the procedures for a general emergency?			
12	Are emergency telephone numbers posted?			
13	Are telephones in the work area conveniently located?			
14	Are first aid supplies adequate for potential hazards and are they available?			
15	Is PPE available to the employees and is it being utilized properly?			
16	Are safety showers visible, operational and easily accessible?			
17	Are eye wash fountains / stations visible, operational and easily accessible?			
18	Are hand wash stations available and easily accessible?			
19	Is the chemical spill kit visible and easily accessible?			
20	Is access to electrical panels unobstructed?			
21	Are all electrical switches marked to show their purpose?			
22	Are electrical systems checked periodically by a qualified person?			
23	Are electrical and / or phone cords properly secured on the floor?			
24	Chemical stored by classification and not alphabetically?			
25	Are all chemicals properly labeled?			
26	Are bottle carriers provided for all glass containers > 500 mL?			
27	Are good housekeeping practices followed by employees?			
28	Are all materials piled, racked or stored in a safe manner?			
29	Are step stools available to reach high places in the work area?			
30	Are the work areas or bench tops uncluttered?			
31	Are fume hoods certified and properly operated?			
32	Are flammable storage cabinets available and in good condition?			
33	Are fume hoods and biological safety cabinets uncluttered and accessible?			
34	Are waste containers properly labeled and in good condition?			
35	Is waste reduction practiced?			
36	Are sharp containers available and in good condition?			
37	Are compressed gas cylinders properly secured and labeled?			
38	Are portable fire extinguishers provided in adequate number and type?			
39	Are fire extinguishers mounted in accessible locations?			
40	Are explicit instructions posted for acid splashes and acid spills?			

S = Satisfactory U = Unsatisfactory N/A = Not applicable

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\36\02	Page 1 of 4
Section: Laboratory Safety Manual	Subject Title: Immunization and Surveillance	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

For the health and well being of Mount Sinai Hospital employees, all Microbiology personnel will have a health review and be screened for immunity to certain infectious diseases. Personnel will also be screened for Tuberculosis on an ongoing basis.

Purpose:

To prevent the transmission of infectious, communicable diseases among persons carrying on activities in the hospital, patients and co-workers.

Responsibility:

Occupational Health and Safety and Employees

Key Elements:

- Tetanus
- TB
- Hepatitis B
- Varicella
- Measles
- Rubella
- Influenzae

Related Documents:

<u>JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM</u>	MI\LS\03\v01
<u>TUBERCULOSIS SURVILLANCE PROGRAM</u>	V-f-5
<u>VARICELLA VACCINATION POLICY</u>	V-j-5
<u>RUBELLA SURVEILLANCE PROGRAM</u>	V-k-5
<u>MEASLES SURVEILLANCE PROGRAM</u>	V-l-5
<u>PREVENTION AND MANAGEMENT OF INFLUENZA</u>	V-n-5

Procedure:

The chart below is an outline of the health review procedures for MSH personnel. Refer to individual MSH policies to review the entire process.

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ORGANISM	PROCEDURE	PRECAUTIONS
Tetanus	<ul style="list-style-type: none"> It is recommended that staff maintain current immunization status. 	
TB	<ul style="list-style-type: none"> All new hires, students, in house staff, physicians and volunteers will undergo two-step Mantoux screening prior to the commencement of work within the hospital. After initial testing, laboratory staff will be tested annually Written notification of annual requirement for surveillance testing will be sent. Staff not responding within 15 business days will receive a reminder notice. Staff who remain non-compliant for a further 15 business days will receive a copy of a Final Notice – to the staff’s department manager advising of continued non-compliance requesting the staff be placed on an unpaid leave until such time as they undergo TB Surveillance 	<ul style="list-style-type: none"> Any employee who experiences a conversion will be referred to the TB Specialist for follow-up. Occupational Health will inform Infection Protection and Control immediately of any conversion in order that a thorough investigation as to any possible sources can be undertaken. Extensions will be accepted in the case of absence due to illness/injury, vacation, maternity or other types of leaves. However within 15 business days of return to work, the employee must report to Occupational Health to undergo surveillance.
Hepatitis B	<ul style="list-style-type: none"> Immunization to Hepatitis B with Hepatitis B vaccine is strongly recommended. Hepatitis B vaccine provided free of charge 	

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ORGANISM	PROCEDURE	PRECAUTIONS
Varicella	<ul style="list-style-type: none"> All new employees shall, at their initial occupational health visit, be screened for immunity to VZV by having a blood test taken for serology. Employees who are susceptible to varicella (as assessed by serology) will be offered vaccination. Vaccination to prevent illness is recommended for all susceptible health care workers. 	<ul style="list-style-type: none"> The vaccine does NOT contain egg products or preservatives Contraindications to vaccination are: immunocompromised individuals, anaphylactic allergy to gelatin or neomycin, pregnancy Pregnancy should be avoided for one month after vaccination. About 30% of people complain of transient redness, tenderness or pain at the injection site. Within one (1) month of vaccination, a mild vaccine associated maculopapular or varicelliform rash develops in about 8% of adult vaccine recipients Transmission of vaccine associated virus has occurred, but only from people who have rash, and then less than 1% of the time. Shingles are less common after vaccination than after natural infection.
Measles	<ul style="list-style-type: none"> Each employee's status will be determined preferably by serological evidence of antibodies to measles or by documentation of vaccination for measles with live virus vaccine on or after the first birthday. Persons born before 1957 or with physician-documented history of clinical measles will be accepted as proof of measles immunity as well. Susceptible employees must be vaccinated for measles except where precluded on a medical or religious basis. 	<ul style="list-style-type: none"> Anyone who is pregnant, or thinks they might be pregnant should not get the vaccine. They have a responsibility to report to the OHD when they are no longer pregnant.

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ORGANISM	PROCEDURE	PRECAUTIONS
Rubella	<ul style="list-style-type: none"> • At the time of initial health review status will be determined by serological evidence of antibodies to rubella • If status is non-immune, these persons must be immunized for Rubella, except where precluded on a medical or religious basis. 	<ul style="list-style-type: none"> • Females of child-bearing age must first assure Occupational Health that they are not pregnant. • Occupational Health must counsel the women not to become pregnant for three months after receiving the vaccine. • They have a responsibility to report to the OHD when they are no longer pregnant.
Influenza	<ul style="list-style-type: none"> • All employees will have access to influenza vaccination • All employees are strongly encouraged to be vaccinated yearly • All employees have the right to refuse influenza vaccination. • The cost of the vaccine will be covered by the Ministry of Health • The cost of prophylactic medication for staff will be covered by the hospital insurance plan during an influenza outbreak • The staff vaccination campaign will occur during a two-week period in October. 	<ul style="list-style-type: none"> • The influenza vaccine is a killed virus vaccine—one <i>cannot</i> get influenza from receiving the vaccine. • The only significant side effect of the vaccine is arm soreness, which is significantly reduced if acetaminophen is taken with the flu shot.

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\36B\v01	Page 1 of 2
Section: Laboratory Safety Manual	Subject Title: Accidental Occupation Exposure	
Issued by: LABORATORY MANAGER	Original Date: December 18, 2003	
Approved by: Laboratory Director	Revision Date:	

Policy:

Ensure that all employees who have been exposed to blood or a body fluid of a patient have appropriate management of their exposure.

Purpose:

To prevent the transmission of infectious disease to employees.

Responsibility:

Occupational Health and Safety and employees.

Key Elements:

- Major Hazards
- Significant Body Fluids
- Routes of Entry
- What to do if an Accidental Exposure Occurs

Related Documents:

<u>JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM</u>	MI\LS\03\v01
<u>TUBERCULOSIS SURVILLANCE PROGRAM</u>	V-f-5
<u>VARICELLA VACCINATION POLICY</u>	V-j-5
<u>RUBELLA SURVEILLANCE PROGRAM</u>	V-k-5
<u>MEASLES SURVEILLANCE PROGRAM</u>	V-l-5
<u>PREVENTION AND MANAGEMENT OF INFLUENZA</u>	V-n-5
<u>IMMUMIZATION AND SURVEILLANCE</u>	MI\LS\36\v01

MAJOR HAZARDS

- ◆ Hepatitis B virus (HBV)
- ◆ Human Immunodeficiency virus (HIV)
- ◆ Hepatitis C virus (HCV)

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Section: Laboratory Safety Manual	Subject Title: Accidental Occupation Exposure	
Issued by: LABORATORY MANAGER	Original Date: December 18, 2003	
Approved by: Laboratory Director	Revision Date:	

SIGNIFICANT BODY FLUIDS

- ◆ blood
- ◆ cerebral spinal fluid
- ◆ synovial fluid
- ◆ pleural fluid
- ◆ peritoneal fluid
- ◆ amniotic fluid
- ◆ human tissue
- ◆ seminal fluid
- ◆ vaginal secretions
- ◆ any body substance containing visible blood

* Hepatitis B vaccine is highly recommended

ROUTES OF ENTRY

Significant exposures require a route of entry of the infectious agent which can be by:

- a) Percutaneous: Injuries due to needle stick or sharp instruments such as scalpels, contaminated with blood or body fluids
- b) Mucocutaneous: Accidental splashes to mouth, nostrils or eyes or to an open wound (e.g. cuts, abrasions, dermatitis) by blood or body fluids.

WHAT TO DO IF AN ACCIDENTAL EXPOSURE OCCURS

In the event of an injury, the employee shall:

- ◆ immediately wash the site of the exposure with large amounts of water while gently encouraging bleeding.
- ◆ notify their supervisor.
- ◆ proceed to employee occupational health, or to the Emergency department during off hours.
- ◆ Fill out an employee incident form.
- ◆ Occupational health will further manage the exposure by screening, treatment and counseling the employee.

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Section: Laboratory Safety Manual	Subject Title: Ventilation	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Environmental conditions in the laboratory are monitored and recorded to ensure they do not adversely affect the quality of results. Airflow in the laboratory shall avoid dispersion of potentially infectious agents and ensure adequate ventilation disruptions are avoided. The location, design, type of venting of BSC shall be appropriate to level of risk containment required according to Health Canada Laboratory Biosafety guidelines.

Purpose:

Proper ventilation ensures a comfortable and safe work environment.

Responsibility:

Mangement

Key Elements:

- Types of Ventilation Systems
- Biological safety cabinets
- Chemical fume hoods
- Vents

Related Documents:

BIOLOGICAL SAFETY CABINETS	MI\LS\09\v01

TYPES OF VENTILATION SYSTEMS

There are **2 types** of ventilation systems:

1. HVAC (heating, ventilation, air conditioning) systems are designed primarily for temperature, humidity and air quality movement.
2. Local ventilation systems are designed to remove contaminants generated by work procedures or equipment from the workplace. Examples are biological safety cabinets, chemical fume hoods and vent.

FEATURE	PROCEDURE	PRECAUTIONS
Biological Safety Cabinets	<ul style="list-style-type: none"> • Class I - a primary barrier which offers protection to laboratory personnel and to the environment • Class II - a primary barrier which offers protection to laboratory personnel and to the environment and also provides product protection from external contamination of the material • Class III - a gas-tight (glove box) which provides the highest attainable level of protection to personnel and the environment. Require special design and construction. 	<ul style="list-style-type: none"> • Do not operate centrifuges in a biological safety cabinet since the motor may produce strong air currents and turbulence which may disrupt the laminar air flow • Must be inspected and certified once a year (cabinets are inspected as per hospital contract)
Chemical Fume Hoods	<ul style="list-style-type: none"> • Lab air flows are balanced at time of fume hood installation to achieve designed fume hood face velocities and uniformity of airflow patterns 	<ul style="list-style-type: none"> • Factors affecting fume hood performance e.g., open doors or windows nearby, room air currents, movement near fume hood face openings • Fume hood should be inspected and certified annually • Routine maintenance is required on exhaust fans
Vents	<ul style="list-style-type: none"> • Vent at the exterior of the bench connected to an exhaust duct 	<ul style="list-style-type: none"> • For maximum benefit, place work as close to the vent as possible, e.g., urinalysis bench

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\38\v02	Page 1 of 1
Section: Laboratory Safety Manual	Subject Title: Housekeeping	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Housekeeping by non laboratory staff is restricted to the removal of non-hazardous waste, or appropriately labeled and packaged hazardous waste and periodic cleaning of the floors, walls and ceilings. A designated person in the laboratory should oversee lab housekeeping.

Purpose:

Limiting housekeeping activities in the laboratories ensures everybody's safety.

Responsibility:

Management and Housekeeping personnel

Related Documents:

GENERAL CONTROL MEASURES	MI\LS\24\v01

Procedure:

1. Do not leave anything on the floor where it is liable to impede the free passage of others. Exits, corridors and access to safety equipment (such as eyewash equipment) should be kept free from obstruction.
2. Assume that non-laboratory personnel, (e.g. housekeeping, plant engineering, security) may be required to work in lab areas on occasion. Procedures must address their involvement in the laboratory. This is especially important with respect to tidiness, storage and disposal and labeling / signage. Acronyms are not an acceptable alternative to proper labeling. Personal protective equipment must be provided to this staff, as necessary.

TML\MSH Microbiology Department Policy & Procedure Manual	Policy # MI\LS\39\v02	Page 1 of 3
Section: Laboratory Safety Manual	Subject Title: Personal Safety	
Issued by: LABORATORY MANAGER	Original Date: April 20, 2001	
Approved by: Laboratory Director	Revision Date: October 22, 2003	

Policy:

Personal safety and theft reduction within the hospital are shared responsibilities. Mount Sinai Hospital's efforts in reducing theft and increasing personal safety are dependent upon the support of all staff. All employees wear their photo identification badge with the name and photograph in full view. The ID system assists everyone to quickly identify authorized personnel.

Purpose:

By following the tips in this section you will improve your own security and contribute to Mount Sinai Hospital's effort to make all laboratory sites safer.

Responsibility:

Employer and employee

Key Elements:

- What to do in an **Emergency**
- What to do for **Non-Emergency** Security Concerns
- General Advice
- After Hours And At Night
- Parking Lots and Garages
- Elevators
- Bank Machines

Related Documents:

<u>JOINT HEALTH & SC AND INTERNAL RESPONSIBILITY SYSTEM</u>	MI\LS\03\v01
<u>GENERAL CONTROL MEASURES</u>	MI\LS\24\v01

Procedure:

WHAT TO DO IN AN EMERGENCY

IN AN EMERGENCY AT MSH CALL 5555

IN AN EMERGENCY AT ST PATRICK SITE CALL 9-596-3101 x 3333

- Fire, smoke or smell of gas
- Life safety
- Bomb threats
- Accidents/serious sickness
- Crimes in progress
- Suspicious persons or incidents

Do not endanger yourself or attempt to deal with hazardous or suspicious situations yourself.

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WHAT TO DO FOR NON-EMERGENCY SECURITY CONCERNS

For all other **non-emergency** security concerns or assistance call Security:

TML St. Patrick Site	9-596-3101 x 0
MSH	17-5056

GENERAL ADVICE

- Know the emergency number to reach Security Services.
- Be aware of what is going on around you.
- Follow your instincts. If you feel you are at risk, try to leave the situation or area quickly.
- If you are harassed, report the incident to Security Services.
- Use the buddy system. Plan to watch out for one another.
- MSH Security Services offers an escort service. Use them if you feel uncomfortable walking alone within the hospital or hospital parking lots/garages.
- Lock your lab, room or office door, even if you are leaving only for a few minutes.
- Never prop open doors, even for a brief time. This places you and everyone else in your building/area at risk.
- Lock all purses, wallets, cash and valuables in a locker, desk or cabinet.
- If a trades person, repair person or courier requests admittance to your lab or office, ask for identification. If you are not satisfied with the person's credentials, refuse the individual access and direct him/her to your supervisor.
- If an individual unknown to you requests or attempts to enter a locked/restricted area with you, refuse entry. Suggest to the individual, if you are told the employee's name he/she wishes to visit, you will inform that employee that someone is waiting for them outside the secure area.
- Report any unauthorized entry to a locked or secure area to Security Services.
- Be especially aware of maintaining security in your building/area after hours, and on weekends, holidays or vacation, when there are fewer people around.

AFTER HOURS AND AT NIGHT

- If you suspect you are being followed, indicate your suspicion by looking behind you. Change directions and vary your speed of walking. Immediately, head for a place where there are other people.
- Be aware of people around you and your work area.
- Try to stay in well-lit areas and use routes that are frequently travelled by others.
- Know which entrances to the hospital buildings are locked after hours, and try to park your car as close as possible to after hours access doors.

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Laboratory Safety Manual		

- Avoid walking through isolated areas. Avoid shortcuts through parking lots, hospital parkettes and deserted spaces.
- Familiarize yourself with the locations of hospital emergency telephones and pay telephones.
- Use the buddy system if possible when working after hours, weekends, and holidays or at night. If you are going to work at night in a hospital building, try to locate yourself close to someone you know. Let someone know where you are and when you expect to leave.
- Inform Security Services if you are going to work in the hospital buildings after hours, weekends or holidays. Inform Security Services of your location and expected time of occupancy in your workplace.
- Lock your lab, office or room at all times when working at night or after hours.
- Use the Security Services escort service if you are nervous walking between your lab/office to your car parked on hospital grounds.

PARKING LOTS AND GARAGES

- When you know you will be returning to your car at night, park in a well-lit area.
- Know your nearest exit route from a garage.
- Never park on levels of a parking garage that are empty or infrequently used.
- Have your keys ready in your hand before you reach your car.
- Visually check the interior of your car before getting in.
- Utilize the Security Services escort service if you are nervous walking to your car parked on hospital grounds.

ELEVATORS

- If you enter an elevator and the person riding with you makes you feel uncomfortable, leave. Get off before the door closes or leave at the next floor.
- In elevators, stand with your back to the wall near the control panel. If you are threatened or harassed, push the alarm button and as many floor buttons as possible.
- If the elevator should breakdown with you inside, push the alarm button until someone responds. Do not attempt to pry open the doors or escape through the roof hatch. You are safer inside the car until qualified help arrives. Then follow their instructions.

BANK MACHINES

- Avoid using bank machines when the hospital is deserted or when you are alone.
- Be aware of other people around you before and during usage of bank machines.