

Preamble

Phase #0 represents currently active research projects exempted by the University. This is our current modus operandi.

Phases #1 and #2 represent approximately 25% and 60% of pre-COVID-19 on-campus research capacity, respectively. Both phases are characterized by health and safety protocols that are to be followed by all personnel at all times.

1.0 Principles

A phased approach will be taken at UTSC that allows us to move safely from the current situation to a new “normal” that allows the university to move from the current “modus operandi” to one in which research activity has resumed in a manner that minimizes the risk to the community. Safety measures include but are not limited to 2m physical distancing, potential use of personal protective equipment (PPE), facility occupancy restrictions, and increased cleaning measures.

All applicable institutional, local, provincial and federal public health directives and guidelines must be diligently followed at all times. The present plan to restart research is informed by and compliant with:

- Province of Ontario’s Framework for Reopening our Province (<https://files.ontario.ca/mof-framework-for-reopening-our-province-en-2020-04-27.pdf>).
- City of Toronto’s Strategies to Increase Physical Distancing and Spread Reduction for Community Partners (<https://www.toronto.ca/wp-content/uploads/2020/04/87e3-covid-19-community-partners-physical-distancing-spread-reduction.pdf>).
- Any faculty, librarian, staff or student employee who tests positive for COVID-19 must immediately report this result directly to UTSC EHS by e-mail at ehs.occhealth@utoronto.ca. Full details of this process are outlined in the Provost’s PDAD&C Memo #53, published on March 17, 2020. (<https://memos.provost.utoronto.ca/covid-19-public-health-process-at-the-university-of-toronto-pdadc-53/>).
- The University of Toronto’s Principles for Research Recovery & Adaptation (<https://research.utoronto.ca/recovery-and-adaptation/principles>).
- The University of Toronto’s Approach for Research Recovery & Adaptation <https://research.utoronto.ca/approach-research-recovery-adaptation>
- The University of Toronto’s Guideline for Reopening Research Spaces <https://research.utoronto.ca/guideline-reopening-research-spaces>

The health of our personnel is **the priority at all times**. This includes incorporating newly accepted norms of hygiene, physical distancing and use of personal protective equipment (PPE) in all areas of research to prevent the spread of COVID-19 and to safeguard our University of Toronto Scarborough community.

Researchers, trainees and staff agree to uphold all guidelines upon returning to work; those found to be in violation of the principles and/or guidelines outlined below may have their research privileges restricted.

2.0 Phases

UTSC will employ a **phased** approach to restarting research. This phased approach allows UTSC to scale back research activities should changes in city or provincial guidelines, University operations, or COVID-19 cases and projections dictate that it do so. The University can proceed from one phase to the next **only after** the Province has announced that it is proceeding to its next stage.

PHASE #0 – Critical Exemptions Only – Our current situation.

About 5% of on-site pre-COVID capacity at any point in time.

- Active research limited to exempted projects authorized as critical by the University (e.g. COVID-19-related; necessary maintenance of animals, greenhouse, core facilities, etc).
- Roughly 21 exempted projects are currently active at UTSC. This comprises less than 5% of normal research occupancy capacity at UTSC.
- Only personnel listed on these critical projects (incl. maintenance) are permitted to access research spaces on campus.

Phase #0 will be maintained until the University modifies its current policy: “Only those research labs that have been exempted by the University are permitted to operate on-site (i.e. those conducting critical COVID-19 related research or other time-sensitive critical projects”), as established in PDAD&C Memoranda #66. (<https://memos.provost.utoronto.ca/covid-19-research-operations-pdadc-66/>).

PHASE #1 – Restarting Research

Not to exceed ~25% of pre-COVID on-site capacity at any point in time.

- Active research will be limited to that which can be feasibly conducted under all applicable guidelines and restrictions (as described in Section 3). This will likely represent approximately 25% of normal research capacity, although the extent to return to work is at the discretion of the PI.
- All Principal Investigators (PIs) will submit PI attestations, collect numbers of personnel returning to campus, and track the demands on core facilities and support services.

- Entrance to and activities while on UTSC premises will be monitored by Campus Security.

The UTSC Working Group recommends a “soft launch” of the Phase #2 protocols outlined below: implement the protocols and evaluate issues arising from the existing Phase #1 projects. Upon confirmation that the Phase #2 protocols are safe and effective, research can be opened up beyond the Phase #1 projects.

PHASE #2 – The New Normal

Not to exceed ~60% of pre-COVID on-site capacity at any point in time.

- We anticipate Phase #2 to reflect the “new normal” while COVID-19 remains a community health risk. It will effectively allow on-campus research to run at full capacity but, in practice, day-to-day occupancy will be reduced by 40% as people continue to work from home whenever possible and schedule staggered hours on UTSC premises.
- All Phase #1 protocols will remain in place unless changes to governmental and institutional measures allow the Faculty to adjust protocols accordingly.

3.0 Phase #1 Directives and Protocols for Health & Safety

For all following directives/protocols:

- PIs are responsible for compliance within their respective individual laboratories.
- Departments are responsible for the compliance of their respective PIs and for the shared spaces allocated to their unit.
- UTSC is responsible for the compliance of its Departments, and for all public, core facility, and shared spaces not allocated to Departments.

PIs must comply with EHS’s Guidelines for Reopening of Research Spaces (attached below).

3.1. ALL PERSONNEL MUST WORK FROM HOME WHENEVER POSSIBLE

Individuals will only come to campus when the nature of the work absolutely requires them to do so, and they must vacate the premises as soon as the essential on-campus work is completed.

3.2. ALL ON-CAMPUS PERSONNEL MUST MAINTAIN 2 METRES OF DISTANCE IN ALL POSSIBLE CIRCUMSTANCES

If, due to unavoidable circumstances, the 2 m distance cannot be maintained, a face mask must be worn. It is the responsibility of PIs to order face masks for their personnel, as needed (further described in Section 3.3). Most public corridors are wide enough for occupants to pass each other *single file* at the far opposite sides of the corridor and satisfy the requirements of

physical distancing. Building security will follow and enforce this physical distancing regulation while on patrol.

3.2.a) Laboratories: PIs must limit the number of individuals in their labs to constantly maintain 2-metre distancing between them. PIs are encouraged to implement rotating schedules so that, for example, a lab with a normal capacity of 10 people will have no more than 2-3 people at any given time. Please consider equity as well as equality in making schedules. In particular, strive to be sensitive to the lab members' different circumstances with respect to care-giving and other responsibilities.

At benches, lab personnel must face the same direction and must not sit across from one another. People should stay as far away from fume hoods as possible, as aerosolized particles drawn into this space could present a risk. Furthermore, fume hood sashes must remain closed when the fume hood is not in use.

Many specialty spaces (*e.g.* tissue culture, microscopy and others) are small and will have an occupant maximum of 1 person at a time.

Physical distance plans within shared facilities must be coordinated with the facility manager. Plans within interdepartmental shared facilities must be additionally coordinated through the research restart working group.

3.2.b) Shared/Collaborative Spaces: The absolute minimum of shared spaces will remain open. Units can implement space booking systems to coordinate occupancy. All research personnel will collectively need to increase diligence and sterilize common/shared elements such as equipment, printers, photocopiers, etc. Signage and tape will instruct people not to enter.

Lunch rooms will be provided with appropriate physical distancing measures in place.

3.2.c) Washrooms: will have a maximum occupancy depending on the size and usage of the washroom.

Occupancy indicators will be placed on doors or on the wall at the entrance to the washroom. Where occupancy indicators are not feasible (*e.g.* insufficient space), signage will instruct entrants to "knock and talk" before entering: confirming verbally that the facility is vacant.

Signage inside the washroom will instruct occupants to wash their hands before exiting and to use paper towel to touch the door handle; waste bins will be placed outside the bathroom to dispose of paper towels. The use of all hand dryers will be discouraged to reduce droplet dispersal; additional paper towels will be provided.

3.2.d) Elevators: will have a maximum occupancy dependent on elevator size. Signage will indicate the occupant limit for each elevator, encourage people to take the stairs whenever possible, and establish that elevator priority will be given to those with mobility issues. Signage and floor markings will indicate appropriate physical distancing while in the elevator. Floor

markings spaced 2 metres apart will indicate where people are to line up while waiting for elevators.

3.2.e) Stairwells: Wider stairwells will have signage to remind users to yield and narrower stairwells will be dedicated for exclusive “up” or “down” day-to-day usage. Signage (on walls, on stairs) at each stairwell will indicate the designated direction. In the event of a fire alarm, all stairwells remain accessible for exiting.

3.2.f) Deliveries: No deliveries will be brought directly to labs. Deliveries for researchers/labs in the EV Building are received by Center Stores at the IC loading dock. The Chemical Stores Facility is notified of shipments for the EV Building, which they retrieve, log and then notify EV researchers to retrieve from the Chemical Stores facility located in the EV Building. Deliveries for IC will be picked up at the IC loading dock, and all other deliveries will be picked up at the south campus loading dock. Those placing orders will communicate necessary delivery instructions to applicable delivery providers via email, and appropriate signage will be emplaced at relevant locations.

3.2.g) Loading Docks: Usage of loading docks must be coordinated with Central Stores or Chem Stores.

3.2.h) Human Research Participants: No human subject research participants will enter UTSC premises, unless under express written approval from the VP Research and Innovation and the Research Oversight and Compliance Office (ROCO).

3.3 PERSONAL PROTECTIVE EQUIPMENT (PPE): FACE MASKS. To reiterate Section 3.2, **face masks are only required when it is not possible to adhere to the 2-meter distancing restriction.** PIs will be responsible for the provision of face masks to their respective personnel and will order from Stores as per usual.

The Working Group recommends mask-wearing to and from work, but it is not the University’s responsibility to ensure the safe transportation of employees. UTSC staff may wish to create their own masks at home using instructions from vetted resources. However, cloth masks are not to be worn when working with flammables.

3.4 RESEARCH FACILITIES WILL BE OPEN 24 HOURS A DAY, 7 DAYS A WEEK, WHEREVER POSSIBLE

This allows for increased capacity while observing staggered/shift-based occupancy to adhere to spacing protocols. PIs must be aware of who is in their respective labs for the entire 24-hour period, through lab schedules or other communication mechanisms.

Personnel must adhere to all safety protocols regardless of time of day. Personnel occupying facilities after regular hours (*i.e.* 9pm-8am), will often be alone and must adhere to the University’s Working Alone Guidelines.

3.5 CLEANING & STERILIZATION

3.5.a) Supplemental Cleaning Services: To minimize risk of infection, additional cleaning is necessary. Spaces and surfaces already cleaned by Caretaking (e.g. washrooms, collaboration/lunch space tables and furniture) must be cleaned more frequently. Spaces and surfaces not normally cleaned by Caretaking (e.g. elevator buttons, door handles) must be cleaned regularly.

3.5.b) Sterilizing lab equipment: Research personnel are responsible for cleaning/sterilization of equipment and surfaces in their respective labs. In the absence of disinfectant wipes, use 70% ethanol. Follow manufacturer instructions on use, including appropriate contact time.

The Pls' lab-specific plan will include assigning laboratory staff/students who are on-site responsibility for regular wipe-down of common surfaces/equipment using 70% ethanol or recommended disinfectant. In general, every time a piece of common equipment is used, it should be wiped down. These areas include but are not limited to: door handles, bench surfaces, fume hood glass, keyboards, microscopes, centrifuges, etc. Signage must be posted reminding students and staff to wipe-down areas.

Disinfection plans within shared facilities must be coordinated with facility manager. Plans within interdepartmental shared facilities must be additionally coordinated through the UTSC Research Restart Working Group.

3.5.c) Sanitizers and Dispensers: Wherever necessary, pedestal-stand dispensing sanitizers will be placed at entrances, washrooms, and elevators where there is not currently a wall-mounted unit.

3.5.d) Waste Management: Waste management will occur as usual, while following all applicable safety procedures. Talk to EHS or Chem/Stores personnel ahead of time about details. Environmental Protection Services, which disposes of hazardous waste generated by labs, currently runs on a skeleton crew. This group needs as much notice as possible to increase crews, accounting for approvals required ahead of time.

3.6 ACCESS TO BUILDINGS WILL BE LIMITED TO THE ABSOLUTE MINIMUM NECESSARY The access protocol at SW will remain in place. Entrances to other buildings can be controlled/restricted by removing FOB functionality, where applicable. Access doors will remain restricted through signage and tape instructing occupants not to use them.

4.0 ONGOING WORK. The Working Group will remain active and meet as needed for ongoing work, including, but not limited to:

- Reviewing the results of the “Phase #1 Launch”, measuring effectiveness and troubleshooting issues.
- Coordinate effort to transition to “Phase #2” in the future
- Developing additional guidelines as necessary.

COVID-19 GUIDELINE FOR REOPENING RESEARCH SPACES

Prepared by
Environmental Health & Safety

May 28, 2020



UNIVERSITY OF
TORONTO

TABLE OF CONTENTS

1. INTRODUCTION	1
2. SCOPE	1
3. RESPONSIBILITIES	2
Unit Heads / Department Heads	2
Principal Investigators/Supervisors	2
Lab Users / Workers	3
Environmental Health and Safety	3

4. MEASURES TO REDUCE THE RISK OF TRANSMISSION	4
Exposure Reducing Measures, Strategies	4
Infection Prevention and Controls	5

5. WHEN ENTERING THE RESEARCH SPACE FOR THE FIRST TIME	6
6. GENERAL SAFETY CONSIDERATIONS	7
Guidance of Face Mask	7
Safety Training	7
Permits	8
Housekeeping	8

APPENDICES	
A: Resources for COVID-19	9
B: Physical distancing evaluation flowchart	10
C: Lab equipment verification checklist	11
D: Peroxide Formers list	14
E: Re-entry checklist	15

1 | INTRODUCTION

As government regulations and public health advice continue to evolve, the university is looking ahead to resuming operations of research spaces that were closed or operating with reduced occupancy due to COVID-19.

In so doing, the health and safety of people in the research space is a priority and appropriate measures must be put in place. Such measures will take into account factors including legal obligations, public health advice, and operational considerations. The university will put in place measures to protect the health and safety of its faculty, staff, students, contractors and other members of the U of T community, and to provide reassurance to community members who may have concerns about COVID-19 transmission. This guideline outlines strategies and the university's requirements for making research spaces ready for re-entry or increased occupancy.

This guideline is also a consolidation of various tools and resources from the university and other public health authorities that will be useful during re-opening. For general re-entry guidance, please refer to the [COVID-19 General Workplace Guidelines](#).

2 | SCOPE

This guideline applies to all buildings occupied or operated by the University of Toronto at all campuses and other off-campus locations*. It applies to all staff, faculty, librarians, post-doctoral fellows, visiting scientists and students of the university, and to all other occupants of university buildings.

All measures taken to prevent the spread of COVID-19 should be done in compliance with requirements under the *Occupational Health and Safety Act* and its Regulations, the *Emergency Management and Civil Protection Act* and its Regulations, and public health directives issued under the *Health Protection and Promotion Act*.

* Individuals working in research affiliated institutes and/or hospitals must follow the host guideline and/or directives in addition to applicable health and safety requirements in this Guideline.

All measures taken by any individual research team also need to consider the broader context, including the physical location, in which the team operates.

3 | RESPONSIBILITIES

UNIT OR DEPARTMENT HEADS

- Determine and approve which research groups need to be on site to conduct research and which groups are able to work remotely.
- Provide support as required for research groups needing to restart.
- Ensure physical distancing is being considered in re-opening research spaces.

PRINCIPAL INVESTIGATORS/SUPERVISORS

Before Resuming Research Operations:

- Determine which positions need to be on-site to support the research activities
 - Individual considerations around:
 - Request for accommodation due to high-risk status (i.e. do staff fall within the category considered high-risk by provincial public health officials).
 - Caregiving obligations and accommodations (the status of daycares and schools will shift through phases).
 - Transportation and mitigating fear around use of public transportation.
- Confirm that measures taken to ensure appropriate physical distancing in the research spaces are compliant with accessibility requirements. For accessibility considerations, please consult with the Accessibility Office.
- Develop, document, and implement appropriate procedures for re-entry including specifics for your research space and for the use of shared equipment.
- Ensure controls identified in the procedures are followed.
- Ensure all personnel in the research space are provided with appropriate communications, instructions and training on the re-entry procedures.
- Ensure the re-entry procedures are readily available to all users of the research space.

Ongoing Responsibilities:

- When required, provide equipment, personal protective equipment (PPE), instructions or other resources as identified by the re-entry procedures.
- Protect physical and psychological health and safety by dealing effectively with employee concerns.
- Ensure that high-touch shared equipment surfaces within the research space are regularly disinfected before and after use.
- Create and maintain a schedule to ensure that low occupancy and two meter physical distancing requirements are met within the research space and monitor compliance to the schedule.

RESEARCH SPACE USERS AND WORKERS

- Work remotely as much as possible and only be present in the space if necessary.
- Report hazards and concerns to your supervisor.
- Review and follow instructions in the re-entry procedures.
- Use equipment and/or PPE as defined in the procedures.
- Stay home if you feel unwell or are experiencing symptoms, and follow the process outlined by Human Resources & Equity.
- Minimize time around people (maintain two meter physical distancing at all times).
- Remember that some individuals with COVID-19 may be asymptomatic.

ENVIRONMENTAL HEALTH & SAFETY

Environmental Health & Safety is responsible for:

- Developing and periodically updating this guideline, in consultation with the appropriate stakeholders, based on the changing COVID-19 situation and public health directives.
- Conducting safety visits and audits in research spaces.
- Identifying and facilitating best practices of COVID-19 safety.
- Being available for consultation as needed.

4

MEASURES TO REDUCE THE RISK OF TRANSMISSION

EXPOSURE REDUCING MEASURES AND STRATEGIES:

- There is still a risk of contracting COVID-19; therefore, prevention measures need to be implemented. See <https://research.utoronto.ca/covid-19> for more information.
- Investigate ways to reduce traffic into your research areas and to reduce this risk as much as possible. Provide or continue virtual or phone meetings.
- There may be supply shortages, especially for personal protective equipment (PPE) such as masks. Do not plan to start work for which you do not have an adequate stock of PPE (when required), and plan for limited availability (e.g. chemical resistant gloves, fit tested N95 respirators, face shields).
- Develop a plan for physical distancing in your research space:
 - Limit the number of individuals in the space at any one time. To minimize the risk, implement cohorts (groups of people) so the same group of people work together without overlap with other cohorts. For example, consider implementing flexible work arrangements and continue to promote physical distancing through telework arrangements where possible.
 - Assign work areas to maintain >two metre physical distancing between individuals. Where practical, implement signage for the direction of foot-traffic in main circulation paths and entry points to minimize close physical interactions when travelling within the research space—e.g. have arrows on the floor to show the direction to travel, and when there is more than one entry point, have one designated for entrance and one for exit.
 - If personnel must work in close proximity to others for specific tasks, research space users should be provided with the appropriate masks based on an EHS assessment of risk (see section 6 below).
 - Emphasize that people should wash their hands frequently with soap and water for at least 20 seconds. If soap and water are not available, ensure an alcohol-based hand sanitizer is available.
 - Regularly disinfect high-touch shared equipment surfaces within the research before and after use with either:
 - a) 0.1% sodium hypochlorite (active ingredient in bleach) for 5 minutes of contact time then rinsed with water – note that sodium hypochlorite is corrosive;
 - b) 70% ethanol;
 - c) 0.5% accelerated hydrogen peroxide products such as PreEmpt (follow manufacturers' recommendations for contact time); or,
 - d) other hard surface disinfectant approved by Health Canada.

If you think you were exposed to COVID-19 or are experiencing symptoms, please follow the Ontario Ministry of Health self-assessment tool: <https://covid-19.ontario.ca/self-assessment/>. Upon completion of the self-assessment, you will receive information on what to do next.

INFECTION PREVENTION AND CONTROLS

1. Avoid touching your face, nose or mouth with unwashed hands.
2. Wash your hands often and thoroughly with soap and water or alcohol-based hand sanitizer.
3. Practice proper respiratory etiquette, such as sneezing and coughing into your elbow.
4. Do not shake hands.
5. Maintain physical distancing of two metres or more.
6. Stay home if you are sick.

In order to support the above strategies, conspicuously post the public health posters that are linked in **Appendix A. Resources for COVID-19** of this guideline.

5

ENTERING THE RESEARCH SPACE FOR THE FIRST TIME

SURVEY FOR UNSAFE CONDITIONS

When re-entering your research space after an extended closure, enter rooms with a sense of caution. Look through entry-door windows to see if any materials may have been damaged or if water or liquids are present on the floor or surfaces. Listen for any local alarms indicating a safety or instrument issue. No work is to begin in the space until this inspection is completed[†].

- 1) Walk through **all** of your areas and complete a visual inspection looking for any evidence of problems: note any unusual odours (that are not directly associated with the space having no occupancy for a long period of time), look up at the ceiling and around the walls for signs of water leakage or other damage, look for broken chemical containers, old waste, leaks, failed equipment, spills, etc.
- 2) Mitigate any leaks, spills, or releases if you are capable of handling them safely. If not, contact [Environmental Protection Services](#).
- 3) Review all safety equipment and PPE.
- 4) Check equipment that may have been affected by a power disruption as soon as possible. Keep refrigerator and freezer doors closed until temperature levels return to normal. Check for leaks that may have occurred if the temperature was compromised.
- 5) If any damage has occurred as a result of the closure, report the damage through your department.

Redesign research team members' schedules for appropriate physical distancing based on the available space, engineering controls, PPE availability and other required conditions so that all activities in the research space are performed safely. If physical distancing cannot be achieved, contact EHS for risk assessment.

[†] Use the [Laboratory Inspection Checklist](#) to document your visual inspection.

6 | GENERAL SAFETY CONSIDERATIONS

PERSONAL PROTECTIVE EQUIPMENT (PPE)

This information will change based on government and public health directives. Please regularly refer to the university's FAQs for updated information.

At the University of Toronto, the Environmental Health & Safety (EHS) office will determine whether employees and students should be provided with the appropriate medical masks (N95 masks, surgical masks, etc.) when working in specific environments, for example, some research labs and health care settings. Where physical distancing is not possible when conducting assigned work, research space users should be provided with the appropriate masks based on an EHS assessment of risk.

Please consult the [General Workplace Guidelines](#) Section 6 for more information on medical and non-medical masks and for instructions on the process to request an EHS risk assessment for PPE needs.

SAFETY TRAINING

Ensure safety training is up-to-date. Please see the [EHS training matrix](#).

All personnel working with SARS-CoV-2, including its RNA and DNA, must review the SARS –CoV-2 Biosafety Guideline available [here](#) and take the online EHS 620 – SARS-CoV-2 Biosafety Training course. You can find this new course on "[My EHS Training](#)."

PERMITS

Ensure your permits are up-to-date and accurate, including amendments for the use of new biological agents, and the list of authorized users. When transferring biological agents to external parties, ensure you have appropriate documentation i.e [Biological Transfer Notification](#) and [Material Transfer Agreement](#)

HOUSEKEEPING

Cleanup: Clean up and put away chemicals, supplies, equipment, glassware, and other items left out during the shutdown.

Cleaning maintenance: Determine an appropriate lab cleaning protocol to disinfect high-touch shared equipment surfaces, e.g. using 70% ethanol. Ensure the proper workplace WHMIS label when preparing the disinfectant dispensers.

Hazardous waste: Secure, correctly label, and/or prepare for hazardous/chemical/biological waste disposal as appropriate.

Plumbing Traps: Run all taps over sinks and pour water in floor drains (if present) to prevent foul odours from entering the lab.

APPENDIX A | RESOURCES FOR COVID-19

For the latest information about the Division of the Vice-President, Research & Innovation's COVID-19 response, please see the [Research & Innovation Coronavirus \(COVID-19\) Research web site](#). Please take the time to review the [University's Coronavirus page](#) and [FAQs](#) and the [Human Resources & Equity page on COVID-19](#). If you or members of your unit have a question that is not covered, please contact ehs.office@utoronto.ca.

UofT Posters on COVID-19

[Covid-19 Poster 18x24 FA](#)

[Covid-19 Poster 11x17 FA](#)

[Covid-19 Poster 8.5x11 FA](#)

[Restricted Access Poster 8.5x11 FA](#)

[How to put on or take off surgical masks and disposable gloves](#)

Posters from other public health organizations on COVID-19

[Toronto Public Health poster on proper handwashing](#)

[Toronto Public Health poster on using sanitizers](#)

[Toronto Public Health Cough Etiquette](#)

[US Water Quality and Health Council posters on cleaning and sanitizing](#)

Public Health Organizations

[Toronto Public Health](#)

[Peel Region Public Health](#)

[Ontario Ministry of Health](#)

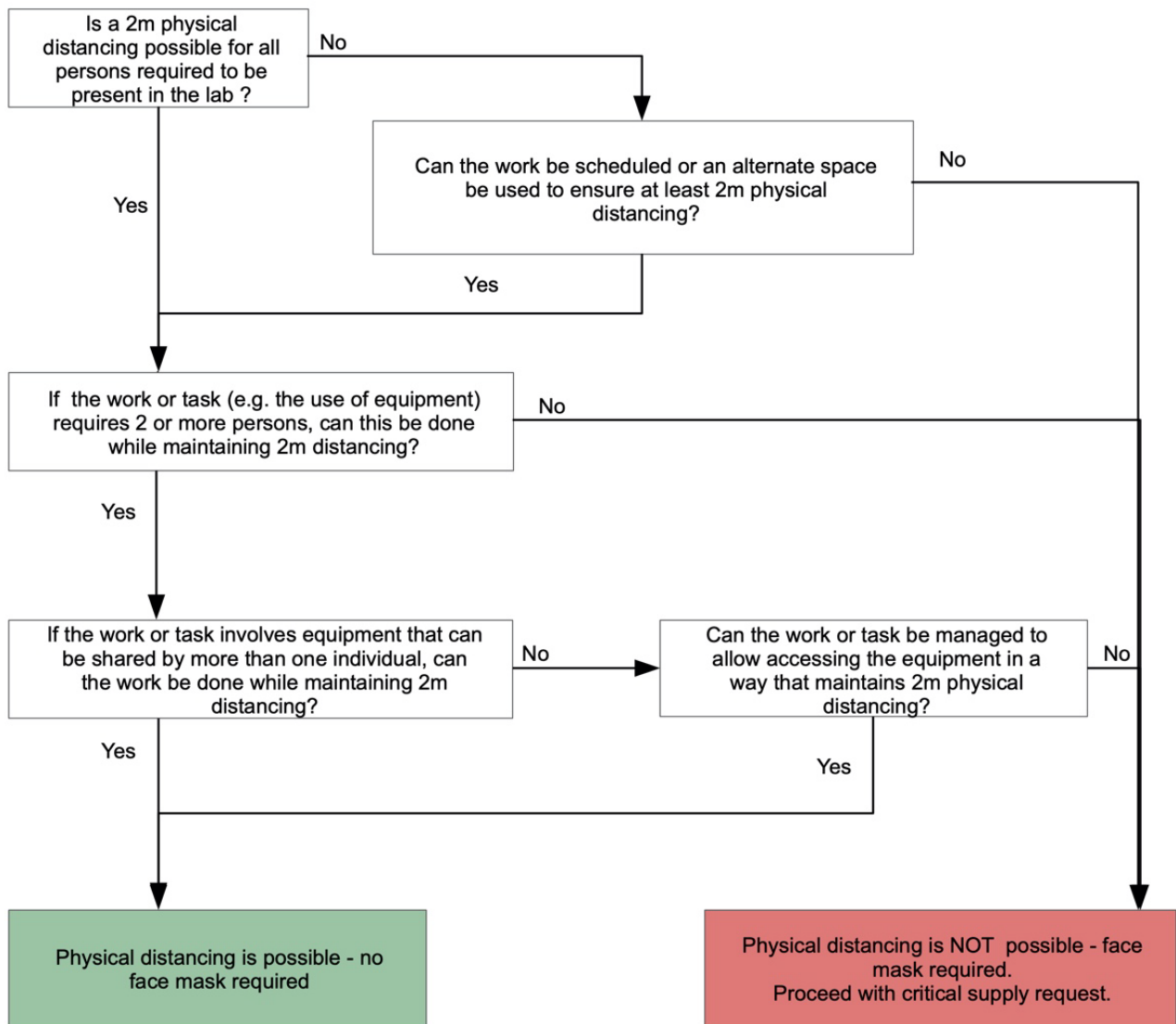
[Public Health Ontario](#)

[Public Health Agency of Canada](#)

[World Health Organization](#)

APPENDIX B

PHYSICAL DISTANCING EVALUATION FLOWCHART



Refer to the [General Work Guideline](#) for Critical Supply requests.

APPENDIX C | LAB EQUIPMENT VERIFICATION CHECKLIST

SAFETY EQUIPMENT AND PPE[‡]

Biosafety Cabinet: Review the certification date to ensure it is within one year and confirm that it is operating normally. Contact your certification provider if needed.

Eyewash station: Flush eyewash stations for 3-5 minutes to remove sediment and stagnant water noting clarity of water and appropriate tepid temperature, and document this on the weekly inspection sheet. Check that flow is still at 1.5 l/min and ensure that the flow pattern is adequate to rinse both eyes. Report problems to your building manager.

Fire extinguishers: Ensure they have been checked and the arrow indicates ready for use – ensure clear access.

First aid kits: review the first aid kit and ensure its completeness.

Fume hood: Review the certification date to ensure it was within one year; if it has been longer than one year, please contact ehs.office@utoronto.ca. Confirm that the hood is operating normally (with appropriate draw) and check the proper function of the fume hood alarm using the test function.

Gas cabinets: Confirm that the cabinet is operating normally and check proper functionality per specifications of manufacturer.

Gloves: Ensure adequate stocks of gloves are available to conduct your research (of appropriate materials and sizes). You may try using reusable gloves where appropriate considering the limited supply and critical needs of health care workers.

Glove box: Check for leaks and integrity of gloves.

Respiratory protection: Consider the use of engineering controls first (e.g. fume hood) or reusable respiratory protection when required for your research or when physical distancing is not achievable at any given time. Limit the use of N95 masks to preserve supplies for healthcare workers as much as possible. Refer to Section A. of this document.

Safety devices: Check all safety devices; for example, test interlocks and emergency stop buttons for functionality.

Soap dispensers: Ensure they have adequate content and are working properly.

[‡] Assess the need for Personal Protective Equipment (PPE) based on the type of work in your research space using the Laboratory PPE Assessment Tool and plan for limited availability of PPE, including required face masks, face shields, and gloves. Do not plan to start work for which you no longer have an adequate stock of PPE

Spill Kit: Review your spill kit and ensure completeness of all supplies.

LAB EQUIPMENT AND INSTRUMENTS

Walk through your lab area and check any electrical equipment that remained plugged in (freezers, fridge etc.) for appropriate temperatures.

Computers and controllers: Check for software security updates, licence renewals.

Equipment and instruments: Review equipment manuals for safe start up instructions; review all SOPs and safety procedures.

Ionizing and Non-Ionizing Radiation Equipment

- Read the equipment's operating manual and the standard operating procedures (SOPs) of your experiment to regain familiarity.
- If planning to work in shifts, develop a procedure for shift changes and keep a logbook indicating the status of the equipment at the time of the shift change.

Lasers:

- Before starting the laser read the manual for "Cold-start" situation.
- Check the alignment. Take all precautions: reduce power if possible, use low power visible light to align high power IR systems, use safety goggles with appropriate OD, beam stoppers, etc.
- Water cooling system must be checked before starting the laser. It is a good moment to have the water changed.
- Mirrors and other optical elements may have dust on their surfaces. Dust particles can produce dangerous diffuse reflections in class 4 laser systems and damage the optics. Check all your optics before unblocking the beam.
- For high power enclosed lasers used for cutting plastics or other materials, check the exhaust system.
- Contact the Laser Safety Officer if you have further questions.

Open source radionuclides:

- Review the SOPs, the safety precautions specific to the radioisotope, the shielding, and the PPE.
- Run the experiment without the radioisotope to regain expertise.
- Check the proper functioning of the monitoring equipment (the GM detector or the Liquid Scintillation Counter).
- Contact the Radiation Safety Officer if you have more questions.

Other equipment: Review start up procedures, ensure all safety devices work properly.

Sealed sources and Irradiators: Review the operating procedures and for "Cold-start" situation.

X-Ray devices: Review start up procedures and test for leaks as appropriate.

SUPPLIES

Availability of material: Prepare for supply chain disruptions and limited availability of materials:

- Recognize that order placement may be slower as the volume of requests increases
- Plan for limited sales of high demand items

Hazardous material inventory: Conduct a hazardous material inventory to ensure that there was no loss of materials such as chemicals, radioactive materials, toxins, controlled substances, etc. Report missing highly hazardous chemicals or regulated materials such as radioactive materials and biological agents to the appropriate EHS safety officer.

Chemicals: Assess chemicals that may have become unstable during the closure and manage any expired, outdated, peroxide-forming, self-reactive, or other reagents with a limited lifespan appropriately. Also look for chemical containers that are bulging or have imploded. Submit a chemical waste pickup request for chemicals in these categories.

Reagents: Review all reagents in stock and ensure you have enough to conduct your experiments, and reorder as required. Consider micro-scaling as much as possible to minimize the use of reagents and solvents and avoid potential substantial delivery delays and limited availability.

Disinfectant: Make sure you have disinfectant available to wipe frequently touched surfaces in your lab.

APPENDIX D | PEROXIDE FORMERS

The below is quoted from The CRC Handbook of Chemistry and Physics, Internet Version 2019 100th Print Edition, 2019, <http://hbconline.com> (accessed April 2020). Note that the easiest way to test for peroxides is with commercially available peroxide test strips/sticks.

Because some compounds form peroxides more easily or faster than others, prudent practices require testing the supply on hand in the laboratory on a periodic basis. The following list provides guidelines on test scheduling. The peroxide hazard of the compounds listed in Group 1 is on the basis of time in storage. The compounds in Group 2 present a peroxide hazard primarily due to concentration, mainly by evaporation of the liquid. The compounds listed in Group 3 are hazardous because of the potential of peroxide-initiated polymerization. When stored as liquids, the peroxide formation may increase, and therefore these compounds should be treated as Group 1 peroxidizable compounds.

Group 1 – Test Every 3 Months

Divinyl acetylene	Sodium amide
Isopropyl ether	Vinylidene chloride
Potassium	

Group 2 – Test Every 6 Months

Acetal	Ethylene glycol dimethyl ether (glyme)
Cumene	Methyl acetylene
Cyclohexene	Methyl isobutyl ketone
Diacetylene	Methyl cyclopentane
Dicyclopentadiene	Tetrahydrofuran
Diethyl ether	Tetrahydronaphthalene (tetralin)
Dimethyl ether	Vinyl ethers
1,4-Dioxane	

Group 3 – Test Every 12 Months

Acrylic acid	Styrene
Acrylonitrile	Tetrafluoroethylene
Butadiene	Vinyl acetate
Chloroprene	Vinyl acetylene
Chlorotrifluoroethene	Vinyl chloride
Methyl methacrylate	Vinyl pyridine

APPENDIX E | RE-ENTRY CHECKLIST

Question	Status	Comments
Is there a plan in place for physical distancing? e.g. staggering work hours, working in separate areas	Yes	N/A
Have all options for telework been explored?	Yes	N/A
Have lab staff and students been instructed on infection control/prevention?	Yes	N/A
Have public health posters from Appendix A been posted?	Yes	N/A
Has the flowchart for use of masks been completed for situations where distancing is not possible?	Yes	N/A
Is all safety training up to date?	Yes	N/A
Are safety permits up to date?	Yes	N/A
Has a visual lab inspection been conducted?	Yes	N/A
Has equipment been checked for issues due to power failures or other issues?	Yes	N/A
Has the Lab PPE assessment Tool been used to look at PPE requirements for the next few months?	Yes	N/A
Check eyewash	Yes	N/A
Check fume hood	Yes	N/A
Check biosafety cabinets	Yes	N/A
Check glove boxes	Yes	N/A
Check/refill spill kit and first aid kit	Yes	N/A
Check fire extinguishers' stickers	Yes	N/A
Check all lab equipment and review applicable SOPs	Yes	N/A
Assess chemicals for stability, especially peroxide formers	Yes	N/A
Ensure supplies of surface disinfectant	Yes	N/A
Run taps to fill plumbing traps to prevent odours	Yes	N/A

Approval of Research Plans - Multi-department academic divisions

Divisional Research Restart Advisory Committees / Senior Leadership Team

Set priorities for research recovery; seek input from unit heads

- CAO / EHS
- May include graduate students/postdocs
- May include UTL

Divisional and unit planning must align with and follow:

- Principles for Research Recovery & Adaptation
- Approach for Research Recovery & Adaptation
- COVID-19 Guideline Reopening Research Spaces
- OHS, HRE and other institutional directions

Vice/Associate Dean/Principal Research & Dean/Principal

- Establish divisional advisory committee / participate on senior leadership team
- Development of divisional research recovery and adaptation plan
- Consultation & coordination with Dean/Principal
- Consultation & coordination with other academic divisions/affiliate institutions for access to shared facilities/faculty and graduate student access
- Consultation with AVP ROC
- **Final approval by the Dean/Principal**

Unit Head

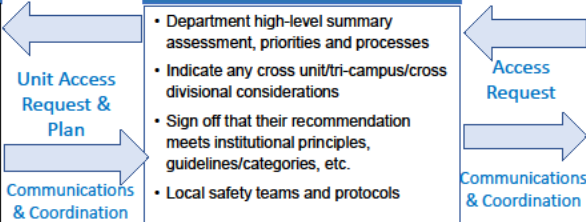
- Department high-level summary assessment, priorities and processes
- Indicate any cross unit/tri-campus/cross divisional considerations
- Sign off that their recommendation meets institutional principles, guidelines/categories, etc.
- Local safety teams and protocols

Responsible for compliance within the unit.

Faculty member

- Plan and request to Access Research Facilities / Field Research incl **Researcher Attestation Form**
- Postdocs & students work with faculty member/ Supervisor to request access.

Responsible for compliance within their individual research areas and activities.



DRAFT