The below considerations are in addition to the general measures already established by the government regarding how to conduct as individuals and as society to prevent the transmission of the virus. Government guidance is available at these links:

Federal Government
Provincial Government
Regional Government
Brock Guidance

A. Core Principles for Minimizing Exposure to Virus

1. Maintaining distance for respiratory protection.
2. Maintaining distance for contact protection.
3. Following strict hygiene protocols, respiratory protection etiquette, and minimizing contact with potentially contaminated/contaminated surfaces.
4. Wearing PPE where advised/needed for respiratory and contact protection.

B. Preparing Shared Campus Spaces for Reopening

1. Install standard University COVID-19 signage regarding distancing, hygiene, traffic flow, points of entry and exit points, etc. Work orders can be placed with Facilities Management to have signage and decals installed in your area.
    a. Where there is a narrow walkway and multiple users, establish one-way traffic. Indicate so with directional arrows on the floor and eye-level, eye-catching signage at point of entry, and pointing to exit.
    b. Establish foot traffic plan for common areas where possible, e.g., lounges and study areas.
    c. Limit passage through doorways and narrow spaces to one individual at a time.
    d. Establish separate entry and exit ways to research spaces whenever possible and identify with clear signage.
    e. Insert a physical barrier eg. plexiglass shields, to separate workstations or individuals when physical distancing is challenging.
    f. Redistribute or remove seating in areas where multiple seat exists close to each other, as needed, to keep distancing side to side and back to back, when inserting barriers like Plexiglass shields is not feasible or possible. Eg. in graduate students' desk areas.
2. Where possible, avoid using hands to open doors. Instead, push door open with the forearm or body. As well, use the elbow to press the elevator buttons as possible.
3. In labs and student office areas, reduce seating in multiuser spaces to accommodate occupancy restrictions (currently set at 1 individual per 18 m^2) or designate individual chairs for each user.
4. Demarcate a 2 m area (per individual) at the bench and on the floor.
5. Complete the Department Specific COVID-19 Mitigation Strategy.

C. Preparing Users for Reopening

1. All workers and students must complete the online training module on Sakai on the below links.
2. For workers https://lms.brocku.ca/x/EJHl03
3. For students https://lms.brocku.ca/x/ieoLCd
4. Supervisors must communicate and discuss requisites for working in the lab and all associated protocols to ensure comprehension and acceptance of the terms by lab users.

5. Initially, supervision or frequent contacts with lab users will be required until the supervisor has confirmed that personnel can work safely under the modified procedures.
6. Screening will occur at designated entrances on Brock University campus.

D. Scheduling Requirements

1. Identify a scheduling authority for each shared campus research space.
2. Until further notice, occupancy for any shared campus research space will be restricted to one individual at a time, subject to the following exceptions:
    a. Larger spaces within the Cairns Family Health and Bioscience Research Complex can accommodate multiple occupancy calculated at a minimum of 18 m^2 per person.
    b. Exemptions may be requested for research activities that require multiple people in a single space due to safety considerations.
3. The identified scheduling authority will determine admittance to shared campus research space and stagger users based on the ability to keep distancing at benchwork, desk area, and shared spaces/equipment.
    a. Institute a one-hour gap between individuals occupying research space to allow individuals to arrive and depart without crossing paths and to allow the air in the space to be exchanged through existing systems.
    b. Require wearing procedure masks where incidental simultaneous occupancy of a space is a possibility.
    c. Identify appropriate risk-mitigation strategies where safety requirements demand multiple users share one space. These strategies will require review by the Academic Safety Committee.
4. Schedule undergraduate lab activities with consideration for traffic flows and disinfection requirements.
    a. Stagger start of undergrad lab activities for labs sharing a hallway, whenever possible.
    b. Open doors to labs in anticipation to time of entry and exit to prevent students from handling the knob and gathering at the point of entry/exit. This will necessitate TAs to go in well in advance and for sufficient time to be allocated between class bookings.

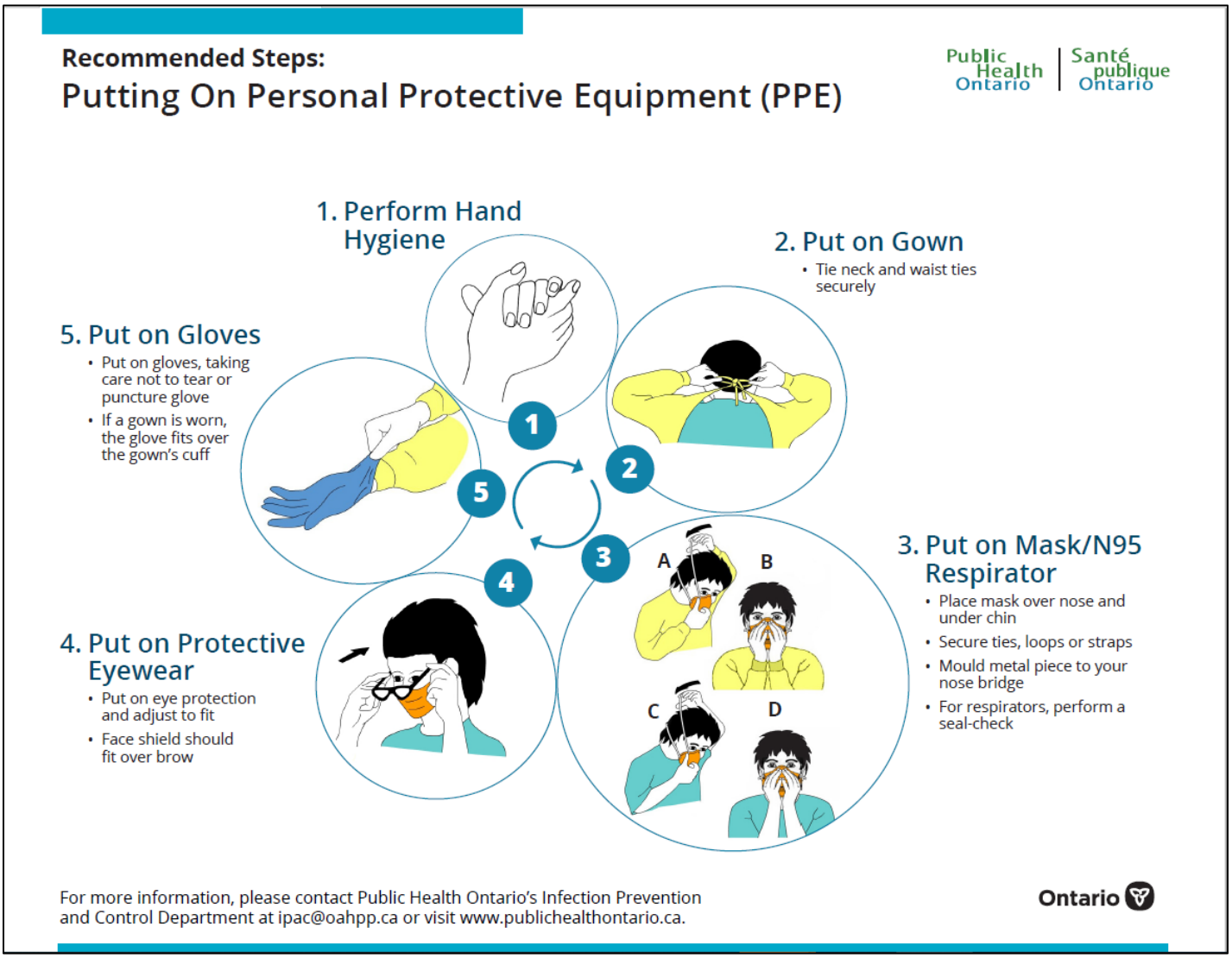
E. Requirements for Lab Users

1. All lab users must sign in and out as they enter and leave the lab to confirm dates, times, and completion of sanitization routines. A digital sign-in/sign-out procedure is in development. In the interim, labs may use a paper-based system only if each lab user has an individual sheet affixed to a visible surface within their designated workspace that is accessible to others and cannot be easily damaged. Data on any such sheets must be uploaded to an online site periodically, e.g., weekly or every two weeks.
2. PPE to be worn at all times in wet labs include lab coat, gloves, and goggles.
    a. Procedure masks to be worn when 2 meters distancing could be compromised.
    b. Procedure masks to be used when more than two individuals occupy the same space.
    c. When putting on and removing PPE, care must be taken to avoid contaminating the inner side of the PPE (side that goes in contact with the skin) with contaminated hands or objects. See Annex # 1 for the procedures for putting on and removing PPE.
    d. Lab coats and gloves remain for lab use only.
3. Hands to be washed upon entry to the lab and before exit. Hands to be sanitized upon exit.
    a. Paper towels to be available at every handwashing sink.
    b. Paper towel and sanitizer to be available in all common areas (e.g. kitchenettes, lounges, study areas).
4. Workspaces, common use equipment, faucets, and chair arms to be decontaminated by the user at the end of the work session in all labs whether wet, dry, undergrad, or grad. See Annex # 2 for guidance on decontamination procedures.
5. For common use equipment rooms:

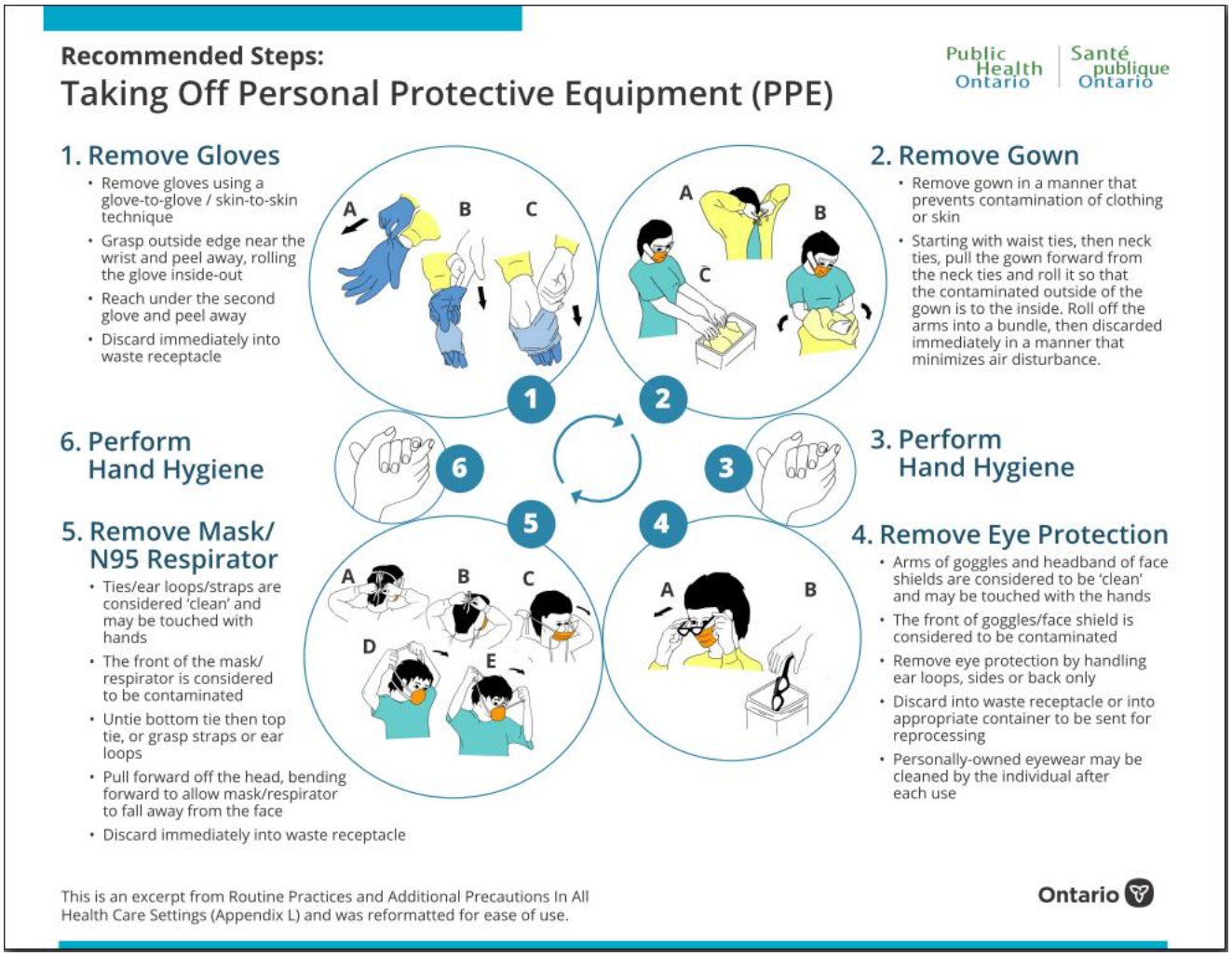
a. To be occupied one individual at a time. Users to attend to provided schedules and check the occupancy status of the room through a glass panel, where available, or by calling at the door and wait for a signal /lack thereof before entering.
b. Where hazards present require the use of PPE (e.g., liquid nitrogen generator room MC G200, autoclave rooms), personal protective equipment to be worn while inside the room.
c. Lab coat and gloves to be transported in a bag, worn while inside the room and removed before leaving.
d. Bags used for the transport of PPE to be of individual use, kept within the individual's designated space in the lab and to be disinfected before and after use; alternatively:
    i. Boxes of gloves of various sizes can be made available in the room. Nitrile gloves to be worn before putting on cryogenic gloves.
    ii. Single-use lab coats can be made available inside the room. This will necessitate either disposable lab coats or a supply of reusable coats with arrangements for centralized collection, washing and returning of the coats.
e. An appropriate disinfectant to be maintained inside the room to surface-decontaminate objects. See Annex # 2 for considerations on cleaners and disinfectants, and for the recommended disinfectants.

Annex #1. Personal Protective Equipment Procedures

The way and order in which personal protective equipment is donned and doffed is of great importance to prevent self-contamination during the process. It should be done sequentially and carefully. Follow the steps as shown in diagrams below.
https://www.publichealthontario.ca/-/media/documents/ncov/ipac/ppe-recommended-steps



Annex #1. Personal Protective Equipment Procedures (cont.)



Watch the videos in the links below to learn how to don and doff PPE and how to properly wash and sanitize hands. Practice the techniques as needed until you are confident you can do it correctly.

How to Hand Rub

How to Handwash

How to Put on a Gown and Gloves

How to Put on a Medical Mask

How to Remove Goggles and Face Mask

How to Remove Gloves

Annex #1. Personal Protective Equipment Procedures (cont.)

Considerations on and care for procedure masks

The nature of lab work imposes frequent movements within the space and shared use of some equipment, items and resources. This can make physical distancing difficult to attain, at times. Hence, procedure masks should be used while working in the lab when simultaneous occupancy of a space is a possibility or when more than two individuals are in the lab.

If worn properly, procedure masks help block large-particle droplets that may contain germs keeping it from reaching your mouth and nose. Procedure masks may also help reduce exposure of your saliva and respiratory secretions to others.

While a procedure mask may be effective in blocking large-particle droplets, a procedure mask, by design, does not filter or block very small particles in the air that may be transmitted by coughs or sneezes. They also do not provide complete protection from germs and other contaminants because of the loose fit between the surface of the procedure mask and your face.

Since lab activities do not pose a significant risk of exposure to the COVID-19-causing virus, procedure masks provide the necessary protection when paired with physical distancing. Loud speaking and yelling should also be avoided.

Any coughing or sneezing suspected of being caused by a respiratory infection will disqualify the individual to work in the lab. If you suspect you have contracted a respiratory infection, stop working in the lab, notify your supervisor and follow the public health authorities' guidelines on how to proceed further regarding testing, isolation and medical help.

Following, there are instructions on how to put on and remove procedure masks, and on how to care for procedure masks if reused.

How to put on a mask

1. Before entering the lab, remove any jewelry; tie and secure hair back, if you have long hair.
2. Clean your hands with soap and water or hand sanitizer.
3. Remove a mask from the box and make sure there are no obvious tears or holes in either side of the mask.
4. Determine which side of the mask is the top. The side of the mask that has a stiff bendable edge is the top and is meant to mold to the shape of your nose.
5. Determine which side of the mask is the front. The colored side of the mask is usually the front and should face away from you, while the white side touches your face.
6. Follow the instructions below for the type of mask you are using.
    - *Face Mask with Ear loops:* Hold the mask by the ear loops. Place a loop around each ear.
    - *Face Mask with Ties:* Bring the mask to your nose level and place the ties over the crown of your head and secure with a bow.
    - *Face Mask with Bands:* Hold the mask in your hand with the nosepiece or top of the mask at fingertips, allowing the headbands to hang freely below hands. Bring the mask to your nose level and pull the top strap over your head so that it rests over the crown of your head. Pull the bottom strap over your head so that it rests at the nape of your neck.
7. Mold or pinch the stiff edge to the shape of your nose.
8. If using a mask with ties: Then take the bottom ties, one in each hand, and secure with a bow at the nape of your neck.

9. Pull the bottom of the mask over your mouth and chin.
10. Watch the video on how to put on and take off a mask.

How to remove a single-use mask

1. Clean your hands with soap and water or hand sanitizer before touching the mask. Avoid touching the front of the mask. The front of the mask is contaminated. Only touch the ear loops/ties/band. Follow the instructions below for the type of mask you are using.
2. *Face Mask with Ear loops:* Hold both ear loops and gently lift and remove the mask.
3. *Face Mask with Ties:* Untie the bottom bow first then untie the top bow and pull the mask away from you as the ties are loosened.
4. *Face Mask with Bands:* Lift the bottom strap over your head first, then pull the top strap over your head.
5. Throw the mask in the trash. Clean your hands with soap and water or hand sanitizer.

Procedure masks are not intended to be used more than once. If your mask is damaged or soiled, or if breathing through the mask becomes difficult, remove the mask, discard it safely, and replace it with a new one. To safely discard your mask, place it in a plastic bag and put it in the trash. Wash or disinfect your hands after handling the used mask.

If a procedure mask needs to be reused due to low availability, reduce the numbers of times of reuse to the minimum possible. Discard the mask daily or after three times of use, whichever comes first, and if it gets wet or when it becomes hard to breathe through it. Since the handling of masks increases the chances of contaminating its inner side (the side in contact with the mouth/nose), any handling must be done with extreme care, following the procedures below.

Storing used masks

1. Designate a container exclusively for keeping the reusable mask. Label it as “reusable mask and [name of the user]”. A rectangular plastic box with a lid that can accommodate the mask flat on the bottom with the bands extended is appropriate.
2. Remove gloves following the procedure shown in the video above.
3. Wash or disinfect your hands.
4. Disinfect the lid and sides of the container with an appropriate disinfectant.
5. Remove the container’s lid and lay in on its outer side over a clean surface, taking care not to contaminate hands with the surrounding objects, counter, etc. If hands get in contact with any object/item, disinfect them immediately.
6. Disinfect the container on the inside.
7. Remove mask following the procedure shown the video above. Taking the mask by the band, lay it flat inside the container. The inner side (side in contact with your face) will face the bottom of the container. Determine how you will orient the top of the mask and always place it in container the same way to avoid confusion.
8. The bands will lay free from contact with both the inner and outer sides of the mask.
9. Close the container.

When removing the mask for reuse

1. Wash or disinfect hands.
2. Disinfect the lid and sides of the container with an appropriate disinfectant.

3. Remove the container's lid and lay in on its outer side over a clean surface, taking care not to contaminate hands.
4. Take the masks by the bands taking care not to touch the mask surface.
5. Put the mask on following the instructions on the video above.
6. At any point during the process, if you think you contaminated the inner side of the mask, discard it. Disinfect hands any time you consider hands could have been contaminated.

When wearing masks, they will be covering the mouth and nose or will be removed. The mask should NOT be slid out of its protective position (covering the mouth / nose) to temporarily uncover the nose, as doing so may cause its inner side to get contaminated.

https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/n95-respirators-and-surgical-masks-face-masks#s2

Annex #2. Cleaning and disinfection. Recommended Disinfectants for lab spaces

Routine and effective cleaning and disinfection is an essential activity to prevent the spread of the virus that causes COVID-19. Coronaviruses are enveloped viruses. This means they are one of the easiest types of viruses to kill with the appropriate disinfectant when used according to the label directions.

- Use only disinfectants that have a Drug Identification Number (DIN). A DIN is an 8-digit number given by Health Canada that confirms it is approved for use in Canada.
    - Alcohols at proper concentration are effective and widely used. See the directions below for the use of alcohols.
    - Sodium hypochlorite solutions at 1000 ppm (household bleach) are effective against the COVID-19 causative virus; however, it is not the most suitable disinfecting agent for lab surfaces and equipment lab as it a corrosive, it must be prepared fresh daily because it loses potency quickly and it is easily inactivated by organic matter. Guidance for bleach is provided further down.
- Check the expiry date of products you use and always follow manufacturer's instructions.
- A list of commercially available effective disinfectants published by Health Canada can be found at this link: https://www.canada.ca/en/health-canada/services/drugs-health-products/disinfectants/covid-19/list.html

Disinfection general guidance

- Every lab user is responsible for the cleaning and disinfection of their space.
- PPE must be worn at all times in the lab (nitrile or latex gloves for disinfection are good, lab coat).
    - Every time a cleaning and disinfection round is completed, gloves will be removed, and a fresh pair of gloves will be put on.
    - Check gloves often for rips/tears, or any other defect and change them if so happens.
- Equipment, items, and surfaces that have been touched during the workday should be disinfected at a minimum at the beginning and the end of the work.
- Periodic disinfection rounds to high-touch surfaces/objects/items are necessary to remove viral particles or reduce the viral load.
    - When the lab is used by multiple individuals, they may coordinate cleaning and disinfecting different areas each to increase efficiency.
    - If no coordination is made or when in doubt, all common-use surfaces and objects must be cleaned and disinfected by the last individual to leave the lab.
- For disinfectants to be effective, the surface/object/item must be free from visible soil. Therefore, before applying a disinfectant clean first if there is soil, including dust. Clean with water, detergent and a friction movement with an object over the surface/object to be cleaned.
- In chemistry labs, contamination of surfaces with the chemicals in use is likely to occur. Hazardous interaction between the disinfectant and the chemical residues may occur.
    - Check beforehand that there are no incompatibilities between the chemicals in use with water and the disinfectant to be used during the cleaning and disinfection processes.
- Ensure the disinfectant is compatible with the surface before using.
- Never mix disinfectants - a dangerous chemical reaction may occur.
- Safety staff can assist in determining if the available disinfectants are appropriate for use besafe@brocku.ca or lvistorte@brocku.ca.

Electronics

- Consider putting wipeable covers on tablets, touch screens, keyboards, cell phones, and laboratory equipment monitors for easier disinfection.
- A good option is the use alcohol-based wipes containing at least 70% alcohol and dry surface thoroughly. Otherwise, follow the Health Canada link for other disinfecting agents options.
- Do not spray electronics if you use a liquid disinfectant.

How to disinfect with alcohols

1. Use 60-80% ethanol or 70-80% isopropanol (aka IPA).
2. Put on clean gloves on clean hands or if wearing gloves, disinfect hands.
3. Clean the area/surface if visible dirty.
4. Apply the solution (squirt the solution directly over the surface or on a piece of cloth or paper towel) and spread it with a piece of paper towel over the surface or object to form a layer.
5. Allow to air dry. Do NOT wipe dry the alcohol.
    a. If disinfecting wipes are available, they are a sound option. Rub the surface or object with the wipe various times and allow to air dry.
6. Discard the piece of paper towel or wipe in a garbage container lined with a plastic bag.
7. Continue to clean another object/surface, or if this is the end of disinfection round, remove gloves.
8. Wash or sanitize hands.

How to disinfect with bleach

Bleach solutions for the disinfection of general surfaces and equipment in the lab is not the best option as it is a corrosive; it must be prepared fresh daily because it loses potency quickly and it is easily inactivated by organic matter. Use bleach as a general disinfectant on surfaces and equipment if you do not have a more suitable alternative. If you most use bleach, follow these instructions:

- Put clean gloves on clean hands or if wearing gloves, disinfect hands.
- Solutions with at least 1 000 ppm sodium hypochlorite are effective. Most household bleach products contain 5.25% sodium hypochlorite, so a solution of 20 ml bleach + 980 ml water is effective.
- The Chlorine Dilution Calculator is a useful tool to calculate your dilution.
- Ensure the stock product is not past its expiration date. Some bleaches, such as those designed for safe use on colored clothing or for whitening, may not be suitable for disinfection.
- Prepare the bleach solutions fresh daily and date the bottle. Discard any leftovers as hazardous waste.
- Apply the solution (squirt the solution directly over the surface) or on a piece of cloth or paper towel and spread it over the surface or object to form a layer.
- Leave solution on the surface for at least 1 minute. Wipe dry.
- Wipe the surfaces and equipment with water to remove bleach residues, if the material they are made up of is corrodible.
- Remove gloves and wash hands.

A list of commercially available effective disinfectants published by Health Canada can be found at this link: https://www.canada.ca/en/health-canada/services/drugs-health-products/disinfectants/covid-19/list.html

The Environmental Protection Agency of the US list of approved disinfectants is available at this link https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2. This list is also posted on our webpage as an Excel spreadsheet.

Other literature available on this topic:

https://www.publichealthontario.ca/-/media/documents/B/2018/bp-environmental-cleaning.pdf
https://www.canada.ca/en/health-canada/services/drugs-health-products/disinfectants/covid-19/list.html
https://www.cdc.gov/coronavirus/2019-ncov/hcp/hand-hygiene.html

Cleaning and disinfection outside a laboratory environment

Follow the guidance provided in the COVID-19 Cleaning and Disinfection Bulletin available at this here.