



## Introduction

This tip sheet provides information about the use of personal protective equipment (PPE) as a hazard control measure in the workplace to help protect workers from COVID-19.

For general COVID-19 prevention practices, both employers and workers can refer to the CCOHS resource [Protect Yourself and Others](#).

Refer to the Government of Canada's [Personal protective equipment \(COVID-19\): Overview](#) and CCOHS' [Designing an Effective PPE Program](#) for additional information about PPE.

## Consider the Risks

- COVID-19 is spread by respiratory droplets and aerosols and touching contaminated surfaces, especially during close or direct contact with people who are sick. The risk of spreading COVID-19 increases where people are in closed spaces with poor ventilation and in crowded places. Risk is higher where these two situations occur together or involve close-range conversations, singing, shouting or heavy breathing.
- Each workplace is unique. Employers need to take every reasonable precaution to protect the health and safety of their workers. These precautions include [assessing the risks](#) of COVID-19 transmission in their specific workplace setting. For example, a high risk work setting such as long-term care facilities or hospitals may require workers to wear additional PPE due to higher COVID-19 transmission risks.
- Consider implementing appropriate hazard controls using the [hierarchy of controls](#). PPE is the least effective tier in the hierarchy of controls and should be used with other hazard controls in a layered approach, whenever possible (e.g., increasing indoor air ventilation and filtration, allowing workers to work remotely, etc.).

## Use of PPE

There are many different types of PPE. This tip sheet focuses on PPE that minimizes workers' exposure to COVID-19 and other respiratory hazards including:

- Medical masks
- Eye protection (e.g., face shield, goggles)
- Gloves
- Medical gowns
- Respirators

Select PPE based on the type of hazard and the risk of exposure to the worker. PPE requirements may also be specified by your [jurisdiction](#).

Workers may be required to wear PPE when:

- Providing direct care or medical treatment to a person suspected or confirmed as having COVID-19.
- Performing other tasks that require workers to be in close contact with another person suspected or confirmed as having COVID-19.
- Using cleaning and disinfecting products.

PPE is regulated by government agencies and is required to meet specific performance standards. In Canada, PPE sold for medical purposes are classified as [medical devices](#) and must comply with the [Medical Devices Regulations](#). In general, authorization by Health Canada is required before medical devices can be imported and sold.

Non-medical masks are not considered PPE. Non-medical masks should be properly worn, well-fitting, and well-constructed. For additional information on non-medical masks, refer to the CCOHS resource [Get the Facts on Masks](#).



## Procedures

- Develop procedures that describe when, where, and what type of PPE workers are required to use.
- Make sure workers are trained on how to select, care, inspect, use, and store PPE.
- Outline how and where PPE is available to workers.
- Describe cleaning and disinfecting procedures for reusable PPE. PPE should be cleaned and disinfected according to the manufacturer's instructions.
- All PPE should be inspected for defects before use. If defective for any reason, the PPE should not be used and a replacement selected.
- Outline the steps for putting on (donning) and taking off (doffing) PPE.

## Medical Masks

- Medical masks act as a barrier to splashes and large particles in droplets and spit. Unlike respirators, they are not designed to filter small particles from the air.
- Medical masks are also referred to as surgical or procedural masks.
- They consist of three layers. The outer layer is made of a fluid-resistant material, the middle layer contains a filtration medium (polypropylene sheet), and the inner layer absorbs moisture produced by the wearer.
- Medical masks are classified by the American Society for Testing and Materials (ASTM) as:
  - Level 1 (low) - venous pressure splash
  - Level 2 (moderate) - arterial pressure splash
  - Level 3 (high) - high-velocity procedures, orthopedic surgery
- The WHO clarified that the prolonged use of medical masks may be uncomfortable but does not cause carbon dioxide intoxication nor oxygen deficiency.

## Eye Protection

- Eye protection protects the eyes from hazards such as splashes, sprays of blood, or bodily fluids.
- They include face shields, goggles and safety glasses.
- Regular prescription eyeglasses are not considered PPE unless they meet specific requirements for protective eyewear.
- Eye protection is used by health care workers who are caring for patients who are suspected or confirmed to have COVID-19.
- Some jurisdictions require the use of eye protection for certain tasks.
- Some chemical and disinfecting products are classified by [WHMIS](#) as a health hazard (causing serious eye damage or eye irritation). Workers using these products require eye protection.

## Gloves

- Gloves act as a barrier that protects the skin from exposure to a hazardous substance.
- Medical gloves may be made of latex, vinyl, synthetic polymer, or nitrile.
- Some workers may be allergic to the natural rubber latex used in some medical gloves. If workers are allergic, choose a glove made from a different material.
- Health Canada recognizes a variety of different standards for medical gloves. For details, refer to [Important Regulatory Considerations for the Supply of Medical Gloves During the COVID-19 Outbreak: Guidance to Industry](#).



- Make sure workers have access to gloves that protect them from hazards found in the workplace including when working with cleaning and disinfecting chemicals. Gloves are made of different materials and one type of glove will not provide protection for all types of chemicals. Review the manufacturer's safe-use instructions or [Safety Data Sheet](#) and select the appropriate type of glove that will protect against the chemical hazard. For additional information, refer to CCOHS' [Chemical Protective Clothing – Glove Selection](#).
- Make sure to provide a selection of glove sizes so each worker has the correct fit. Poorly fitted gloves can reduce dexterity or allow hazards to enter the glove at the wrist.
- Inspect all gloves before use. If there is any discoloration, visible holes or tears, the gloves should be discarded and not worn.
- After use, carefully remove gloves to prevent skin contact with any contaminants on the outside of the gloves (see 'Doffing PPE' section of this tip sheet for details).

## Medical Gowns

- Medical gowns provide a physical barrier between infectious material and the wearer's skin.
- Follow the manufacturer's instructions about when to remove and replace a medical gown if it is torn, wet, or soiled.
- Medical gowns may be re-useable or disposable.
- Medical gowns should have long-sleeves, cover the body front and back from the neck to the thighs, overlap in the back, fasten at the neck and back, and be easy to put on and take off.
- [Health Canada](#) recognizes three standards for medical gowns:
  - CSA Group – CSA Z314
  - American National Standards Institute and Association of the Advancement of Medical Instrumentation – ANSI/AAMIPB70
  - European Standards – EN 13795
- Medical gowns are grouped by category and level of risk:
  - Level 1 – minimal risk; used for standard precautions and simple procedures
  - Level 2 – low risk; used for minimally invasive surgery
  - Level 3 – moderate risk; used for open gastrointestinal surgeries
  - Level 4 – high risk; used for open cardiovascular and trauma procedures

## Respirators

- Particulate filtering respirators are a type of air purifying respirator. They protect the wearer by filtering particles out of the air when they breathe. The different types of particulate filtering respirators are:
  - filtering facepiece respirators,
  - elastomeric respirators (half mask or full face) with particulate filtering cartridges, and
  - powered air purifying respirators with particulate filtering cartridge.
- The term "N95", used in an N95 filtering facepiece respirator, describes two features:
  - "N" indicates that the respirator is not resistant to oil.
  - "95" refers to the filtration efficiency where at least 95% of particles are filtered.
- Medical N95 filtering facepiece respirators are also fluid resistant.
- Respirators are evaluated, tested, and certified by the U.S. National Institute for Occupational Safety and Health (NIOSH). Certified respirators must pass minimum performance requirements, such as fit testing, filter efficiency and breathing resistance. Certified respirators have an approval number stamped on the mask. All NIOSH approval numbers begin with the letters TC (testing and certification). For respirators with particulate filters, this approval is shown as TC-84A followed by four unique numbers (i.e., TC-84A-####). Health Canada accepts the NIOSH certification for respirators used for medical purposes.



- On October 29, 2021 the CSA Group [published a national respirator standard and certification program](#). This new standard titled CSA Z94.1.1: Performance of filtering respirators, provides an alternative to NIOSH for Canadian manufacturers of medical filtering facepiece respirators. Respirators certified through this program are marked or labeled CA-N95, CA-N99, or CA-N100 depending on the level of protection they provide. For additional information, about this and other standards, refer to the Government of Canada's website [COVID-19 Medical Masks and Respirators: Information for Health Professionals](#).
- Make sure workers are fit tested before they are required to wear a tight-fitting respirator. Fit testing verifies that there is an effective seal between the respirator and the worker's face.
- Remind workers that they cannot have facial hair that comes between the sealing surface of the tight-fitting respirator facepiece and their face. Facial hair can cause respirators to leak around the face seal.
- Wearers should perform a positive and negative user [seal check](#) when they put on a tight-fitting respirator.
- Filtering facepiece N95 respirators (or equivalent) may be worn based on the employer's risk assessment, a health care worker's point-of-care risk assessment, if an aerosol generating medical procedure is being performed, or if specified by local requirements.

## Counterfeit Respirators

- Health Canada has issued warnings about counterfeit respirators. These are imitations of legitimate products and may not provide protection.
- Below are some [signs](#) that a filtering facepiece respirator may be counterfeit:
  - No markings on the respirator
  - NIOSH spelled incorrectly
  - No approval numbers
  - Presence of decorative fabric or other decorative add-ons (e.g., sequins)
- Health Canada has identified respirators that are being counterfeit on the Government of Canada website [Counterfeit Respirators](#). NIOSH also identifies counterfeit respirators on their website [Counterfeit Respirators / Misrepresentation of NIOSH-Approval](#).
- If your respirator is counterfeit, stop using it as it may not help minimize exposure from the virus that causes COVID-19.

## Donning PPE

- Identify and gather all the PPE that needs to be worn.
- Wash your hands.
- Put on the medical gown (put arms in sleeves and secure all ties).
- Put on the medical mask or respirator.
  - Medical mask ties should be secured on crown of head (top tie) and base of neck (bottom tie). If the mask has ear loops, hook them appropriately around your ears.
  - Respirator straps should be placed on crown of head (top strap) and base of neck (bottom strap) or around the ears depending on the model. Perform a user seal check each time you put on the respirator.
- Put on the eye protection.
- Put on gloves. Gloves should cover the cuff (wrist) of the gown.
- If available, ask a co-worker to check your PPE.



## Doffing (Removing) PPE

- More than one doffing method or order of steps may be acceptable. Appropriate PPE doffing steps should be outlined in a procedure.
- The outside of the PPE may be contaminated. Take care not to touch PPE with your bare hands.
- To remove gloves:
  - Grab the outside edge near the wrist of one glove and peel it away, rolling the glove inside out
  - Hold the balled-up glove in your gloved hand
  - Slide two ungloved fingers under your other glove and remove it
  - Drop both gloves into a proper waste container
  - An instruction video by the Public Health [Agency of Canada \(PHAC\) is available](#)
- To remove gown:
  - Unfasten ties and pull ties forward
  - Peel gown off shoulders and away
  - Turn the contaminated side towards the inside, bundle, and discard
- To remove eye protection:
  - Use the earpieces or straps to pull the eye protection away from your face
  - Clean and disinfect any reusable eye protection before reuse
- To remove medical mask or respirator:
  - Use the straps or ear loops to remove from the face in a downward direction
- Wash your hands.

## Heat Stress and PPE

- If workers are required to work in a hot environment and wear PPE, make sure a heat stress control program is implemented. The program should:
  - Use engineering controls (e.g., air conditioning)
  - Monitor environmental conditions and follow the appropriate work-rest regime
  - Use administrative controls such as scheduling tasks to cooler parts of the day, providing water, increasing the frequency of breaks, etc.
  - Train workers on the signs and symptoms of heat stress
  - Allow the wearing of light and breathable clothing, if possible
  - Support workers as they acclimatize to heat
- The American Conference of Governmental Industrial Hygienists (ACGIH) has a threshold limit value (TLV) for heat stress that is measured in units of WBGT (wet bulb globe temperature) degrees Celsius (°C). The calculation includes a [clothing adjustment factor](#) for various listed clothing types, which may add 0 to 11 °C to the WBGT to account for additional layer of clothing, if present.
- The ACGIH does not recommend any adjustment for the use of face coverings and their heat stress TLV does not list a clothing adjustment factor for face masks. For additional information about heat stress and face masks refer to the CCOHS resource [COVID-19 FAQs \(masks and PPE\)](#).

**If you or someone you know is in crisis, please contact your local hospital, call 911 immediately, or contact a [Crisis Centre in your area](#).**



# COVID-19 and Personal Protective Equipment (PPE)



It is important that mental health resources and support are provided to all workers, including access to an employee assistance program, if available.

For further information on COVID-19, refer to the [Public Health Agency of Canada](#).

Note that this guidance is just some of the adjustments organizations can make during a pandemic. Adapt this list by adding your own good practices and policies to meet your organization's specific needs.

**Disclaimer:** As public and occupational health and safety information is changing rapidly, local public health authorities should be consulted for specific, regional guidance. This information is not intended to replace medical advice or legislated health and safety obligations. Although every effort is made to ensure the accuracy, currency and completeness of the information, CCOHS does not guarantee, warrant, represent or undertake that the information provided is correct, accurate or current. CCOHS is not liable for any loss, claim, or demand arising directly or indirectly from any use or reliance upon the information.