



# Personal Protective Equipment Use in NWT During COVID-19 Pandemic

The COVID-19 pandemic is producing severe impacts on the health and wellbeing of Canadians. In the NWT, five people have been diagnosed with COVID, producing an incidence of 11.1 per 100,000 people, compared to 46 per 100,000 people for the rest of Canada (i.e. from the onset of the pandemic to April 7, 2020).

Personal protective equipment (PPE) is a vital control measure that can save lives in the COVID-19 pandemic when used correctly and appropriately. Global supply chain difficulties and increasing demand threaten the NWT's pandemic PPE stock. This document aims to provide guidance for rational PPE use for essential workers in the NWT.

## Transmission of COVID-19

The coronavirus causing COVID-19 (SARS-CoV-2) passes from a person with infection to another person to by:

- Close personal direct contact (e.g. shaking hands, kissing).
- Direct contact with respiratory droplets. Direct contact with respiratory droplets involves exposure of eyes/nose/mouth to respiratory droplets of a sick person who coughs, sneezes, or possibly talks/sings. Direct contact with respiratory droplets also likely occurs through sharing food, cups, glasses, dishes, and cutlery. Respiratory droplets can spread up to 2 m after a person coughs or sneezes. Direct contact with respiratory droplets to hands, for example, may eventually introduce an 'effective dose' to eyes, nose, or mouth by touching face prior to washing hands.
- Indirect contact, i.e. touching something with the virus on it (e.g. doorknobs, cellphones other frequently touched objects), then touching your mouth, nose, eyes before washing your hands.

Researchers have detected SARS-CoV-2 in stool, so it is plausible that it passes between people if they do not wash their hands after using the bathroom, then touch other objects or food, thereby contaminating the environment.

SARS-CoV-2 does not infect others by airborne transmission. There is no risk of inhaling the virus by only being in the same room as someone who is sick. Certain medical procedures (Aerosol Generating Medical Procedures or AGMPs), however, may produce small infectious particles that approach airborne transmission. Although airborne transmission does not occur, transmission in a closed space may occur through direct contact or contaminated surfaces, as above.

## Exposures that lead to COVID— what we know from the Canadian experience so far

Of almost 10,000 infections assessed in Canada, about 27% of people describe international travel or close contact with an international traveller. Of those who acquired their infection without connection to travel/travellers (i.e. community transmission) a high proportion (79%) report no specific exposures, about 16% of infections were acquired in health care facilities, 5% were acquired by living in a household with someone with COVID-19, 1% were acquired in schools or daycares, and 1% were acquired in work environments outside of daycare or health care.

**Table 1. Exposures in those diagnosed with COVID-19**

Possible Exposure Setting	N=17 659	
<b>Travel-Related</b>	<b>n=4 474</b>	<b>25%</b>
History of international travel	3 705	83%
Close contact of an international traveller	769	17%
<b>Community-Related</b>	<b>n=13 113</b>	<b>74%</b>
Case exposed in a healthcare facility*	1 690	13%
Case lives in a long-term care facility	336	2.6%
Close contact with case in a household	833	6%
Close contact with case in a workplace‡	210	2%
Case attends/works at a school or daycare	131	1%
Case has no known exposures†	9 913	76%
<b>Pending</b>	<b>n=72</b>	<b>0%</b>

\*Includes healthcare workers and exposure in health care setting

‡ Excludes healthcare settings

† Includes community transmission where specific setting was not reported, as well as cases where no clear exposure setting was reported

Public Health Agency of Canada. Daily epidemiological update. Available at: <https://www.canada.ca/content/dam/phac-aspc/documents/services/diseases/2019-novel-coronavirus-infection/surv-covid19-epi-update-eng.pdf> Accessed April 16, 2020.

## Public health actions

Public health actions to prevent exposures to COVID-19 in NWT include:

- An advisory recommending avoidance of non-essential travel outside the NWT or internationally.
- An advisory recommending self-isolation of travellers returning from outside the NWT. Self-isolation of travellers who reside in small NWT communities should occur in regional hubs.
- A public health order mandating self-isolation plans for returning travellers.
- Recommendations to avoid mass gatherings, which effectively closes non-essential businesses.
- An advisory that all those in the NWT use re-usable or disposable cloth face coverings when in public places.

- Recommendations that all those with symptoms of COVID-19, including those with symptoms of respiratory tract infection, avoid work and public places and safely self-isolate at home.

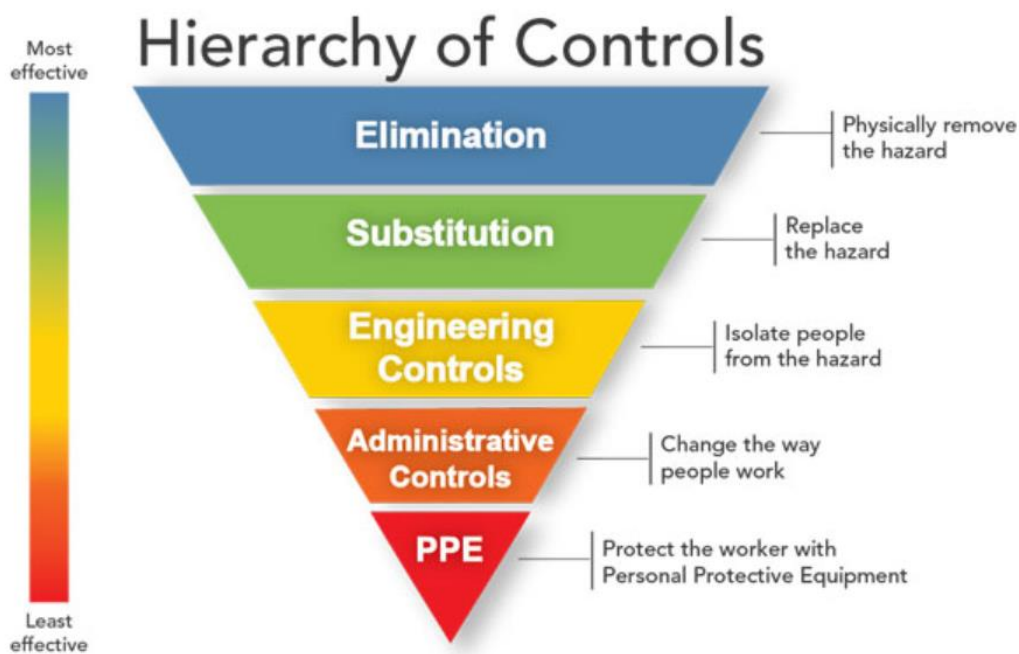
Diagnosing those with COVID-19 quickly to recommend safe self-isolation of those who are sick, performing a contact investigation to find others who might be sick, and recommend self-isolation, monitoring, and testing (if symptomatic) of those who were in close contact to the person with COVID-19.

### Options to protect essential workers—hierarchy of control framework

Essential workers in the NWT provide critical services to preserve life, health and basic societal functioning. This includes, but is not limited to, first responders, health care workers including dentists, and critical infrastructure workers, workers who support generation and delivery of power to NWT communities, and workers who supply critical goods such as foods and medicines. The listing of essential workers must be flexible to adapt to varying critical societal needs during this pandemic, and will be determined through the Office of the Chief Public Health Officer. The Office of the Chief Public Health Officer will use guidance from the Government of Canada’s recent listing of essential workers, and can determine other essential workers as necessary.

The societal public health actions listed above promote physical distancing and enable individuals, families, and communities to avoid exposures. Preventing COVID-19 in essential workers requires preventing exposures. The National Institute for Occupational Safety and Health (NIOSH) hierarchy of controls should guide an employer’s risk assessment and exposure control plan.

Figure 1. Hierarchy of Controls



Centers for Disease Control and Prevention. CDC—Hierarchy of Controls—NIOSH Workplace Safety and Health Topic. 2015. Available at: <https://www.cdc.gov/niosh/topics/hierarchy/default.html>. Accessed April 16, 2020

## Elimination

Eliminating the hazard typically refers to removing a hazard from a workplace. Elimination of COVID-19 is not truly possible—the global population remains susceptible and non-immune to this infection.

Although elimination of COVID-19 is not possible, there are some degrees of “elimination”, including environmental cleaning and hand hygiene. Environmental cleaning can reduce environmental viral burden, and hand hygiene reduces the “effective dose” delivered to a person’s respiratory tract after contact of virus to a person’s hands or body.

## Engineering controls

Any modification of the physical environment to isolate a person from virus will prevent exposure. These modifications include:

- physical barriers
- partitions to guide patients or the public to maintain physical distance
- curtains or transparent physical barriers (e.g. “plexiglass”)
- isolation tents
- airborne isolation room for AGMPs, or if an airborne isolation room is not available, using natural ventilation as appropriate, to exhaust air outdoors.
- available/accessible hand hygiene stations
- available/accessible PPE stations when required

## Administrative controls

Any modification of the way people work can reduce exposures. These modifications include:

- performing as many tasks as possible away from those suspected/confirmed COVID-19
- using virtual care and telephones as much as possible to maintain physical distance (even within health facilities)
- handling waste appropriately
- increasing distance between desks tables, and workstations
- education regarding physical engineering changes, changing work habits, and goals
- schedules and procedures for use of PPE, for example how often PPE should be changed out; between clients; after a set time period; or number of shifts
- avoidance of touching eyes, nose and mouth
- respiratory practices
- frequent hand hygiene
- environmental cleaning
- the public wearing a facial covering/non-medical mask

## Personal Protective Equipment

Engineering and administrative controls aim to eliminate exposures. If it is not possible to implement sufficient engineering and administrative controls, workers should wear PPE. It is the responsibility of the employer to identify the PPE and the training they will provide to workers.

- PPE for COVID-19 may include eye, nose and mouth protection, gowns, gloves, and, in specific circumstances, N95 respirators.
- For any PPE use, employers must provide training to workers on the care; use; putting on and taking off; and properly disposing of PPE.

Decisions about the extent of extra precautions, or any measures to extend PPE supply by changing policies for use in critical shortages should be based on principles such as best evidence, beneficence (doing more good than harm), transparency, precaution in the face of uncertainty, equity (matching resources to need), and utility (seeking optimal use of limited PPE resources).

An employer should, based on their risk assessment and best practices in the current situation, determine the extent of PPE use for essential workers. The Public Health Agency of Canada, and the Workers' Safety and Compensation Commission provide general guidance.

- The use of respirators (i.e. N95 respiratory) is not recommended except in health care settings when particular high risk procedures are being performed or in industry where respirators are routinely used.
- Workers who are exposed to people who are ill with respiratory symptoms should use PPE including at least face masks and eye protection if the nature of their work warrants it.
- Gloves are only recommended when workers are in direct contact with an ill person, or a contaminated object or environment.

Additional information is available at references listed below.

## Conclusion

The NWT, along with many other jurisdictions, is facing potential PPE shortages during the COVID-19 pandemic. In addition to maximizing supply of PPE, the NWT requires a rational approach to PPE utilization.

Currently, health care workers (including dentists) who provide essential services are at highest risk for acquiring workplace COVID-19 infection and should be prioritized to receive PPE. Other essential workers, however, are also at risk. Allocation of PPE is contingent mainly on its effectiveness in preventing exposures, but also requires consideration of transparent processes, precaution, equity, and utility/optimal use of scarce resources.

## References:

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