



Tools and strategies for safer operations during the COVID-19 pandemic

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The Ongoing COVID-19 Pandemic

The global COVID-19 pandemic will continue until transmission of the novel coronavirus is stopped by public health measures or widespread immunity. Ongoing cases of COVID-19 are expected to occur in British Columbia (BC) during the months ahead. In order for society to operate as normally as possible during the pandemic, different strategies for reducing the risk of transmission are needed. This document describes the key principles for reducing risk of COVID-19 transmission, the role of public health authorities, and commonly available tools and strategies that communities and individuals can use to support the public health response. It is intended to guide the development of plans for operating as safely and normally as possible during the pandemic. Public health authorities will continue to monitor transmission carefully and the recommendations here may change as the regional or provincial situation changes, and as new scientific information about the novel coronavirus becomes available.

The COVID-19 Safety Plan

All workplaces under the regulatory authority of WorkSafe BC are required by order of the Provincial Health Officer to have [COVID-19 Safety Plan](#) for reducing COVID-19 risk during the pandemic. Other operations should consider similar plans. One of the key aspects of this plan should be clear policies for ensuring that people who are sick do not participate in operations and will not be financially or socially penalized for self-identifying. Operations may wish to consider a phased plan that implements different protective measures based on the number of COVID-19 cases and amount of community spread of COVID-19. A phased plan allows more relaxed measures when the number of cases is low, and more restrictive measures if the number of cases starts to increase.

Coronavirus Background

COVID-19 is an infectious disease caused by the SARS-CoV-2 coronavirus. Common [symptoms](#) include dry cough, sore throat, fever, headache, and body aches, though some individuals may have different symptoms, and some may not have any symptoms. COVID-19 can cause more severe illness among people who are 65 and over, and those who have compromised immune systems or other underlying medical conditions. The only way that SARS-CoV-2 can enter the body is through the mouth, nose, and eyes. The primary mode of human-to-human transmission is direct and prolonged contact with an infected person and their respiratory droplets. Respiratory droplets are generated by speaking, breathing, coughing, and sneezing and exposure is greater when contact with an infected person lasts for more than a few moments. Contact with contaminated surfaces followed by touching of the mouth, nose or eyes is another



recognized mode of transmission. Surfaces can become contaminated by droplets or by being touched with contaminated hands, such as after a cough or sneeze.

An infected person can transmit the virus to others both before they show any symptoms and when they are symptomatic. The time between infection and symptom onset ranges from 1 to 14 days, and some infected people do not develop any symptoms. Most transmission occurs during the symptomatic phase, though asymptomatic and pre-symptomatic transmission also occurs. People are thought to be able to transmit the virus to others from 2 days before they show symptoms up to 10 days after symptom onset.

Key Principles for Reducing Risk of COVID-19 Transmission

Although COVID-19 is a novel virus, we can identify routes of transmission based on what has been learned so far in the pandemic and what is known about other respiratory viruses, such as influenza. By identifying the pathways and situations that lead to COVID-19 transmission, we can also outline the key risk reduction principles that should be used when developing practical COVID-19 Safety Plans. The later section on *Tools and Strategies to Support the Public Health Response* provides specific information on how to apply these principles.

Prolonged Close Contact with an Infected Person

The primary route of COVID-19 transmission is prolonged (more than 15 minutes) close contact with a symptomatic, pre-symptomatic, or asymptomatic infected person. **The first risk reduction principle is isolation of symptomatic individuals until their COVID-19 status can be evaluated.** However, this approach cannot reduce risk of transmission from pre-symptomatic or asymptomatic COVID-19 cases. **The second risk reduction principle is to limit close contact between all individuals by maintaining small and consistent social circles.** When social circles are smaller and more consistent, there will be less transmission of the virus if someone in the circle is unknowingly infected.

Contaminated Hands

Hands can easily become contaminated with the virus that causes COVID-19 if they come directly into contact with the respiratory droplets of an infected person, or they come into contact with a contaminated surface. Infection with COVID-19 can then occur when people touch their face without washing their hands. **The third risk reduction principle is to practice frequent hand cleaning by washing with soap and water or using hand sanitizer.** Surfaces can be contaminated by the virus that causes COVID-19 when respiratory droplets fall onto them directly, or when they are touched when with contaminated objects or hands. **The fourth risk reduction principle is to regularly clean and disinfect potentially contaminated surfaces.** Together, these two principles reduce risk of indirect COVID-19 transmission.

Crowding

Most of the respiratory droplets that cause COVID-19 infection travel less than 2 meters before settling out of the air. When many people are crowded together, they are highly exposed to the respiratory droplets of all the people nearby, which can lead to high risk of COVID-19 transmission if any of those people are infected. **The fifth risk reduction principle is to minimize crowding by creating physical space between individuals whenever possible.** This is particularly important for individuals who are not within the same social circle. However, there are some situations in which it is difficult to maintain physical space, such as when taking public transit or receiving personal services. **The sixth**



risk reduction principle is to interrupt the spread of respiratory droplets in situations where adequate physical distance cannot be maintained. The best methods for interrupting the spread of droplets are physical barriers and facial coverings.

Very High-Risk Situations

Even when the principles outlined above are considered, there are situations that can lead to high risk of COVID-19 transmission. First, some people are very susceptible to infection with COVID-19 due to their age or health status, and they need special consideration. **The seventh risk reduction principle is to ensure rigorous protections for highly susceptible persons or populations.** Second, there is evidence that COVID-19 spreads easily in enclosed spaces with poor ventilation. Although COVID-19 is not an airborne disease such as measles or tuberculosis, inadequate ventilation may cause buildup of exhaled breath that can lead to transmission throughout the enclosed space. **The eighth risk reduction principle is to prioritize fresh air.** This advice is easy to follow during the warm summer months, but is even more important in colder weather.

Public Health Response

Public health is the branch of medicine that focuses on the health of the entire population. As the pandemic continues, the goal of public health authorities in BC and elsewhere is to minimize the impacts of COVID-19 by detecting new cases, identifying new clusters and outbreaks, and disrupting chains of transmission using the methods described below. All of these methods are most effective when used in combination with the *Tools and Strategies to Support the Public Health Response* outlined in the following section.

Public Health Orders

Public health orders are legally enforceable rules that must be followed by their intended audience. Orders can be issued by the Provincial Health Officer for the entire province, or by a Medical Health Officer for a specific regional health authority. All orders issued by the Provincial Health Officer can be found [at this link](#).

COVID-19 Testing

Anyone who has symptoms of COVID-19 in BC can and should be tested for the novel coronavirus. Information on how to get tested is available [at this link](#). Testing results are generally available within 24 hours, and public health authorities will follow up with anyone who has a positive test.

Contact Tracing

A public health professional will ask anyone who tests positive for COVID-19 to identify people who may have been exposed to their respiratory droplets. Public health will then contact those individuals and ask about their symptoms, as described [at this link](#). Public health will also advise on the need for self-isolation in order to prevent the continuing transmission of COVID-19. Mathematical models illustrate that contact tracing is one of the most important tools for reducing transmission of COVID-19.



Outbreak Response

Some cases of COVID-19 are associated with clusters or outbreaks that additional public health measures are required to control. Outbreaks in BC are managed by the health authority with jurisdiction, depending on where they occur. The response to every outbreak is tailored to the setting, the number of cases, and the affected population.

Data Analysis and Modelling

Public health authorities use many different types of data and models to understand COVID-19 transmission and the effectiveness of public health measures. These data and models are also used to compare the pandemic in BC with the pandemic unfolding in other provinces and countries. Information on COVID-19 cases is available through the provincial [COVID-19 Dashboard](#) and modelling results are available [at this link](#).

Tools and Strategies to Support the Public Health Response

There are many different tools and strategies that communities, operators, and individuals can use to reduce transmission of COVID-19 and support the *Public Health Response* outlined in the previous section. None of these tools can work in isolation, but they can be effective when layered together and used in combination.

Tool: Identifying and Isolating People with Symptoms

COVID-19 will continue to circulate in the community along with other infectious diseases that can cause similar symptoms, such as the common cold and influenza. Management of people who have symptoms of COVID-19 is an important part of limiting transmission in the community. One effective way to reduce the spread of COVID-19 is to ensure that people with unexplained symptoms do not participate in activities where they could infect others.

Strategies:

1. Remind people to self-assess when experiencing potential symptoms of COVID-19, and to stay home when feeling sick
 - Post signs about COVID-19 symptoms and self-assessment in high traffic areas, including advice not to ignore mild symptoms, and to be especially aware of worsening symptoms
 - Encourage people to consider their accountability to others when assessing their symptoms
 - Encourage people with chronic respiratory conditions to consult with their healthcare providers and to keep their symptoms well-controlled with appropriate medications
 - Clearly communicate that people who have arrived from outside of Canada must self-isolate for 14 days
2. Consider regular health checks when individual capacity to self-identify is compromised by age, language, or fear of repercussions, but avoid processes that are overly onerous
 - Verbally assess [symptoms](#) and wellness with a few simple questions:
 - On a scale of 1-10, how are you feeling today?
 - Do you feel feverish, or are you short of breath?
 - Do you have a new or worsening cough, sore throat, headache, body aches, or diarrhea?
 - Activities such as checking temperatures and COVID-19 testing should be reserved for health care professionals



3. Document clear policies and procedures to manage people who have or develop symptoms of COVID-19
 - Individuals who are sick should use the [COVID-19 Self-Assessment Tool](#), contact their healthcare provider, or call Health Link BC at 8-1-1 for further guidance, including information on testing and self-isolation
 - Individuals who are sick should wear a face mask to protect others from their respiratory droplets
 - If someone becomes sick onsite they should be isolated in a pre-determined area until they can go straight home, which may require providing transportation
 - Ensure that surfaces and objects touched by anyone who becomes sick onsite are disinfected before being used by others
 - If someone tests positive for COVID-19, local public health authorities will provide information on how to proceed

Tool: Reducing Close Contacts

Close contacts are people who spend more than 15 minutes per day in very close proximity to each other, such as family members, friends, and some colleagues. When everyone has a reduced number of close contacts it limits transmission of COVID-19 and facilitates contact tracing.

Strategies:

1. Allow people to work from home whenever possible, especially those who are more susceptible to COVID-19, such as older adults and people with compromised immune function
2. Identify small and consistent groups of people who stay together for most activities (known as inner circles, cohorts, or bubbles)
 - Reduce contact between individuals and groups by staggering shifts, breaks, or other activities
 - Replace physical greetings such as handshakes and hugs with non-contact greetings such as waves and smiles
3. Minimize interactions with people outside of usual social circles
 - Offer delivery or pickup services as an alternative to having people onsite
 - Limit the number of people who are required to interact with those outside of their usual social circle, especially if they are at higher risk of COVID-19
 - Ask individuals about their comfort about interacting with people outside of their usual social circle, and respect individual risk perception and tolerance whenever possible
 - Clearly identify public and private areas, and use a physical barrier whenever possible

Tool: Physical Distancing

Most of the respiratory droplets that cause COVID-19 infection travel less than 2 meters before settling out of the air. Maintaining physical distance between people who are not close contacts reduces exposure to respiratory droplets. This is particularly important when interacting with others outside of usual social circles. While transient encounters within 2 metres are considered low risk, careful planning will help keep uncontrolled interactions between persons to a minimum.



Strategies:

1. Avoid crowding
 - Identify the number of people who can occupy a space without crowding, and post COVID-19 occupancy limits
 - A distance of 2 meters is ideal in situations where people who do not know each other come together, such as grocery stores or movie theatres
 - Less personal space is acceptable in situations where people who know each other come together, such as offices and classrooms
 - Do not expect young children to maintain physical distance from others
 - Use virtual options, outdoors spaces, or large rooms for big meetings
 - Tall buildings with high elevator demand may need specific management strategies
2. Use physical cues to create space and control the flow of traffic in areas where lines form or people gather
 - Stickers on the floor or markers on the ground
 - Pylons, stanchions, or other physical objects to direct traffic
 - Signs encouraging quick passage through tight spaces such as hallways and stairwells
 - Mirrors in blind corners
 - Consider stationing monitors in locations prone to crowding

Tool: Fresh Air

Fresh air helps to dilute and settle the respiratory droplets that can transmit COVID-19. Evidence from around the world indicates that crowded indoor environments with poor ventilation can lead to rapid transmission of the virus, but COVID-19 **is not** transmitted through mechanical ventilation systems.

Strategies:

1. Conduct operations outdoors where possible and pragmatic
 - Some activities that produce more respiratory droplets are safer outdoors than indoors, such as singing and high intensity athletics
 - Post signs and use markers in areas where people gather to remind them that physical distancing is still recommended
2. Open exterior doors and windows whenever safe
 - Use gates or other barriers to control doorway traffic
3. Ensure that mechanical ventilation systems are working according to their specifications, and increase the fresh air intake as much as possible without upsetting the temperature and humidity balance
 - Consult with professional service providers to test system performance
 - Consider increasing filtration of the outdoor air intake to reduce indoor air pollution, which is an additional risk factor for COVID-19
4. Be aware of strong airstreams created by fans, blowers, and air conditioners
 - Respiratory droplets may get caught in the airstream, so they should be directed away from people



Tool: Respiratory Etiquette

Under normal circumstances, respiratory droplets do not travel more than 2 meters before settling out of the air. However, sneezing, coughing, singing, and shouting can produce more respiratory droplets and project them further than the droplets produced by normal speaking and breathing.

Strategies:

1. Post signs encouraging everyone to cover their coughs and sneezes, including children
 - Both the nose and mouth should be covered when coughing or sneezing
 - Use a tissue or cough or sneeze into your elbow, not your hands
 - Wash or sanitize hands right away after coughing or sneezing
2. Reduce ambient noise to a reasonable level whenever possible
 - Respiratory droplets spread further when people need to shout to be heard
 - In very loud settings (construction sites, industrial settings, venues with loud music) consider radio headsets to reduce speaking volume for when you need to communicate verbally or consider facial shield to interrupt droplet spread

Tool: Hand Hygiene

Hands can become easily contaminated with the COVID-19 virus, which can lead to infection when people touch their face. One of the best ways to limit the spread of any infection is to practice frequent hand cleaning by washing with soap and water for at least 20 seconds, or rubbing with at least 60% alcohol sanitizer.

Strategies:

1. Increase opportunities for people to wash or sanitize their hands
 - Ensure that bathrooms remain open
 - Place hand sanitizing stations at all entrances and exits in regular use
 - Check supplies of soap, paper towel, and sanitizer throughout the day
2. Post signs showing proper hand washing and sanitizing techniques
 - Laminate signs near to sinks and outdoor stations
 - Remind adults to supervise children using hand sanitizer
3. Provide reminders about when people should wash or sanitize their hands, including children
 - Before and after using the washroom
 - Before and after preparing food or eating
 - After coughing, sneezing, and using facial tissues
 - After using common equipment, such as playground structures or fitness machines
 - After handing objects that have been touched by many other people, such as pens or cash payments

Tool: Cleaning and Disinfection

Stationary surfaces and movable objects can be contaminated with the coronavirus, and COVID-19 can be spread when people touch contaminated surfaces and then touch their face, eyes, nose, or mouth before cleaning their hands. Some surfaces are commonly touched by many people throughout the day. Some examples include communal bathroom fixtures, kitchen appliances, dining tables, door handles, light switches, touch screens, sales registers, photocopiers, and



toys. In addition to good hand hygiene, regular cleaning and disinfection of commonly touched surfaces can help to limit the spread of COVID-19.

Strategies:

1. Reduce the need to touch common surfaces
 - Prop doors open when it does not violate safety codes or protocols
 - Replace manual switches, toilets, and dispensers with touchless options
 - Take online and touchless payments whenever possible
 - Line all garbage cans with bags for touchless disposal
2. Create an inventory of commonly touched surfaces and a cleaning schedule
 - Post the schedule in a highly visible area, and have the people responsible for cleaning sign off after every cycle
 - Most surfaces should be cleaned and disinfected at least once per day
 - Some surfaces that are touched very frequently by many people should be cleaned and disinfected at least twice per day or whenever visibly soiled
 - Consider that children and adults touch different surfaces in different places
3. Pay special attention to shared tools and equipment
 - Whenever possible, encourage people to identify and use their own tools and equipment
 - Avoid communal food that requires many people to touch the same serving utensils
 - Keep hand sanitizer and disinfecting wipes near to communal equipment, such as kitchen appliances, sales registers, photocopiers, and workstations
 - Post signs near shared workstations or exercise equipment reminding users to clean and disinfect them after every use
4. Use appropriate methods for cleaning and disinfecting
 - Cleaning means the removal of visible soiling, and is done with soap and water
 - Disinfecting means applying an agent that can kill viruses and bacteria, such as bleach
 - More information on cleaning and disinfecting public areas can be found [at this link](#)
5. Remind people to clean and disinfect mobile phones regularly
 - Many people touch their mobile phones constantly throughout the day and do not clean their hands before or after every use

Tool: Keeping Records

Administrative records can facilitate contact tracing in situations when someone tests positive for COVID-19 but cannot personally identify everyone they may have infected. Consider keeping a guest list whenever possible, and maintaining the records for 30 days.

Strategies:

1. Use online or over-the phone booking systems to collect names and contact information
2. Manually or automatically generate seating plans to reduce contact among participants



- Use the same seating plan for regular gatherings of the same people, such as classrooms, communities of faith, or choirs
3. Consider how to access data from badge passes, loyalty cards, or security cameras
 - It is not necessary to track these data regularly, but they may be useful to public health authorities in the case of an outbreak investigation

Tool: Physical Barriers

In some cases where physical distance cannot be easily maintained between people, the construction of physical barriers to block movement of respiratory droplets may be useful.

Strategies:

1. Use plexiglass or other materials to create barriers at checkouts, kiosks, and other places individual workers serve a line of patrons
 - Follow guidelines suggested by [WorkSafe BC](#)
 - Ensure that emergency exits are not blocked
 - Clean and disinfect barriers regularly throughout the day using products that will not cause damage
2. Consider plexiglass or other materials to create barriers between stations when distancing options are limited
 - Food services
 - Call centres
 - Production lines
 - Performers on stage
3. Evaluate whether it is safe to use barriers in vehicles

Tool: Masks

There are some situations in which prolonged close proximity is required between people who are not close contacts, and physical barriers are not an option. Face masks and coverings can reduce exposure to respiratory droplets in these situations.

Strategies:

1. Be aware of the limitations of face masks
 - Non-medical masks and face coverings reduce the spread of large respiratory droplets, but offer minimal protection to the wearer from the respiratory droplets of other people
 - Use of masks and face coverings may cause the wearer to touch their face more often, which is another risk factor for COVID-19 transmission
 - Young children should not wear masks, and some health conditions may prevent people from using face masks safely
 - Not everyone has access to face masks, and face masks may need to be provided in situations where they are expected to be worn



- Masks are not a replacement for physical distancing and time spent in close proximity to others should be limited as much as possible
 - Proper cleaning or disposal of masks is required to prevent them from contaminating your hands or other surfaces, more information found [at this link](#)
2. Choose the correct type of face masks for the situation
 - Consider guidance provided [at this link](#)
 - Cloth face masks are adequate for public situations, such as taking transit
 - Medical masks should be used when providing personal services, as per guidelines from [WorkSafe BC](#)
 - Healthcare workers should consult with their infection control teams for appropriate personal protective equipment use
 3. Continue to use face masks according to standard operating procedures in situations where they have always been required
 4. Respect personal choices
 - Some people may prefer to wear face masks or shields more often, and should be supported as long as the equipment does not cause a safety hazard
 - People who are unable to acquire or wear face masks should not be penalized or stigmatized

