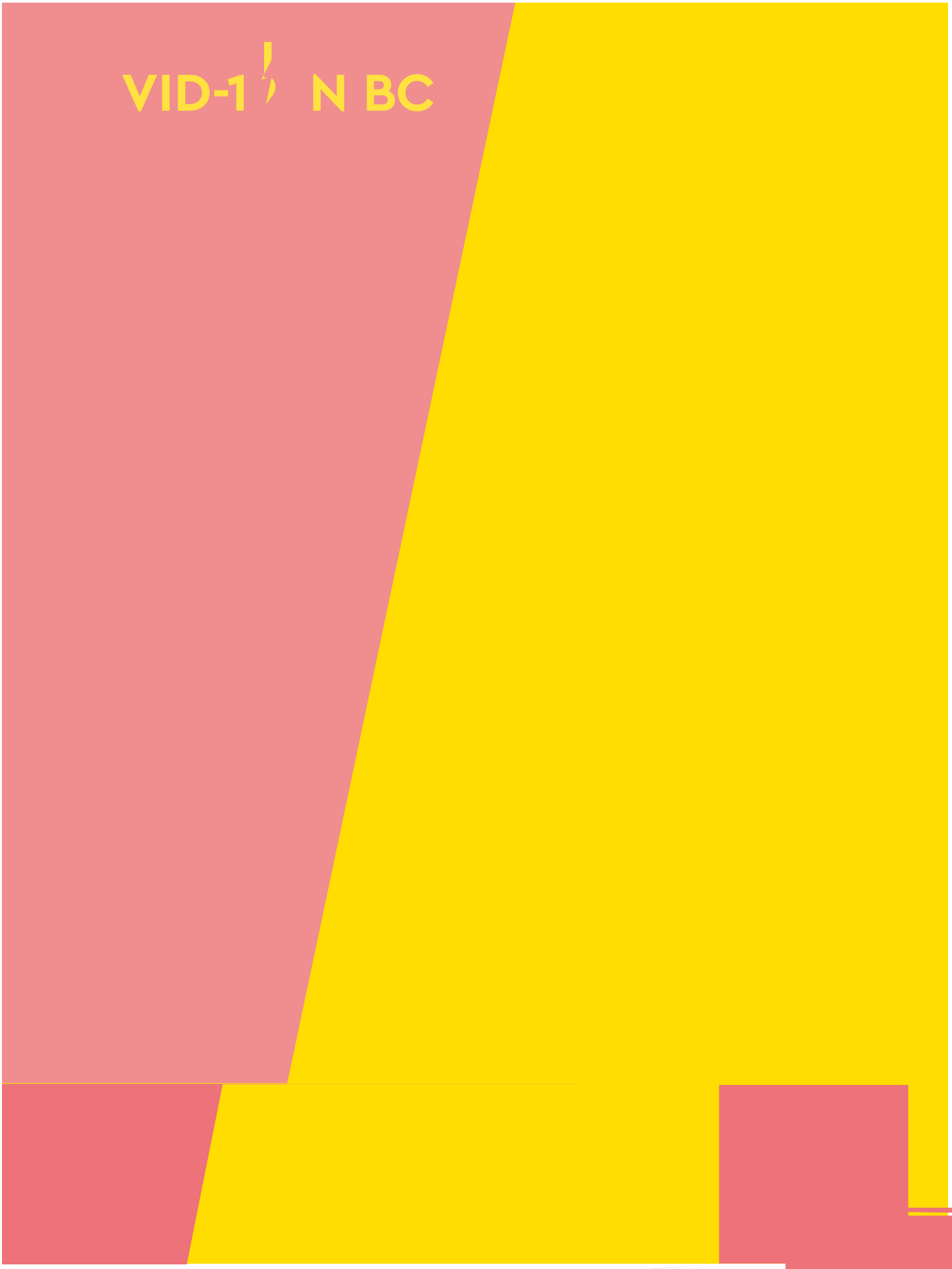
VID-1 N BC

Contents

The Context[1]

Pandemics of respiratory viruses, such as COVID-19, can be declared over when the proportion of the population that is immune is large enough that transmission between people is no longer sustained

That can happen in two ways:

- after enough people have been infected and have recovered and/or
- when enough people have been immunized with a vaccine (this is most likely, but not de nitely, up to 18 months away from development, to manufacturing, to mass immunization).

Both outcomes will likely happen, but both are going to take time. Until that time, our goal is to slow the spread of COVID-19, especially among those most vulnerable to severe disease, to provide time for development of a vaccine and to enable the health care system to respond to a moderate increase in demand Without a vaccine or treatment, the only way to achieve this was through the public health measures we have seen imposed in BC, in Canada and around the world. All jurisdictions needed to act very quickly in the face of a great deal of uncertainty about the new virus. As a result, BC, along with many other jurisdictions, imposed, over a very short period of time, a full range of public health measures, including: isolation of people with symptoms, quarantine of contacts of people with COVID-19, closure of schools, closure of dine-in restaurants and bars, cancellation of mass gatherings, and restrictions on travel. Additional voluntary measures were taken by individuals, service providers and businesses

While COVID-19 transmission is likely to continue to some degree, measures to limit transmission will aim to both protect people and ensure we have adequate capacity in our health system to appropriately care for infected people. However, since measures that limit transmission have substantial negative health, economic and social consequences, a strong imperative exists that reducing COVID-19 transmission must be done, while also resuming a healthy and safe level of social and economic activity. The current situation is neither sustainable nor healthy, bringing its own significant costs and damage to individuals socially, emotionally and economically.

Two sides will likely be debated as we move forward as a community:

1. Current lockdowns are becoming harmful in both social, economic, and health terms and need to be lifted, so as not to cause enormous damage to economies, civil society, and emotional and mental health well-being.
2. Current lockdowns are both needed and must be sustained for a significant period to protect a percentage of individuals within our communities from dying due to COVID-19 and to protect our health system from being overwhelmed (impacting our ability to care for both non-COVID-19 and COVID-19-related serious illnesses)

These two narratives are in fact two ends of a continuum, with a range of potential actions that government can take in between. In either direction, there is potential for significant human cost. There is an imperative to hit "just enough" restrictions to adequately slow transmission, but these actions do not outweigh the harms caused by those restrictions. Inevitably, it will be impossible to get this perfect, but step-wise lifting of restrictions with mitigation strategies in place is the most prudent way to go forward.

The current "lockdown" strategies implemented, predominantly starting mid-March, reflected the fact that our Province had to respond the rapid growth rate of transmission in BC That action worked. Our most recent modelling and analysis suggests we now have an opportunity to try to better manage the ongoing transmission and a potential wave two of the pandemic in the fall/winter by adopting a sustainable and more moderate public-health strategy to carry us through to "community" immunity, through either gradual infection and/or immunization by vaccine.

This situation is complex and without precedent in the modern age. We have never confined so many people and so, by definition, have never relaxed confinement of such a large number of people. This plan has been developed by public health and the Ministry of Health based on an evidence-based framework. It sets out what public health measures might be optimal to slow the spread and what steps the health system can take to be as robust as possible to meet possible total health care demand in the coming 12 to 18 months. It also sets out proposed requirements to safely optimize both economic activity and social activity.

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Managing transmission in organizational and speci□c settings

Key to deciding which actions to take is understanding the what, where, and how of virus transmission.

Coronavirus is transmitted via larger liquid droplets when a person coughs or sneezes, but also,

Using this assessment and applying the potential modi cations or controls to further reduce risk of transmission, organizations (workplaces, retail outlets, public institutions, community organizations) are being asked to develop explicit plans for the measures they will implement and maintain over the coming 12-18 months. Speci cally, they are being asked to apply a series of core measures across three areas (personal, social, organizational) that set parameters for the "new normal" in terms of formal and required actions that are the basis for workplaces and commercial businesses being in operation until the PHO lifts the public emergency requirements. This assessment framework combined with speci c measures set out below will be used by organizations and public institutions to reduce the risk of transmission.

REDUCING TRANSMISSION – *Core Measures to Implement Safe Organizational Practices*

- Actively promote and monitor personal self care actions in your organization
- Actively promote and implement the core measures for managing social interaction in your organizational setting in congregate social settings (kitchens, sta room, canteens, shared public spaces)
- You must have clear policies to enable and ensure that individuals who have the symptoms of a cold, u, or COVID-19 including coughing or sneezing should not come into the workplace. As part of opening your speci c settings, you should implement sick day policies for the coming 12 months that actively work with individual sta being o sick more often or working safely at home during these illnesses. As employers you must take leadership in this regard with routine screening/questions of sta for symptoms checking
- Require and sustain higher levels of frequent cleaning of "high touch" areas in workplaces and retail outlets throughout the day and availability of hand sanitizer stands at entrances or around workplaces and shops
- Where appropriate and practical increase use of temporary physical barriers (such as plexiglass at service counters or checkouts)
- Focus on how you will support and accommodate higher-risk populations including those 65+ and those with underlying medical conditions. Workplaces, retail and personal service businesses are encouraged to exercise greater accommodation for these age groups in terms of work space, more exible hours of work or shopping (earlier, later, mid-day) or working at home options

Additional core measures speci c to organizational settings (more will be developed as sectors are engaged and sector wide norms are adopted/required as set out later in this section):

- For O ce-Based Organizations, where possible continue to encourage working from home part of the time to reduce "contact intensity" and "number of contacts" in the workplace. Where this is not possible or in addition to working from home policies, enable employees to have less contacts by using staggered shifts or work hours, creating smaller teams working together virtually; forgoing in person group meetings as much as possible.

- The evidence of the impact of COVID-19 on young adults appears to be evolving although the data to date suggests that they are very likely to experience mild symptoms
- In general, educational settings are critical to a child's and youth's psycho-social development as well as learning but also for younger children, important to a parent's ability to maintain employment. Any actions taken in this area should take in to consideration all these dimensions
- Recreation and involvement in sports are also important developmental activities for many children and young people

CHILD CARES CENTRES

- Routine daily screening for all staff and students
- Routine and frequent environmental cleaning
- Explicit policy for children or staff who have the symptoms of a cold, flu, or COVID-19 with coughing or sneezing not coming into child care

SCHOOLS (K-12)

- Routine daily screening for all staff and students
- Routine and frequent environmental cleaning
- Implement a range of options to reduce transmission including smaller class sizes; separation of desks; potential of differential school attendance on a routine basis each week; strong focus in the daily routine on frequent washing of hands and other hygiene practices; small group activities and wearing of non-medical masks for those group activities; no high contact sports; limit group sizes of extracurricular activities
- Explicit policy for children, youth and staff who have the symptoms of a cold, flu, or COVID-19 with coughing or sneezing not coming into school or taking part in extra curricula activities and sports
- Planning over the summer for increased use of remote online learning, especially for high school children.
- Early arrival and self-isolation for 14 days of international students

POST SECONDARY INSTITUTIONS

- Routine daily screening for all staff and students
- Routine and frequent environmental cleaning
- Explicit policy for students and staff who have the symptoms of a cold, flu, or COVID-19 with coughing or sneezing not coming into classes or taking part in extra curricula activities and sports
- Increased use of on-line learning balanced against the need of social interaction for learning and development
- Early arrival and self-isolation for 14 days of international students

RECREATION/SPORTS/CAMPS

Beyond speci c settings, BC will in the coming several weeks bring further clarity on its medium-to-longer-term position on several other areas for the coming 12 to 18 months on:

- Travel Management Measures will require careful consideration with no immediate change in the status of international travel measures. Other areas for further consideration will be Internal travel guidance in province particularly over the summer months; inter-provincial travel for family visits or tourism; international travel (outbound and inbound) for family visits; business; or tourism over the coming months
- Further consideration as to whether there needs to be formal enforcement or legislative provisions attached to some of the measures.

One area where there will be no change in the immediate future are large scale public events. The PHO has restated total bans on mass gatherings and will maintain the direction on gatherings being of no more than 50 people with required physical distance and health hygiene practices for groups under that number

Managing public health and healthcare service capacity

A key argument made in the response to the COVID-19 epidemic has been the need to protect the health system and health workers from being overwhelmed to the point of not being able to provide appropriate care to both non-COVID-19 and COVID-19 patients. This is linked to both the experience of the severity of the illness at a population level and the ability of the health system to respond to the volume of patients requiring care at any one point in time.

As noted earlier in the discussion paper, from a health system perspective we need to consider our capacity to offer appropriate (1) public health services to detect, test, contact trace and therefore manage cases to prevent outbreaks in the community and (2) provide appropriate levels of hospital, critical, and ventilatory care to patients with a more severe experience of the infection. This is against the backdrop of allowing non-urgent health care services to resume (such as scheduled routine public health functions; primary care; dental care; physiotherapy and chiropractic care; scheduled surgeries; outpatient clinics, screening, and imaging services)

Public Health Strategies, Safeguards, and Capacity

A number of articles and think pieces argue that the reality of the next 18 months (nominal time for a vaccine) will be characterized by a cycle of lockdowns and unlocking with restrictions partially relaxed for a period of a few weeks at a time on a geographical, age group, or other factors until infection rates start to climb again with clear messaging on this reality to the public and encouragement to stay with this challenge. Is this practical? Would this be managed at a geographical level based on a community level analysis? Public health leadership in BC is focussed trying to find a steady state "sweet spot" for the coming 12 to 18 months but will monitor transmission and hospital rates closely and take additional restrictive action if required

Testing will remain an important part of the management strategy going forward. BC's testing strategy has evolved and changed over the course of the pandemic. Public Health has recently revised guidance for COVID-19 Testing by Nucleic Acid Tests (NATs) as follows:

1. Test all individuals with new respiratory or symptoms compatible with COVID-19, however mild. Symptoms may include fever, chills, cough, shortness of breath, sore throat, odynophagia, rhinorrhea, nasal congestion, loss of sense of smell, headache, muscle aches, fatigue, or loss of appetite
2. Individuals in the following groups should be prioritized for testing :
    a. Residents and staff of long-term care facilities
    b. Individuals requiring admission to hospital or likely to be admitted, such as pregnant individuals near-term, patients on hemodialysis, or cancer patients receiving radiation or chemotherapy
    c. Health-care workers

d. Individuals with a higher probability of being infected with COVID-19 such as contacts of a known case of COVID-19 and travellers just returned to Canada
e. Residents of remote, isolated communities, including remote and isolated Indigenous communities
f. People living in congregate settings such as work-camps, correctional facilities, shelters, group homes, assisted living and seniors' residences
g. People who are homeless or have unstable housing
h. Essential service providers, such as rst responders

3. Health-care providers can order a COVID-19 test for any patient based on their clinical judgment.
4. COVID-19 testing is not recommended for individuals without symptoms
5. The Medical Health O cer may recommend testing for others, such as those who are part of an investigation of a cluster or outbreak

In public health, contact tracing is the process of identi cation of persons who may have come into contact with an infected person ("contacts") and subsequent collection of further information about these contacts. This will remain a key tool moving forward and it will be essential that we build up su cient capacity to carry out this important measure.

Core Public Health Measures for the "New Normal"

- BC will make net new investments in Public Health/BCCDC capacity over the summer to ensure it is able to undertake timely testing, case tracking and contact tracing; as well as rapid response capacity for outbreak event management:
  - Adequate capacity for appropriate and rapid testing and laboratory capacity
  - Adequate capacity for contact tracing/self isolation
    - Build out adequate capacity to conduct contact tracing and analytics to support appropriate evidence based targeted actions to supress transmissions
    - Explore, develop and use technology to supplement traditional contact tracing:
    - Aim to selectively detect and isolate as many cases and contacts as possible whilst leaving everyone else to move around freely
- Is in process of validating and then will introduce serological testing
- Preparation and resourcing to quickly respond to outbreaks as required including using emergency powers as required:
  - A singular large public exposure
  - A wide spread hospital or long-term care facility exposure
  - A community based organizational exposure (workplace, church population)
  - Speci c wide spread localized community spread virus activity
  - Novel clinical presentation

- Provide additional risk-based guidelines targeted at at-risk populations to help individuals and families think through how to healthily self manage over the coming 12 to 18 months
- Explore developing an APP and support materials as an Alert System (amber/red) signalling the need for individuals and organizations to take immediate social distancing measures (see for example New Zealand's Alert System – https://COVID19.govt.nz/alert-system/COVID-19-alert-system/)
- A sustained public communication strategy
- Net new investment in Provincial Health Services Authority and BCCDC for data analytics, modelling, and reporting

Health Service Strategies, Safeguards, and Capacity

For COVID-19, data to date suggest that 80% of infections are mild or asymptomatic, 15% are severe infection, requiring oxygen and 5% are critical infections, requiring ventilation. BC clinical experience has been slightly di erent in that 22% of infected patients have been assessed as bene ting from hospitalization, 11% have been provided critical care and 9% have been ventilated. For COVID-19, our current understanding remains that older age and underlying conditions increase the risk for severe infection.

The experience of the pandemic in BC aligns with the broader experience of the severity and impact of the disease impacting the older population. As of April 14, 2020, the median age of people who have died in BC was 86 (in total only one person died in the 40-49 age group and two people died in the 60-69 age group). As reported earlier in the pandemic, the data from China reported that percentage of people with an underlying condition or disease diagnosed with COVID-19 who died (from China CDC February 2020) was as follows:

- Cardiovascular disease – 10.5%
- Diabetes – 7.3%
- Chronic Respiratory Disease – 6.3%
- Hypertension – 6%
- Cancer – 5.6%
- No Health Condition – 0.9%

The researchers found that the crude mortality ratio for those with an underlying health condition is much higher than for those without. By comparison, the crude mortality rate was only 0.9% – more than ten times lower – for those without a pre-existing health condition. In BC we are still at the early stages of analysis but have reported that 35.8% of 707 cases reviewed to date had at least one chronic condition (cancer, diabetes, cardiac disease, liver disease, neurological disorder, renal disease, or respiratory disease). There is little that can be concluded from this at this time but as the analysis advances it will better inform our understanding of the severity of the disease for classes of the population. In particular we need to determine the underlying illnesses and age for hospitalized, ICU, and ventilated patients and deaths

At this stage of our pandemic BCCDC suggests this is not possible to get an accurate timely estimate of Rt and as such it is proposed that we use hospitalization and in particular critical care census data for COVID-19 and non-COVID-19 patients as a practical and easily measured/reported reference point linked to our capacity in any community or region.

We must determine the real-time e ective number that the BC health system can appropriately manage given our hospital (medical in-patient bed) and critical care capacity that includes both COVID-19 and routine inpatient demand for these services. These will need to be conservative thresholds for numbers in critical care that would trigger rapid review and action as any measures taken will take up to fteen to twenty days to have an impact as we saw after our interventions in March.

Based on the BC experience and that of other jurisdictions one of our most vulnerable populations is our citizens in long-term care (LTC) and to a slightly lesser extent assisted living (AL). Several measures have been taken to provide greater protection to these individuals and better manage an outbreak when it occurs. These measures will need to continue to evolve over the coming weeks and months. Other populations include older individuals (60+ and especially in to late 70s+) and individuals with underlying medical conditions (cardiac; diabetes; chronic respiratory illnesses; compromised immune systems).

Unintended consequences:

Measures we have taken have unintended health, social and economic consequences, which must be balanced against risk of COVID-19. We have a responsibility to monitor these consequences over the coming months and adjust our strategy accordingly. Two strategies are being developed to achieve this:

- A population health survey, which can be repeated as necessary to understand the e ect of COVID-19 and the measures used to control the pandemic
- Establishment of an unintended consequences working group to monitor health and social consequences of public health measures

In summary:

- Maintain infection rates at a low level that is manageable in terms of providing optimal ICU and ventilator care to a sub-group of patients who experience a severe form of the illness – it won't be zero;
- Focus on protecting our citizens who are most vulnerable to a severe form of the illness
- Establish an upper limit on ICU cases at a low level to protect some surge capacity;
- Understand that an outbreak could take o in a few days and that responsive measures could take 15 to 20 days to have an impact and so will need ongoing vigilance and nimble responses

Conclusion and next steps

British Columbia, like all other jurisdictions, will likely face a potentially challenging transition from a virus-related lockdown to carefully restarting social and commercial life balancing warnings from public health o cials of health risks with other warnings of the signi cant potential damage to economic and social life

The challenge is a three-way balancing act between combating the disease, protecting or rebooting the economy and keeping society on an even keel. This requires carefully thinking through trade-o s that are proportionate as government works though decision making aligned with the legislated role of the Provincial Health O cer. The overall goal will be to make decisions about the trade-o s and consequences of those decisions:

The overall goal is to nd the right balance for BC against ve goals:

1. Protect lives by suppressing transmission rate to lowest rate possible for at-risk populations until a vaccine becomes available (ongoing monitoring and assessment of this possibility will be important, and our strategies will need to evolve based on what materializes or does not materialize over the coming 12 to 18 months)
2. Make sure the health system does not get overwhelmed to the point that it can't o er quality care to both non-COVID-19 and COVID-19 patients. This includes managing the transmission rate within the capacity of the health system until a vaccine is available

Balanced with:

3. Meeting the very real ongoing physical and mental health needs of non-COVID-19 BC patients and populations
4. Getting people back to work and rebuilding the economy
5. Optimizing the social fabric of our families and communities

British Columbia should not implement an "all at once, everywhere and for everyone" lifting of restrictions but rather a step wise process based on the measures set out in this paper. The "unlocking and partial reboot" phase will need signi cant coordination between di erent parts of government, the business sector, and civil society supported by a signi cant and consistent communication strategy. There is no right or wrong answer about the best way to respond to a threat as great and as complex as this pandemic, but individuals, institutions, and government will be judged on the outcomes. The BC government will establish a number of "multi-sector partnership tables" to monitor and further ne tune response for the coming 12 to 18 months

Overall, the go-forward management plan must remain exible enough to allow the Province to ne-tune our interventions quickly enough to stay ahead of the outbreak's trajectory. This can be done through either an acceptable steady state (contemplated by the <60% social interaction modelling) and/or a series of moderate "lift and suppress" policies and actions – cycles during which restrictions are relaxed and then reapplied in ways that can keep the pandemic under control but at an acceptable economic and social cost.

Notes