EXPERT REPORT
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This report will describe the expectations of the strategy of a government in response to a public health emergency. Within this context, it will identify issues of specific relevance to the current circumstances and *COVID-19 Framework: Keeping Ontario Safe and Open.*

These issues pertain significantly to the decision of the Ontario premier and the lieutenant-governor in council to invoke the Ontario Emergency Management and Civil Protection Act[1] and to continue these emergency measures under the Reopening Ontario Act[2],

Before addressing these specific issues, it is important to understand how they relate to the framework for public health principles and good public health practice, including scientific, legal, and ethical considerations.

Section 1. Overview of the principles and strategic practice of public health

To meet the expectations of good public health strategic practice, to comply with the Ontario Emergency Management and Civil Protection Act, and to comply with the Canadian Charter of Rights and Freedoms, public health officials and their governments are required to show that the severity of a threat has justified the use of restrictive interventions; how the effectiveness and benefits of the interventions will sufficiently outweigh the harms; and that there are no alternative strategies that would be more effective, less harmful, and/or less restrictive.

These requirements are not only about rights and freedoms, important as those are from the public health ethical and legal perspective. These requirements are about good public health practice to maximize benefit of interventions while minimizing harms. It is about evidence-based and rational decision-making for optimal outcomes.

The starting point to assess any public health response strategy is to ensure that it is compliant with laws and regulations. Whereas public health emergency powers and orders are usually defined in public health acts, in Ontario these powers are mostly defined in an emergency act. As in all provinces, they are subject to the Charter of Rights and Freedoms.

The Ontario Emergency Management and Civil Protection Act and the Charter of Rights and Freedoms

[1] https://www.canlii.org/en/on/laws/stat/rso-1990-c-e9/latest/rso-1990-c-e9.html
[2] https://www.ontario.ca/page/reopening-ontario?_ga=2.240822784.2023726693.1588267697-602120978.1582919363

The following sections of the Ontario Emergency Management and Civil Protection Act[3] and the Charter of Rights and Freedoms are described here. They are consistent with the principles of good public health practice.

Ontario law permits the declaration of an emergency based on the opinion of the premier regarding two matters - the magnitude of the danger and the need for using emergency orders to address it. Section 7.0.1 (3) describes the considerations for forming that opinion.

Section 7.0.1 (3) states that an emergency can be declared only if the lieutenant governor in council, or the Premier is of the opinion that there is a "danger of major proportions that could result in serious harm" and one of the following exists:

- Resources normally available to the Government "cannot be relied upon without the risk of serious delay".
- The resources that are normally available to the Government "may be insufficiently effective to address the emergency".
- "It is not possible without the risk of serious delay to ascertain" whether the resources normally available to Government can be relied upon.

For public health emergencies, premiers and other elected leaders look to their senior public health officials – including their chief medical officer of health or chief public health officer - to provide advice regarding the level of threat and the need for emergency powers. In a public health emergency, the advice from public health professionals is expected to be based on valid and reliable data, relevant information, objective scientific evidence, and critical reasoning.

The Act does not specify what information and advice will be used by the premier to form their opinion. Although no specific or measurable criteria are provided for the premier to make this decision, general guidance is provided by section 7.0.2. (1)

"7.0.2 (1) The purpose of making orders under this section is to promote the public good by protecting the health, safety and welfare of the people of Ontario in times of declared emergencies in a manner that is subject to the *Canadian Charter of Rights and Freedoms* 2006, c. 13, s. 1 (4)."

Public health legislation across Canada addresses this issue in various ways, but the principles are similar. Like any medical advice – for an individual or a community - public health leaders are expected to assess the magnitude of the threat and to weigh up the pros and cons of alternative interventions, whether these are preventive or therapeutic.

The reference to the Canadian Charter of Rights and Freedoms is consistent with expectations of public health practice to optimize the benefit/harm ratio while respecting autonomy of individuals, families, and communities. In addition, the promotion of the public good requires a consideration of the distribution of benefit and harm – both from the disease direct threat and from the consequences of the response to that disease. Modern Canadian public health practice principles and values require consideration of fairness and equity in all policies. Public health interventions should reduce health inequalities and inequities – especially for disadvantaged individuals and communities. Population health strategies – whether

[3] https://www.canlii.org/en/on/laws/stat/rso-1990-c-e9/latest/rso-1990-c-e9.html

emergent or ongoing – require full simultaneous consideration of all public health threats and all social and other determinants of health.

Federal law: Canadian Charter of Rights and Freedoms

Section 1: The *Canadian Charter of Rights and Freedoms*[4] guarantees the rights and freedoms set out in it subject *only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society*. The onus is on the decision-makers to justify their decisions and actions when those actions restrict any of the rights or freedoms listed in the Charter.

Public Health Strategy: Making Decisions and Taking Action

From a public health perspective, how can restrictive and intrusive public health interventions be "demonstrably justified"? Decisions about interventions – especially in a complex and evolving situation - are a matter of judgment. The big decisions are ultimately made by the premier or the lieutenant governor in council. During this pandemic, first ministers have consistently - and with few observed exceptions - communicated that they have followed the advice of their public health officials. That may be so, but even when legislation proscribes independent powers to public health officials, their contracts are signed with government and can be terminated at any time without cause.

Demonstrable justification of public health interventions should primarily be based on quantitative estimates of risk and quantitative estimates of intervention effectiveness. For risk assessment – often referred to as threat assessment - this includes estimations of likelihoods (probabilities) of events and level of severity. For effectiveness of interventions, this includes measurements and estimations of quantitative outcomes, including benefits and harms. These estimates are fundamental to the process of determining and demonstrating that public health interventions are proportionate to the threat and are reasonably necessary. These fundamental and basic epidemiology descriptors and indicators must include specific probabilities, rates, ratios, and proportions – not only crude numbers (numerators with denominators). Best estimates of these quantitative measures – based on the best available data and evidence - are essential. In addition, critical thinking and equity considerations are also essential for optimal decision-making.

These decisions must consider short-term and long-term benefits and harms for society as a whole. These considerations must include all matters pertaining to health. Even when one specific disease becomes the focus of attention, decision-makers and advisors must consider the morbidity and mortality from all diseases and injury, especially when interventions for one disease may increase the rates or severity of other conditions. These considerations must also include the causes and risk factors of all diseases and injuries. These factors are often referred to determinants of health. Health Canada lists 12 official determinants.[5]

1. Income and social status
2. Employment and working conditions

[4] http://www.efc.ca/pages/law/charter/charter.text.html
[5] https://www.canada.ca/en/public-health/services/health-promotion/population-health/what-determines-health.html

3. Education and literacy
4. Childhood experiences
5. Physical environments
6. Social supports and coping skills
7. Healthy behaviours
8. Access to health services
9. Biology and genetic endowment
10. Gender
11. Culture
12. Race / Racism

For these reasons, demonstrable justification for public health interventions that harm the determinants of health for all health conditions and infringe on rights and freedoms described in the Charter requires complex considerations, complex decision-making, and complex demonstration. Meeting this requirement in the complex biological and social phenomenon of a respiratory virus pandemic demands a wide range of expertise and engagement.

This expertise extends beyond that of the knowledge or training of public health specialists, other medical practitioners, and epidemiologists. Knowledge of the specific impacts of school closures, small business restrictions, unemployment, lost income, and social isolation exists within other experts, including parents, and all citizens. Demonstrable justification for severe and prolonged public health interventions also includes considerations of values, beliefs, and priorities. No one expert in public health or any other domain has the scope of knowledge or experience to address all of these issues or to advise the government on appropriate measures or policies, whether this is advice is given through direct channels or indirectly through the media or other avenues for expression.

Ultimately, these big and complex decisions with far-reaching impacts, should, as described in legislation and consistent with democratic principles, be made by elected government politicians in consultation and engagement with experts and the electorate.

Public Health Strategy: A Conceptual Framework for Principles and Practice

The principles and practice of public health have been described in many forms. The most recent Canadian form was released in 2017 by the Canadian Public Health Association (CPHA), a multi-disciplinary organization that “is the independent national voice and trusted advocate for public health, speaking up for people and populations to all levels of government”. Some of the most relevant parts are considered below.

Conceptual Framework for public health[6]

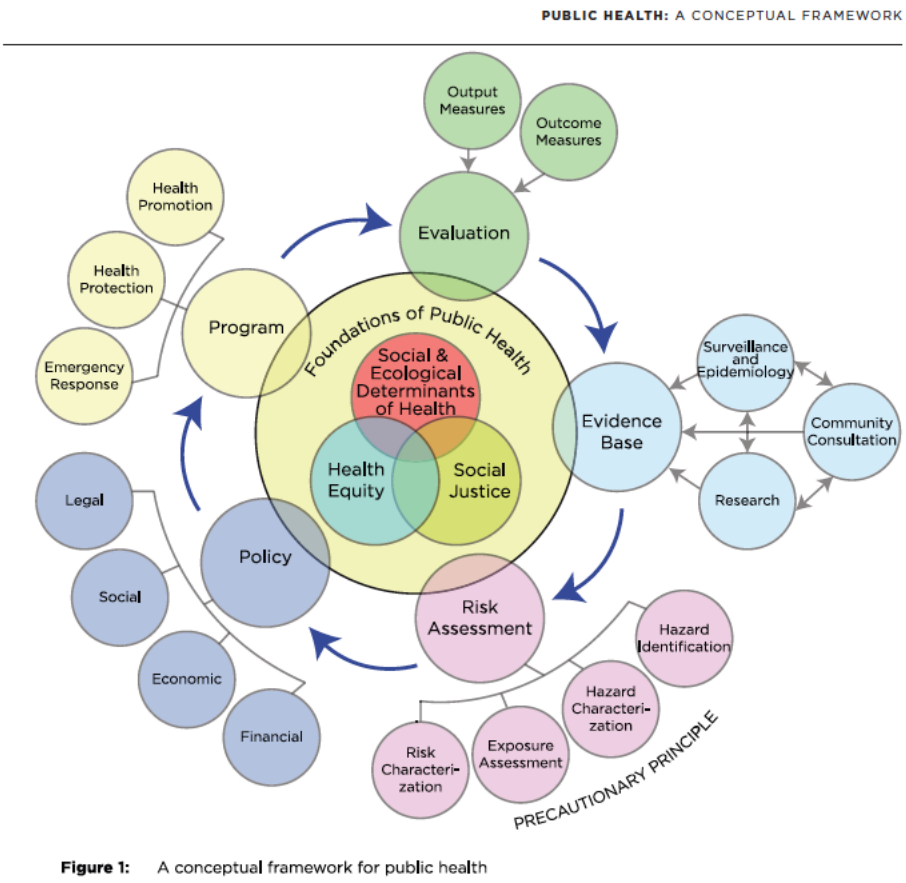

Figure 1: A conceptual framework for public health

Figure 1: A conceptual framework for public health

A viral respiratory illness outbreak with pandemic transmission is a complex biological and social phenomenon. Decision-making by public health officials and governments – especially in an emergent and evolving situation – is challenging.

As depicted in figure 1, to meet this challenge, public health practitioners are expected to develop and implement an effective, efficient, and equitable strategy. This strategy should be founded in health equity, social justice, and the determinants of health. It should be based on evidence and risk assessment. It should be clear about the general policy (goals and constraints), and it should describe specifically and clearly its program (objectives and interventions). Of critical importance is the ongoing monitoring evaluation of measurable inputs, outputs, indicators, and outcomes.

[6] https://www.cpha.ca/sites/default/files/uploads/policy/ph-framework/phcf_e.pdf

The importance of a pre-existing plan and current strategy

For any new emergency, a public health strategy should be developed on the framework of a previously crafted and regularly updated response plan. The plan should include a process to continuously assess the severity of the threat, to set clear short-term and long-term goals and objectives, to survey the most relevant data, and to guide rational, ethical, and evidence-based decision-making.

These processes rely on a surveillance capacity to monitor first and foremost the most serious consequences of the disease and the most relevant causes and risk factors. For a communicable disease, it is essential, for example, to identify and monitor as soon as feasible the patterns of disease transmission.

Equally important is the plan and capacity to monitor and evaluate the beneficial and harmful effects of interventions. A pre-existing plan should have identified and implemented the infrastructure and human resources necessary for monitoring and evaluation. For example, what is the state of readiness of integration of electronic health records between primary care, hospital, laboratory and public health settings.

It is also expected that these prepared plans and current strategies would be shared transparently with the public. This is important for the purpose of achieving informed engagement and consultation, increasing trust and understanding, and optimizing effectiveness of actions by all concerned.

These essential elements of a public health program development and implementation are schematically illustrated in figure 5: [7]

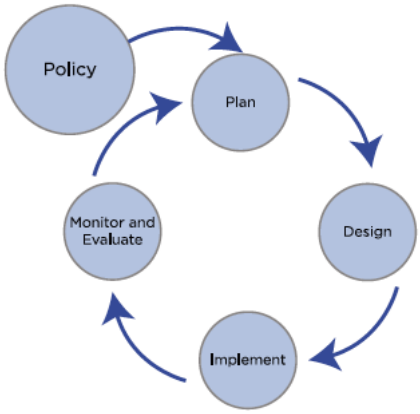

Figure 5: A generalized intervention development process

The CPHA framework summarizes below the connections between goals, collaboration, evaluation, and inclusive engagement. These are fundamental elements of a planned response.

[7] https://www.cpha.ca/sites/default/files/uploads/policy/ph-framework/phcf_e.pdf

"The goal of any intervention is to limit the onset and progression of disease, injury or infection, and may be implemented through collaboration with all levels of government, other government departments, non-governmental organizations, not-for-profit organizations, and private sector partners, as appropriate. In addition, all interventions must be evaluated to measure success in terms of the expected outputs (the desired product of the intervention), as well as the desired outcomes (improvement in the health of the population). Effective intervention development requires that those affected by the health issue addressed by the intervention be included in its development and implementation to improve its likelihood of success."

The importance of a planned response, including comprehensive surveillance, has been reinforced in the recently released Auditor-General's report.

> Section 8.1 of the Auditor-General's 2021 report on Pandemic Preparedness, Surveillance, and Border Control Measures states:
>
> "This audit is important because a well-planned and informed public health response is crucial to limiting the spread and public health impact of an infectious disease during a pandemic. In particular, timely and comprehensive surveillance information is needed to direct public health efforts."[8]

The importance of goals and objectives

Without goals and objectives, interventions cannot be rationally selected; surveillance and evaluation cannot be operationally relevant. The response plan should describe the methods of surveillance, including definitions and protocols for assessment. These should include the frequency and severity of cases, processes for assessing and prioritizing types of exposures and settings for transmission of infection, and ways of systematically monitoring and evaluating the effectiveness, benefits, and harms of interventions – not only for the disease of interest but for all other causes of morbidity and mortality, including the social, economic, and other determinants of health.

The development of measurable objectives is the work of epidemiology - the basic science of public health practice. Epidemiological measurements and methods are primarily quantitative. Public health decision-making relies primarily on quantitative epidemiological analyses. Epidemiological analyses rely on accurate measurements. Accurate measurements rely on clear definitions. Clear definitions are the basis for clear objectives. Objectives (or indicators and thresholds) should be clear, comprehensive, relevant, specific, and measurable.

In the next part of this report, these principles and practice of a public health strategy will be used to examine Ontario's strategy: The *COVID-19 Framework: Keeping Ontario Safe and Open*. [9]

[8] https://www.oag-bvg.gc.ca/internet/English/parl_oag_202103_03_e_43785.html#hd3c
[9] https://www.ontario.ca/page/covid-19-response-framework-keeping-ontario-safe-and-open

Section Two. *COVID-19 Framework: Keeping Ontario Safe and Open*

In this section, Ontario's strategy will be considered in the context of the expectations described above in the *Section 1. Overview of the principles and strategic practice of public health*. In addition to a critical review of gaps and other problems with the strategy as described, examples of pertinent current issues will be used to illustrate the need for further explanations and development.

Has the Ontario response been based on a transparent pre-existing plan?

There is no evidence of a pre-existing response plan or framework. Building on a pre-existing plan enables transparency and accountability for rationale behind the current strategy.

Has the Ontario response used a current strategy with comprehensive goals and objectives?

The *framework* has six general goals. It does not have specific or measurable objectives, but it does have some specific measurable indicators.

The six general goals are:

- Limit the transmission of COVID-19.
- Avoid closures.
- Keep schools and childcare open.
- Maintain health care and public health system capacity.
- Protect vulnerable populations.
- Provide additional supports where possible.

These are reasonable goals, but they are not sufficiently comprehensive. Nor are there measurable objectives to define the outcomes associated with them.

Although schools and business closures are identified, there are no goals to minimize societal disruption of other settings or sectors, such as religious worship, funerals, weddings, other family events and ceremony, recreation, travel, social and health support, travel, and entertainment. These constitute important health-related activities. Their restriction would be expected to have increasingly harmful consequences as the duration of the response is prolonged. It would be important to develop a framework with measurable indicators to monitor these consequences.

Public Health Ontario posted in August, 2020 a rapid (international) research review of Negative Impacts of Community-Based Public Health Measures During a Pandemic (e.g., COVID-19) on Children and Families.[10] This appears to be a stand-alone document. A system for ongoing monitoring and the adverse effects of the response to COVID-19 to Ontarians could not be found.

There are four described principles for keeping Ontario safe and open:

- Responsible
- Proactive, graduated and responsive
- Evidence-formed
- Clear

These are important principles, and are accompanied by some explanation, but there is not a clear description of how they will be evaluated, who will be involved in the evaluation process, and how will the results of that evaluation be shared transparently with the public.

In the section called “Adjusting and tightening public health measures”, “indicators and thresholds” are described for each of the “five zones of public health measures”. These zones constitute levels of restrictions and lockdown.

There are several problems with these indicators.

1. Many are not quantifiable or measurable in an objective way.
2. There is no explanation for how these indicators and threshold levels were chosen.
3. It is not clear which outcomes are associated with which indicators.

[10] https://www.publichealthontario.ca/-/media/documents/ncov/cong/2020/06/covid-19-negative-impacts-public-health-pandemic-families.pdf?la=en

4. It is not clear how many of the indicators must meet their threshold before advancing to the next zone of public health measures.
5. The decision-making process to move from one zone to another is not apparent or transparent.
6. There are no links or other apparent way to follow the daily progress the indicators.

The indicators organized into three categories – epidemiology, health system capacity, and public health system capacity.

Epidemiology

Issue:

Hospitalizations and deaths are the usual indicators of severe illness, but there are no indicators for these outcomes.

It is not clear how Public Health Ontario has addressed the following major issues:

- *Death classification and counts.* New rules of death classification have been adopted resulting in certifying COVID-19 as the underlying cause of death when under usual circumstances it would have been classified as an immediate or contributing cause of death. Ontario Family Physicians/Palliative care/OMA[11] have adopted the new Health Canada[12] guidelines for death certification for COVID that were initiated by the World Health Organization - admittedly to maximize the sensitivity of surveillance despite the loss of medical accuracy.[13] No data could be found describing or analyzing the certificates of death for Ontario's 7,500 deaths. The implications for overestimating the mortality of COVID-19 were well described in this media article by Fury.[14]
- *Public understanding of proportionality.* The following calculated numbers were not easily accessible in the daily and weekly updates. 400,000 cases seems high, but equates to 2.5% (one in 40) of Ontarians, the vast majority with only mild illness. 1000 new cases in a day equates to one per 15,000 Ontarians. 7,500 deaths has equated to an average of 20 announced daily without mention of the other 295 that die each day. In one year, has has been one COVID-associated death per 2,000 Ontarians – one death per 730,000 people per day. Even using an overly inclusive definition of a COVID death, the proportion of all deaths counted as COVID is about 6%.

  The following very useful data were found – after some searching, but there was little in the way of interpretation or graphing to illustrate its importance the table is reproduced here to illustrate the type of data that could be used for more meaningful indicators and thresholds. Comments below the table are those of the author of this report.

[11] https://www.ontariofamilyphysicians.ca/tools-resources/timely-trending/novel-coronavirus-2019-ncov/managing-expected-death-in-the-home-april-24-2020.pdf

[12] [12] https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00087-eng.htm

[13] https://www.who.int/classifications/icd/Guidelines_Cause_of_Death_COVID-19.pdf

[14] https://www.thechronicleherald.ca/news/canada/ontario-death-count-includes-people-who-didnt-die-of-covid-19-but-exactly-how-many-is-unknown-507544/

The following table contains cumulative information of age-specific rates of cases, hospitalization, and deaths[15].

January 15, 2020 to April 9, 2021

Age group	Population	Cases	Case rates	Hosp	Pop-hosp rate	Deaths	Pop mort rate	Case-hospitalizaton rate	Case-fatality	Hosp dth rt
0 to 09	1,518,527	19,308	1.3%	126	0.01%	1	0.0001%	1.3%	0.01%	1%
10 to 19	1,617,937	36,422	2.3%	116	0.01%	1	0.0001%	2.3%	0.00%	1%
20 to 29	2,100,175	78,651	3.7%	512	0.02%	11	0.0005%	3.7%	0.01%	2%
30 to 39	2,056,056	60,125	2.9%	850	0.04%	23	0.0011%	2.9%	0.04%	3%
40 to 49	1,876,585	53,906	2.9%	1299	0.07%	70	0.0037%	2.9%	0.13%	5%
50 to 59	2,060,937	54,802	2.7%	2394	0.12%	253	0.0123%	2.7%	0.46%	11%
60 to 69	1,795,047	34,820	1.9%	3265	0.18%	685	0.0382%	1.9%	1.97%	21%
70 to 79	1,159,898	18,223	1.6%	3772	0.33%	1462	0.1260%	1.6%	8.02%	39%
80 to 89	539,715	14,066	2.6%	3851	0.71%	2727	0.5053%	2.6%	19.39%	71%
90+	139,551	7,932	5.7%	1813	1.30%	2278	1.6324%	5.7%	28.72%	126%
All ages	14,864,428	378,339	2.5%	17,998	0.12%	7511.00	0.0505%	2.5%	1.99%	42%

- Average mortality rates for the whole population do not, however, provide as much information as age-stratified or age-specific mortality rates. This is especially true when the deadliness of a disease varies significantly with age or health status. The table shows the trend from youngest age group to the oldest. For example, the COVID population mortality rate for Ontarians over 90 has been about 2% (1 death per 50) per year. Compare this to the mortality rate of 0.04% (one death per 2,500) for Ontarians age 60-69. Stated another way, 2,499 out of 2,500 people in their 60's did not die this past year from COVID-19. Compare this with 49 out of 50 people aged over 90 years.

- Case-fatality ratios use the same numerator as mortality rates, namely deaths associated with the disease of interest. The denominator, however, for case-fatality ratios, is the number of cases. In other words, it is a measure of the "deadliness" of getting an infection - or, at least one that has been counted as a case (usually because of a positive lab test).

- The case-fatality ratio, using the same dataset, has been about 2% (1 in 50) overall; i.e. 7511 deaths/378,339 cases. An average case-fatality ratio for the whole population does not, however, provide as much information as age-stratified or age-specific fatality ratios. The table shows the significant trend from the youngest age group to the oldest.

[15] https://www.publichealthontario.ca/en/data-and-analysis/infectious-disease/covid-19-data-surveillance/covid-19-data-tool?tab=ageSex

- The highest death per case ratio is, predictably, in those over the age of 90 – about 30%. From another perspective, 2 out of 3 have survived their diagnosis. For those aged 60-69 case fatality is 2%. 98% have survived their diagnosis.

- There have been two deaths in under-20's. That equates to an under-20 age-specific population mortality rate of one per million and case-fatality rate of about one per 10,000 cases.

    - *Analysis of the circumstances of death.* Each death should be analyzed with respect to important epidemiological and clinical characteristics aside from age. Quality of life leading up to death and estimated life expectancy are others. Advanced care plans requesting comfort care only – with no resuscitation or hospitalization - are in place for most personal care homes residents. A UK nursing home study showed that 1/3 of residents die every year[16] This is not to coldly disregard the right to life or grief of loved ones. But it is important to be aware of facts that can inform the more difficult considerations about public health policy.

    - *Comparison of COVID-19 with influenza and other causes of respiratory infections.* Given the unprecedented number of tests, comparisons of incidence, severity, and death with any other cause are limited, but there are ways to compare. Using data which probably underrepresents the number of deaths, it is evident that influenza has been associated with significantly more deaths in children and younger healthy people than COVID-19. Information of this kind would help put the threat of COVID-19 into clearer perspective.

Framework Indicators:

- *Weekly incident rate of cases*
- Comments
    - This is a specific measurable indicator with clear thresholds. However, without defining the relationship between the number of tests and the incidence rate of cases, the interpretation of this rate is limited.
    - There is no rationale provided for these numbers. Nor is there an explanation why other indicators of morbidity and mortality are not included. Cases – if systematically measured and analyzed – may provide information about transmission, but they are not a measure of severe illness, even amongst those at highest risk. Hospitalizations and deaths would be more appropriate indicators of severity – despite the lag from time of infection - and would be more reflective of at least two of Ontario's priorities.

- *Percent positivity of tests*
- Comments
    - This is clearly defined and measurable, but without standardization of patterns, circumstances, and characteristics of test subjects as well as settings with respect to the pre-test probability of a positive test, this measure is difficult to interpret or use and can be misleading.
    - No rationale is provided for the choice of thresholds.

- *Effective reproduction number*

[16] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0203480

- Comments
    - This does not meet usual criteria as a definable or measurable objective or indicator. It is a conceptual and theoretical number of average number of transmissions from an infected person, estimated by epidemiological observation or mathematical modeling, both of which are subject to variations in methods and subjective considerations.
    - The precision suggested by the indicator levels (<1, "approximately" 1, "approximately"1 -1.1, ≥ 1.2) are overlapping and imply a measurement method with that degree of accuracy and precision. The method used is not described. The term "approximately" is not explained, which makes it difficult to interpret how "approximately 1" is different from 1.1 in the range of "approximately 1 – 1.1"
    - There is no rationale provided as to why this number was chosen as an indicator and how the thresholds were decided.

- *Outbreak trends/observations*
- Comments:
    - This does not meet criteria for a measurable objective, indicator, or threshold.
    - Although "outbreaks" are defined on another site, the words "outbreak/trends" in green zone, "repeated", "multiple", "increasing numbers", and "large outbreaks" in other zones are not defined.
    - No rationale are provided for the verification, inclusion or interpretation of these descriptors.

- *Level of community transmission and non-epi linked cases*
- Comments:
    - These do not meet criteria for a measurable objective, indicator, or threshold.
    - The terms "stable" and "increasing" are not defined nor is the "level" of two different terms explained. Is it the level of one, both, or an average of the two that is stable or increasing.
    - No rationale is provided for the verification, inclusion, or interpretation of this descriptor.

Issue:

The examples below indicate the type of information that can be useful for risk assessment and policy-setting but without more details about how the information was gathered and how conclusions were reached, its usefulness is limited. Using additional information, the author of this report has attempted to interpret some of the numbers and put them into perspective.

Transmission in selected settings

The *Ontario COVID-19>Ontario cases Likely Source of Infection website*[17] provides opportunities to interactively look up information about sources of cases and outbreak. The numbers described below of cases and outbreaks associated with "outbreak settings" have been obtained from this site and include all cases and outbreaks cumulatively from January 15, 2020 to April 10, 2021. Because so few cases

[17] https://covid-19.ontario.ca/data/likely-source-infection

occurred before March, 2020, and because of potential lags in data processing, calculations of rates are based on an estimated 12 months of cumulative exposure.

An outbreak is defined thus: “Local medical officers of health declare outbreaks in these settings based on their investigation. Typically, they’ll need to find at least 1 case in a defined setting within a specific timeframe.”

The Public Health Case and Contact Management Solution (CCM) is Ontario's primary disease reporting system. All of Ontario’s Public Health Units report COVID-19covid 19 case and outbreak data to CCM each day.

Transmission in religious settings

There is no specific category for religious services settings. “Other recreation” settings are defined to include “a place that is not for fitness but for leisure time such as venues for weddings and religious activities”.

The number of cases attributed to exposure and transmission in a religious setting could not be identified on a government website. The number of cases in “other recreation” settings = 2,003. The proportion of these cases attributable to religious services could not be ascertained.

The number of outbreaks attributed to a religious setting could not be specifically identified.

In the past 15 months, 28 outbreaks have been identified in “other recreation” settings. More specificity with respect to the types of settings or the number of transmissions in each outbreak could not be found.

What has been the probability (risk) of one transmission or more in a religious setting? 36% of Ontarians over the age of 15 attend a religious service at least once per month[18]. The population of Ontario $\geq$ 15 years is 12 million[19]. Assuming two hours per service and one service per month, the number of “service-hours” of exposure per religious attender is 24 per year; for the population as a whole ($\geq$ 15 years) it 24*.36 = 9 service-hours per Ontarian.

Assuming 16 awake hours per day, for an attender every week for two hours, this equates to 2/(16*7*)=2% of their waking time. For the 36% of Ontarians that attend services (at least) once per month, this equates to 2/(16*7*4.3)= 0.4% of their waking time.

Assuming that all of the 28 reported outbreaks and all of the 2,003 cases transmitted in “other recreation” settings occurred in religious service settings, the following calculated estimates of rates of occurrence are provided:

The proportion of all reported cases potentially associated with religious service settings = 2,003/394,679=0.5%.

[18] https://www.statcan.gc.ca/sites/default/files/6493-eng.pdf

[19]https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501&pickMembers%5B0%5D=1.7&pickMembers%5B1%5D=2.1&cubeTimeFrame.startYear=2020&cubeTimeFrame.endYear=2020&referencePeriods=20200101%2C20200101

The proportion of all outbreaks potentially associated with religious service settings = 28/878 =.03 = 3%.

Transmission in bar, restaurant, or nightclub settings

The number of cases attributed to exposure and transmission in a bar, restaurant, or nightclub is 892.

The number of outbreaks associated with exposure and transmission to a bar, restaurant, or nightclub is 24.

Proportion of all cases associated with exposure to a bar, restaurant, or nightclub = 892/394,679=0.2%
Proportion of all outbreaks associated with attendance = 24/878 = =.03 = 3%.

Outdoor gatherings

No specific information could be found for outdoor gatherings. It is possible that they are categorized as "other" settings, in which there were three reported outbreaks and 12 cases.
These data indicate that the frequency of transmission in religious gatherings, restaurants, and outdoor gatherings is low and makes up a small proportion of "outbreaks" and cases.

Health system capacity

Issues:

Framework Indicators:

- Hospital and ICU capacity
- Comments
    - Adequacy of hospital and intensive care unit capacity is not defined nor quantified.
    - The descriptors of capacity are: adequate, occupancy increasing, or at risk of being overwhelmed. These terms are unmeasurable and do not meet the criteria of an objective, an indicator, or a threshold.
    - Without clarification of this important goal, claims that there is sufficient or insufficient capacity or that hospital conditions are on the brink of exceeding capacity are matters of subjective opinion, not objective measurement. Because the capacity of hospitals, especially intensive care, have been a central driver of policies to "flatten the curve" for over a year, there still do not appear to be measurable objectives or indicators of hospital capacity.
    - Furthermore, a transparent way to monitor hospital capacity indicators could not be found on an Ontario COVID website.

Detailed and comprehensive data on hospitalized patients has been more difficult to obtain than death and case information. Detailed information on hospitalized patients is an important part of surveillance.

Firstly, that actual clinical and pathological relevance of a positive PCR test can be analyzed. Aside from characterizing risk factors for severe illness and positive factors for survival, much can

be learned about the nature of and settings of exposures which were associated with their severe illness. Typically, very little of such data was found. The details in this table are minimal and provide little opportunity for analysis.

Without more information about utilization and capacity of hospital beds, claims of inadequate hospital capacity cannot be verified and the indicators in the Ontario Framework cannot be described.

Table 4. Confirmed cases of COVID-19 by severity: Ontario[20]

	Cumulative case counts of April 9, 2021	Percentage of all cases
Cumulative deaths reported (please note there may be a reporting delay for deaths)	7,531	2.0%
Deaths reported in ages: 19 and under	2	<0.1%
Deaths reported in ages: 20-39	35	<0.1%
Deaths reported in ages: 40-59	325	0.3%
Deaths reported in ages: 60-79	2,153	4.0%
Deaths reported in ages: 80 and over	5,015	22.7%
Ever in ICU	3,202	0.8%
Ever hospitalized	18,161	4.8%

- **Note:** Not all cases have an age reported. Data corrections or updates can result in case records being removed and/or updated and may result in totals differing from past publicly reported case counts.
- **Data Source**: CCM

Public health system capacity

Issue:

Combining the epidemiological, clinical, and laboratory data obtained from case follow up, contact tracing, hospitalizations and deaths, could have painted a clearer picture of the deadliness, contagiousness, transmission and preventability of severe cases and deaths.

Using modern electronic clinical and public health data systems, 400,000 cases and their contacts, 20,000 hospitalizations and 7500 deaths should have been analyzed by now to answer the most important questions about opportunities for more targeted strategies and focused protection.

[20] https://www.publichealthontario.ca/-/media/documents/ncov/epi/covid-19-daily-epi-summary-report.pdf?la=en

Without such data, continuation of generalized viral suppression strategies are without evidence and justification.

Framework Indicators:

- Case and contact follow-up within 24 hours
- Comments
    - The terms adequate, at risk of becoming overwhelmed or overwhelmed are not defined, quantitative, or measurable. This leaves people working in case and contact tracing without a way to measure capacity and it leaves everyone else that is not working in that area unable to transparently see or rationally understand their degree of capacity.
    - It also doesn't address the capacity for other important purposes of case and contact management such as surveillance and monitoring of transmission characteristics (e.g. Ct levels and transmission, asymptomatic transmission, periods of incubation and infectivity, and types of exposures and settings resulting directly or indirectly in transmission to highest risk individuals and severe outcomes).

The central question with respect to the Emergencies Act and the Charter

Have the decisions about the public health interventions been sufficiently comprehensive, to justify the necessity to restrict rights and freedoms, including access of Ontarians to the determinants of health, because of a public health danger of major proportions that could not and cannot be addressed with the resources normally available to government?

Without clear and measurable objectives, there is no reasonable or transparent way to determine what cannot be achieved using the resources normally available to government and without restrictive interventions. Nor is there a way to analyze to what degree the emergency measures have been effective in achieving the objectives.

To achieve the general public health goals of optimizing health, public health decisions must consider many dimensions. The decisions about public health interventions must consider short-term and long-term benefits and harms for society as a whole. These considerations must be comprehensive and include all matters pertaining to health. Even when one specific disease becomes the focus of attention, the considerations must be cognisant of the morbidity and mortality from all diseases and injury, especially when interventions for one disease may increase the rates or severity of other conditions. These considerations must also include causes and risk factors of all diseases and injuries; these factors are often referred to as social, educational, and economic determinants of health.

The good practice, ethical, and legal requirements to answer the central question have not been met for the following reasons.

1.The size of the actual threat from COVID-19 has not been specified or reasonably estimated.

2.The goals and objectives of the strategy have not been adequately described.

3. The effectiveness and harms of the restrictions have not been adequately described and reasonably demonstrated; and alternative, less restrictive, and less harmful interventions have not been transparently considered and compared.

Without reasonably accurate estimates of these three factors, and without an adequate explanation of why there were no less restrictive and harmful interventions that could have been used to achieve the goals and objectives, there has been insufficient justification for the necessity to restrict rights and freedoms, including access of Ontarians to the determinants of health, because of a public health danger of major proportions that could not and cannot be addressed with the resources normally available to government.

In summary, the *COVID-19 Framework: Keeping Ontario Safe and Open* does not contain sufficient elements to meet the expected standards of public health strategic practice as described by the CPHA Conceptual Framework for Public Health and other documents and legislation. In the absence of a strategy that is comprehensive, clear, and comprehensible, the justification for the need to continue the emergency powers and any specific disruptive tactics is likely to be incomplete, unclear, and incomprehensible.