

*Courts of Justice Act*

**ONTARIO  
SUPERIOR COURT OF JUSTICE**

BETWEEN:

**RANDY HILLIER**

Applicant

-and-

**HIS MAJESTY THE KING IN RIGHT  
OF THE PROVINCE OF ONTARIO**

Respondent

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**AFFIDAVIT OF DR. JOEL KETTNER**

**SWORN THE 15th DAY OF DECEMBER, 2022**

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I, Dr. Joel Kettner, of the City of Winnipeg, in the Province of Manitoba, MAKE OATH AND SAY AS FOLLOWS:

1. I have personal knowledge of the facts and matters hereinafter deposed to by me, except where same are stated to be based upon information and belief, and those I do verily believe to be true.
2. Attached as **Exhibit "A"** hereto, is a copy of a report authored by me, which sets out the information and assumptions on which my reply to the Respondent's expert Reports is based and is a summary of my opinion.

SWORN REMOTELY by videoconference by )  
 Dr. Joel Kettner at the City of Winnipeg, in the )  
 Province of Manitoba, before me at the City of )  
 Brampton, in the Province of Ontario, this 15th )  
 day of December, 2022 in accordance with )  
 O.Reg. 431/20 Administering Oath or )  
 Declaration Remotely )

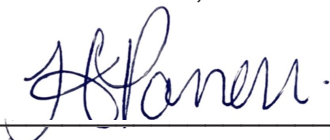


**HENNA PARMAR**  
Barrister & Solicitor



**DR. JOEL KETTNER**

This is **Exhibit “A”** referred to in the  
Affidavit of **Dr. Joel Kettner** sworn  
before me virtually this 15th day of  
December, 2022.

A handwritten signature in black ink, appearing to read "A. Panen", written over a horizontal line.

Barrister and Solicitor in the  
Province of Ontario

**Reply Report**  
Joel Kettner  
December 15, 2022

## **Introduction**

I have been asked to reply to the expert reports of Drs. McKeown and Hodge.

My response will address facts, opinions, and arguments expressed in their reports, - all of which, in my opinion, contain degrees of truth and reasonableness. I will do my best to objectively assess the degree of truth and the degree of reasonableness of their facts and opinions, regarding the questions that my report intended to answer. I will do my best to avoid being defensive or to hold stubbornly to my own opinions.

## **My approach for this report**

In my opinion, and as explained in my initial report, the following are expectations of good scientific and ethical public health practice:

- It is the onus of government and public health officials to explain the reasons for public health measures, especially those that impose restrictions on everyday life activities.
- These explanations should provide transparently sufficient and relevant data, information, evidence, analysis, and rationale to support their policies and interventions.
- Given the need to make decisions with incomplete data and evidence for any public health problem, – especially those that are new or emerging –decision-makers should describe and explain the estimates they have used to assess the magnitude of a threat and to assess the expected benefits and harms of interventions.
- For any specific intervention – whether or not it is part of a larger set of interventions - governments and its public health officials should provide sufficient data, information, evidence, analysis, and rationale to explain and justify the necessity and appropriateness of that intervention.

To justify a public health intervention for preventing a disease, it is incumbent on governments, public health officials, and their epidemiologists and other experts to estimate the severity of the disease threat – the burden of illness - and the expected benefits and harms of the intervention.

**Burden of illness.** In epidemiology, the basic science of public health practice, quantitative estimates are used to assess the burden or threat of illness. For example, a “serious” or “potential” threat or “high or higher” rate of transmission or death are qualitative terms open to interpretation and should be quantified. Quantitative descriptions include definitions,

measurements, and calculations. Epidemiologists and public health practitioners never have enough information to be certain or precise, but they are expected to make the most accurate reasonable estimates they can, based on scientific principles and empirical observation and evidence.

**Interventions.** Regarding interventions, qualitative i.e. non-quantified statements are open to interpretation. Questions of effectiveness in public health preventive interventions, similar to clinical treatment, are not binary. For epidemiologists and public health practitioners, it is not a matter of “do they work” or “are they effective”? It is the “effect size” that matters. An example statement is “Avoiding smoking reduces one’s probability of getting lung cancer by 90%”.

As explained in this report, I have not seen from the two experts or the Ontario government and their public health officials an estimate of the burden of illness associated with outdoor gatherings nor have I seen an estimate of the benefits and harms of restricting outdoor gatherings. Given the reduced probability of transmission in outdoor settings, these estimates should have included the potential harm caused by decreasing lower-risk activities and consequentially increasing alternate higher-risk indoor activities.

My report assessed - based on principles and ethics of public health practice - the adequacy of the justifications by government and its public health officials regarding its interventions.. I did not in my report propose alternative interventions. I did question the evidence or rationale for interventions, specifically the restriction of outdoor gatherings.

In this reply report, I will analyse and critique the expert reports regarding their judgment about sufficiency of the data, information, evidence, analysis, and rationale that were provided by government and public health officials to explain and justify the necessity and appropriateness of the restrictions of outdoor gatherings. When it is relevant to the matter at hand, I will analyze and critique their own use of data, information, evidence, analysis, and rationale, regardless of whether the experts have claimed that government or public health officials used them – privately or transparently.

### Summary of my opinions – both reports

Neither Drs. McKeown nor Hodge have addressed the question of whether Ontario government and public health officials have sufficiently provided data, information, evidence, analysis, and rationale to explain and justify the necessity and appropriateness of the intervention in question, namely restrictions of outdoor gatherings.

Instead, they both have provided opinions about facts that they believe justify the policies.

In my original report I was asked to answer the question “In your opinion, with respect to the government of Ontario and public health officials, what information *should* have been used and what issues should have been considered, to explain and justify restriction of outside gatherings? My answer listed five points:

- There should have been an estimate of the number and rate of direct and indirect transmissions causally associated with outdoor gatherings.

- There should have been an estimate of the number and rate of severe outcomes (hospitalizations and deaths) attributable to transmissions causally associated with outdoor gatherings.
- There should have been a quantitative estimate of the effectiveness of restrictions of outdoor gatherings to reduce transmissions and severe outcomes.
- In consideration of the above, there should have been an analysis and estimate of the number and rate of transmissions causally associated with alternative activities of people in comparison to attendance at an outdoor gathering.
- There should have been a description of the potential harms of the restriction policy including an estimate of the increased transmission resulting from participation in other activities.

In my opinion, they have not provided their opinions or answers to these questions. Of more relevance, they have not demonstrated and/or cited relevant and sufficient examples of answers to these questions provided by the Ontario government or its public health officials.

## Dr. McKeown's Report

### Section II. COVID and SARS-C0V-2

#### (i) Methods of SARS-CoV-2 Transmission

##### Paragraph 12

I agree with Dr. McKeown regarding the mentioned factors associated with transmission. There are quantitative data regarding transmission in different settings, but these have not been referred to. His statement “There is also evidence that indoor settings have a higher risk of transmission relative to outdoor settings, although (as discussed below) there remains a risk of transmission when people gather outdoors.” is a good example of a qualitative statement without quantitative data. In epidemiology, a risk – i.e. probability – should be estimated, for example, as one transmission per 10 person-hours of contact. Any level could be considered “a risk of transmission”. The logical scientific interpretation of the expression “there remains a risk...” is that the risk is not zero. It tells us nothing more.

I think that this is a good example of where Dr. McKeown has not provided evidence of “data, information, evidence, or analysis” used by Ontario government or public health officials to justify the restrictions on outdoor gatherings. He has provided an opinion regarding the existence of a risk for outdoor transmission, but he has not provided a quantified estimate. He has also stated that the risk of indoor transmission is higher than outdoor transmission. This is a quantitative comparison which could only be made, scientifically, by comparisons of two known or estimated quantified risks. Such risk estimates have not been provided by the Ontario government, its public health officials, or Dr, McKeown.

##### Paragraph 13

I am not clear about Dr. McKeown's point or its relevance to the conclusions of my report.

He stated: “The larger the gathering, the greater the likelihood that there will be individuals in that gathering who have SARS-COV-2 and will transmit the virus to others.” I could not find in Dr. McKeown's report an explanation or referenced evidence for this statement. The probability of transmission per attendee or per close contact, as explained in my response to Dr. Hodge's report, would not be expected to change regardless of the total number of people in attendance. Many other factors – spacing, activities, for example, which would vary by setting and context - would need to be analysed before drawing this conclusion. The issue is to estimate the rate of transmission per person at an outdoor gathering. One per hundred? One per 1,000? One per 10,000? These estimates can be made using the current incidence of new cases and the prevalence of infectious persons. They can also be made in consideration of the number of cases,

contacts or outbreaks associated with outdoor gatherings. I was unable to find such estimates in government documents or in the reports of the experts.

In paragraph 11, he stated that “Transmission occurs predominantly through close contact (2 meters or less) with an infected individual, but transmission over longer distances (more than 2 meters) is possible, although less common. In general, the closer a person is to someone infected with SARS-COV-2, the greater the likelihood of transmission.” These are reasonable statements. Dr. McKeown did not, however, include the other two factors used by Ontario and most other jurisdictions to determine whether a high-risk exposure has occurred, thus defining the criteria for identifying contacts to be followed up. These additional two criteria are 1) the duration of exposure (at least 15 cumulated minutes) and lack of a barrier (e.g. mask, plastic shield).

Would a larger gathering be associated with an increase in high-risk close contact exposures per person? It is not self-evident why that would be expected. Would a larger gathering be associated with a higher rate of high-risk close contact exposures? It is not self-evident why that would be expected.

#### Paragraph 15

It is unclear to me what Dr. McKeown means by screening for symptoms is “insufficient” because of the fact that transmission can occur as early as six days before the onset of symptoms (a number greater than that used for contact tracing). No screening method is perfect. The issue is to quantify the degree to which a screening method can accurately detect the presence of the target condition (e.g. COVID infectiousness), defined as “sensitivity” and to accurately detect the non-presence of (e.g. COVID infectiousness), defined as “specificity”. Although Dr. McKeown pointed out in paragraph 14 that coughing would be expected to increase transmission, he has not provided comparative information regarding infectiousness and transmission from people without symptoms and people with symptoms. Nor has he commented on the likelihood of infectious symptomatic people attending an outdoor rally. This is important because of the accepted fact that transmission is less likely to occur from people without symptoms and less likely to occur in outdoor environments. There are quantified estimates of these probabilities.

## (ii) Community Prevalence and Burden on the Healthcare System

### Paragraph 23

Dr. McKeown has not addressed the issue of comparative risk of transmission between settings. Where would the people at outdoor gatherings be if they were somewhere else? Alone? Without contact with others? Indoors with others? For what duration? It would be important to make an estimate of that because it could be that outdoor gatherings would be associated with a decreased rate of transmission. Even if outdoor gatherings were associated with an increased risk of transmission, it would be important to estimate that increase and consider that in the context of the frequency of attending such events and the duration of those events. For example, it is the onus of the policy makers to estimate what would be the increased risk and number of hospitalizations attributable to attending an outdoor gathering once a week for two hours. In my opinion, it behooves governments and their public health officials to provide their best estimate of the consequences attributable to attending outdoor public gatherings.

### Paragraphs 24 - 25

Although the accuracy of reports attributing deaths and hospitalization to COVID-19 have been questioned in scientific literature, I agree with Dr. McKeown that the issue of pressure on the healthcare system is important. This is true for COVID-19 and other causes of serious disease and injuries. Whether the actual burden is higher or lower than the reported rates, it is important to select the most effective and appropriate interventions that will have the most impact on the burden of illness. If Dr. McKeown is going to make the case that outdoor gatherings would measurably increase pressure on the health system, he should provide - or find in government documents - estimates of the size of that increase.

## III. The State of the Pandemic from December 2020 to May 2021

### (i) The State of Emergency in January 2021

#### Paragraphs 29-30

The increased transmissibility and severity of variants of SARS-CoV-2 have important implications for public health policies and interventions, but Dr. McKeown has not provided an estimate of the absolute risk of transmission of new variants of concern in outdoor settings and the rate of subsequent severe illness. Similarly, he has not provided a comparison – for variants of concern - of the probability of transmission in outdoor settings with indoor settings.

### (ii) The End of the State of Emergency in February 2021

#### Paragraphs 34-37



Dr. McKeown's data and graphs show the waves of the epidemic curves between March 1, 2020 and February 9, 2021. They also show the temporal association between the declaration of the state of emergency on January 12, 2021 and the rise and fall of the frequency of cases and hospitalizations.

Dr. McKeown does not provide an analysis or explanation for the descriptive data that he has shown. In epidemiology, it is important to distinguish descriptive studies and surveillance from analytic studies. Descriptive surveillance or studies show observed data and may include associations. When those associations are time related (i.e. before/after) they are referred to as temporal associations. Analytic studies examine the associations of descriptive studies to determine cause and effect. Temporal association does not necessarily equal causal association. Just because something (y) happens after something (x), does not necessarily mean that x is a cause of y or that x is the whole cause of y.

It would be unreasonable to expect that all of the change in rates of cases – i.e. the decline in the wave is explained causally by the state of emergency. It would be equally unreasonable to expect that none of the decline is attributable to the state of emergency. How much of the decline is attributable to one or more of the interventions is a more meaningful question.

Epidemic curves of respiratory illness are typically wave-like in their patterns, e.g. SARS-CoV-2 or influenza. However, the question of what would have happened without the state of emergency is not easy to answer given the absence of a control or comparator. Regardless, it is not the issue at hand.

More relevant to my report are the following questions:

- What was the burden of illness associated with transmission at outdoor gatherings?
- What was the necessity for and expected effectiveness of the intervention regarding the transmission of COVID-19 in outdoor gatherings.
- Did the government or public health officials show data, information, evidence, analysis, and rationale to justify the need for and the appropriateness of prohibiting outdoor gatherings?

I cannot find in Dr. McKeown's report answers to these three questions, the main questions which I sought answers for in my report.

### (iii) The Increase in COVID-19 Cases and Hospitalizations in March and April 2021

#### Paragraphs 38-45

Data described in these paragraphs show temporal associations between SARS-CoV-2 variants, burden of illness, hospitalizations, and public health interventions for the period March 1, 2020 to April 7, 2021.

As in the previous section, no description, analysis, or discussion is provided in the text of the paragraphs regarding the estimated attributable cause and effect of these associations. More specifically, there is no description, analysis, or discussion of the relevance of these associations – either qualitatively or quantitatively – to the burden of illness attributable to outdoor gatherings.

To determine the burden of illness associated with outdoor gatherings would require the surveillance and analysis of exposures in outdoor gatherings, using case/contact tracing data, outbreak investigations, hospitalized patients, and deaths.

### IV. The Risks of Gatherings and Out-of-Home Mobility in April and May 2021

#### Paragraphs 46-48

Without any references to reports or other evidence, Dr. McKeown describes in qualitative terms (e.g. “very likely”, “particularly high”), the frequency of transmission within households and between households and other settings during April and May, 2021. There are similar qualitative descriptions of the association of increased transmission and hospitalizations. These observations – stated as generally as they are – cannot be debated. Without clear definitions and quantification, terms such as “very likely” are subjective and are not debatable.

#### Paragraph 48

I agree with Dr. McKeown that masks and physical distancing are not sufficient to stop the spread of the virus. I don’t agree that there will “often be circumstances where physical distancing and masking are imperfect”. In reality, there will *always* be circumstances where physical distancing and masking are imperfect. None of these measures – masks, distancing, hygiene, talking quietly, vaccines, staying home from work or school – are perfect. The questions are neither “do they work at all” nor “do they work perfectly”? That is not the question that public health decision makers should ask themselves or tell the public. How much do they work – quantitatively – are the questions that need to be answered to justify their use, especially when there are harmful, if unintended consequences.

#### Paragraph 49 – 52 Risk factors for gatherings

Estimating the occurrence of transmission using contact tracing data does not require “accurate records of everyone that attended”, any more so than in any other setting, including the many settings in which outbreaks and cases have been tracked by Public Health Ontario as described in my report on pages 15-19. Determining the source of any one person’s infection can be challenging given the many possible contacts that may have occurred and the many settings in which these occurrences took place. Contact tracers focus on high-risk exposures and the settings in which they occurred. Identification of the source person is more likely in household and other settings where high-risk exposures to specific cases are identified, but the most likely setting in which transmission occurred can be estimated. Moreover, conclusions from contact-tracing regarding outbreaks are based on patterns of information. As pointed out in my report, I could find no reports of outbreaks (one or more occurrences of transmission) in outdoor gatherings. This, of course, does not prove that such transmissions have not occurred, but it does suggest that they have not been a frequent or significant occurrence, numerically, especially in comparison to the frequency of outbreaks in other settings.

#### Paragraph 53-55 Precautionary principle regarding VOC’s

I agree with Dr. McKeown that public health interventions should be based on precautions, especially when there is uncertainty about an evolving threat. But that does not change the expectation of transparent explanations of the risk assessment, based on rational use of pre-existing science and data.

For example, it was known and stated in Public Health Ontario’s “Risk Assessment Approach for COVID-19 Contact Tracing” dated September, 2022 that transmission in outdoor spaces was significantly lower than indoor, citing a study estimating an 18.7 fold increase in smaller confined spaces compared with larger spaces with adequate ventilation, as referred to on pages 9-10 of my report.

It should have been explained why a precautionary approach would not have included encouragement of outdoor activities of all kinds – instead of indoor activities - , including as appropriate, the use of distancing and masks, similar to other settings. One might think that the ability to observe and enforce their use would be more feasible in outdoor settings, a measure which might have been expected in a precautionary approach.

As pointed out in my report I was unable to find sufficient data, information, evidence, analysis or rationale which addressed these points. Nor have I been able to find that in the reports of Dr. McKeown or Dr. Hodge.

#### V. The Emergency Public Health Measures to Protect Ontario from COVID-19

##### Paragraphs 56-71

In these paragraphs Dr. McKeown provides a description of some of the history, context, restrictions, and rationale for the emergency public health measures. Many of his facts

and opinions are debatable, but I will only comment on those that are most relevant to outdoor gatherings.

In paragraph 57, Dr. McKeown states that the public health measures were informed by key indicators, including evidence of recent outbreaks.

There were no reports of outbreaks associated with outdoor gatherings.

In paragraph 67, Dr. McKeown states that “Every health protection measure implemented by Ontario was assessed on its own merits and the factors that apply in determining whether a measure is appropriate in one circumstance may not apply, or may not apply to the same degree, in another.”

In paragraph 68, Dr. McKeown states “When deciding whether to implement public health measures at the various stages of the pandemic, including the gathering limits and stay-at-home orders, Ontario considered the potential adverse impacts of those measures and weighed them against the urgent need to reduce the spread of COVID-19.”

These paragraphs and others in this section describe principles, indicators, concerns, and other considerations used to inform the implementation of Ontario’s public health measures. The considerations, in general, are all appropriate, in my opinion.

However, I cannot find in Dr. McKeown’s descriptions and explanations, any specific data, information, evidence, or analyses that should have been available and used to estimate, quantitatively the absolute and relative risks, cases, and severe cases that had been or would be associated with outdoor gatherings.

## Dr. Hodge's Report

### Section II. Overview

#### Paragraph 10

Dr. Hodge observes that his opinions are informed by the realities that public health advice and decisions are made with “imperfect information” and the “challenge of minimizing adverse effects of measures that establish limits on human behaviour.” I agree.

Referring to Ontario's plan for an influenza pandemic, he relates the matter of “imperfect information” to the assessment of severity, stating that “the severity may not be known until after an influenza pandemic is over.” The relevance of this is not clear to me, given that, the restrictions on outdoor gatherings were imposed in April, 2021 at which time the information on severity had been observed by surveillance for over one year.

There is no elaboration on the “challenge of minimizing adverse effects of measures that establish limits on human behaviour.”

#### Paragraph 11

The precautionary principle applies to any public health decision because certainty is neither an expectation nor a necessity for rational decision-making.

Regardless, the precautionary principle or the lack of certainty should not be used as justification to take action without an explanation of the data, evidence, estimates, and rationale used to make the decision. When the orders prohibiting outdoor gatherings were implemented in April, 2021, there had been more than one year of data regarding the risks of outdoor transmission of COVID-19.

#### Paragraph 12

I am not aware of “the burden model”. No reference has been provided.

I do not know of any model that “recognizes that it is generally appropriate to implement more restrictive public health measures when an infectious disease imposes a higher burden”. This implies that there is a correlation between the burden of an infectious disease and the need for restrictive public health measures. Such correlations, for example, have not, in my opinion, been observed for tuberculosis, polio or HIV/AIDS.

Other considerations would be expected - in addition to burden of illness - before any specific restrictive measure could be justified. For restrictions of outdoor gatherings, for example, an estimate of the absolute number of cases, outbreaks, and serious outcomes associated with that specific activity must be large enough to justify the need for restrictions. Another consideration is the proportion of outcomes attributable to that specific activity. If less than one per 1000 cases

can be attributed to outdoor public gatherings (see page 18 of my first report), one must ask why restrictive measures would be targeted at those activities. Given the likelihood that alternative higher-risk activities would be expected to replace the outdoor activities, that proportion is probably an over-estimate.

In other words, using Dr. Hodges “model”, the burden of illness should be estimated for the specific intervention that is under consideration.

### Paragraph 13

In this paragraph, Dr.Hodge states his opinion that it was reasonable to limit “gatherings” temporarily during the three waves referred to. His reasons appear to be the “burden model” elements – prevalence, incidence, concerns about hospital and ICU capacity, uncertainty about VOC transmissibility and severity, and the model’s “recognition that it is generally appropriate to implement more restrictive measures”.

Public health decisions are not made “generally” and do not use “burden” alone as a guide to imposing restrictive measures. Dr. Hodge’s opinion is not specific and it is not explained. Is he referring to all gatherings? Which gatherings has he considered causal of the “growing number of new cases”? What is his opinion about the “burden” caused by outdoor gatherings?

## Section IV. How is the virus transmitted?

### Paragraphs 22-24

I agree with Dr. Hodge’s descriptions of the transmission of COVID-19 can be occur from people without symptoms. But he does not compare their transmissibility with people that have symptoms. This is important because an infected person without symptoms has a lower probability of transmitting their infection, especially outdoors.

## Section V. What are the risk factors for transmission?

I could not find in paragraphs 25 - 31, any information specifically relevant to transmission in outdoor gatherings.

### Paragraph 25 - 26

As stated in earlier paragraphs, being indoors has a higher risk of transmission, but he has not provided data or estimates on the size of that difference.

### Paragraph 29

Dr. Hodge provides unspecified settings and hypothetical numbers and rates of transmissions to demonstrate the “network” effect from an “outbreak”. I believe that he means indirect or secondary transmissions resulting from transmission in a specific setting. For public health decision-making, the expected analysis is to estimate setting-specific infectiousness prevalence, the setting-specific exposures, and the probability of transmission. Again, there was no information provided specific to outdoor settings.

#### Paragraphs 30 - 31

The example used to demonstrate the “outbreak effect” and the “network effect” has not been described or analyzed by Dr. Hodge with respect to transmission in outdoor settings. Although Sturgis activities involve outdoor settings, there are also many indoor events. Without further details than those provided in this paragraph, one cannot draw conclusions about the settings or exposures that were associated with the observed cases in the “outbreak” or the “network”.

#### Section E. Why do limits on outdoor gatherings and mobility contribute to reducing COVID-19 transmission and harms from COVID-19?

The question is not why limits on outdoor gatherings reduce transmission of COVID-19. Theoretically, any activity in which people may have exposures has the potential for transmission. The question is how much transmission would be expected in outdoor gatherings.

#### Paragraph 34

Dr. Hodge’s statement that “even a low probability of transmission can generate large number of new infections” is indisputable. Public health decisions should be made based on estimated probabilities, not what can happen. No estimates are provided to quantify the words “increasing numbers”, “declining probability”, “less risk”, “low probability”, “large number”, “enough people”, and “high number”. There is no estimate of the “expected” rate of secondary infections.

These arguments reflect the type of limited and non-quantified information and explanations which I found on official websites of the Ontario government. They also demonstrate the absence or insufficiency of data, information, evidence, analysis, and rationale to explain and justify the necessity and appropriateness of the restrictions of outdoor gatherings.

#### Paragraph 36

That the absolute number of transmissions would be expected to increase when the prevalence of infectious persons increases is indisputable. Relative risk is useful to understand causation, but public health decisions are based on absolute risk in the population at risk. For example, if the probability of transmission at a two hour outdoor event is one per 5000, a doubling of the prevalence of infectiousness in the community, all else being equal, would be expected to increase that probability to one per 2,500. For gatherings of 100 people, it would take 25 events to produce an additional case. However, all else is not equal because the probability of transmission is higher for indoor settings. If attendees would have spent their two hours in indoor

settings, their presence at an outdoor setting would be expected to decrease the probability of transmission.

#### Paragraph 38

Dr. Hodge describes higher risk activities that may be associated with outdoor gatherings such as higher risk indoor gatherings and travel. This is an interesting hypothesis which requires analysis and estimation. The analysis would have to compare the frequency and risk of such activities with other events such as work, education, shopping, and other activities. It could use case and contact information that has been collected and entered into a database.

#### Paragraph 39

This paragraph, without any references, contains opinions that I have not heard or read at anytime in my career in public health.

It seems that Dr. Hodge is arguing that the necessity or effectiveness of specific public health measures such as mobility limitation cannot and should not be assessed. He states that “indulging in such studies of “NPI’s” would arguably be public health malpractice”.

I don’t know of any guideline or standard of public health decision-making that implies or states that public health measures should not be assessed. On the contrary, the implementation of measures – especially restrictive measures – can and should be assessed, estimated, and transparently explained to the public. Good and ethical public health practice requires it.



#### Paragraph 40

It is not clear what point is being made by Dr. Hodge in this paragraph or what evidence has been presented to make it.

It appears that he is drawing our attention to the difference in the cumulative crude death rates and “projected additional deaths” between Ontario and other countries that had less stringent temporary limits than Ontario.

He has not provided a description or analysis of the specific measures or “limits” used in each country, an operational definition of “stringent” or an estimate of the impact on mortality of these “temporary limits”.

#### SECTION VII. Do you agree or disagree with the affidavits of Dr., Warren and Dr. Kettner?

##### Dr. Kettner’s affidavit

#### Paragraph 49

Dr. Hodge appears to disagree that contact tracing could have been used to estimate the rate of transmissions associated with outdoor gathering. His stated reasons for this are:

- Lack of human resources to do the contract tracing
- Inaccuracy of information
- Presymptomatic transmission

Dr. Hodge has not provided evidence or references for his opinion. As referenced in my report, Public Health Ontario has tracked and analysed case counts in outbreaks associated with many settings. Based on the categories of settings, the maximum proportion of cases from outbreaks associated with outdoor gatherings was one per 1000. I was unable to find one report of an outbreak (>1 case transmission) associated with a public outdoor gathering.

A common method of epidemiological surveillance, when the number of cases is greater than the capacity, is to sample systematically a set of cases and extrapolate the numbers. When cases and contacts have been entered into a computerized database sampling is usually less necessary.

Regarding the validity and accuracy of information gleaned from contact tracing, I agree with Dr. Hodge that, like in all surveillance, the data are imperfect. Experts in surveillance have the knowledge and skills to make the best estimates they can from imperfect data, including accounting for asymptomatic or pres-symptomatic transmission.

#### Paragraph 51

With respect to references I cited that were dated after the April 8<sup>th</sup> order, I provide the following response:

Footnote 5

Regarding the CBC article dated April 10, 2021, footnote 6, it refers to information available before April 8, 2021, including the Trinity Bellwoods Park gathering in April, 2020, the date of which was erroneously printed in my report as April, 2021.

Footnote 6

The WHO document dated November 4, 2021 was the fourth update of a February, 2020 guidance for planning recommendations for mass gatherings.

Footnote 7

The WHO document referred to contains references to documents published between 2015 and March 1, 2021.

Footnote 8

The Journal of Infectious Diseases article was based on three references from 2020.

**RANDY HILLIER.**

and

**HIS MAJESTY THE KING IN RIGHT  
OF THE PROVINCE OF ONTARIO**

Respondent

Applicant

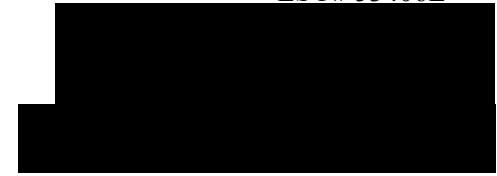
**Court File No.: CV-22-00682682-0000**

**ONTARIO  
SUPERIOR COURT OF JUSTICE**

Proceeding commenced at TORONTO

**AFFIDAVIT OF DR. JOEL KETTNER  
(REPLY)**

**SAYEH HASSAN**  
LSO# 53406E



**HENNA PARMAR**  
LSO#: 79119E



**CHRIS NAIMI**  
LSO#: 82829T



LAWYERS FOR THE APPLICANT