Kitchener Court File No.: CV-21-00000095-0000
St. Thomas Court File No.: CV-21-08
Welland Court File No.: CV-21-00013361-0000

ONTARIO
SUPERIOR COURT OF JUSTICE

B E T W E E N:

THE ATTORNEY GENERAL OF ONTARIO

Applicant

-and-

TRINITY BIBLE CHAPEL, JACOB REAUME, WILL SCHUURMAN, DEAN WANDERS, RANDY FREY, HARVEY FREY, and DANIEL GORDON

Respondents

A N D B E T W E E N:

HER MAJESTY THE QUEEN IN ONTARIO

Applicant

-and-

THE CHURCH OF GOD (RESTORATION) AYLMER, HENRY HILDEBRANDT, ABRAM BERGEN, JACOB HIEBERT, PETER HILDEBRANDT, SUSAN MUTCH, ELVIRA TOVSTIGA, and TRUDY WIEBE

Respondents

A N D B E T W E E N:

WELLANDPORT UNITED REFORMED CHURCH

Applicant

-and-

HER MAJESTY THE QUEEN AS REPRESENTED BY THE ATTORNEY GENERAL OF ONTARIO

Respondent

A N D B E T W E E N:

STEPHEN RICHARDSON

Applicant

-and-

THE ATTORNEY GENERAL OF ONTARIO

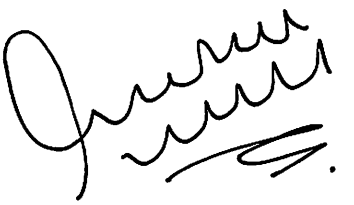
Respondent

AFFIDAVIT OF DRS. KARIM ALI and ZAIN CHAGLA
(Affirmed July 5, 2021)

I, DR. KARIM ALI of the City of [redacted] in the Province of Ontario, and I, DR. ZAIN CHAGLA of the City of [redacted] in the Province of Ontario, **AFFIRM**:

1. Dr. Ali's work address is [redacted]
2. Dr. Chagla's work address is [redacted]
3. At the request of counsel for the Attorney General of Ontario, we have provided an expert report regarding COVID-19 risk factors, transmission and public health measures. Our expert report is attached to this affidavit as **Exhibit "A"**. It details the specific questions counsel for the Respondent asked us to address within the report, our relevant expertise and the sources of our information.
4. We make this affidavit to provide our expert opinion and for no improper purpose. To this end, attached as **Exhibits "B"** and **"C"** are signed copies of our Acknowledgement of Expert's Duty. Attached as **Exhibits "D"** and **"E"** are the CVs of Drs. Ali and Chagla, respectively.

AFFIRMED by video conference by DR. KARIM ALI of the City of [redacted] in Regional Municipality of Niagara before me at the City of Toronto on this 5th Day of July, 2021 in accordance with O Reg 431/20, Administering Oath or Declaration Remotely



A Commissioner for the Taking of Affidavits

DR. KARIM ALI

AFFIRMED by video conference by DR. ZAIN CHAGLA of the City of Hamilton before me at the City of Toronto on this 5th Day of July, 2021 in accordance with O Reg 431/20, Administering Oath or Declaration Remotely

A Commissioner for the Taking of Affidavits

DR. ZAIN CHAGLA

Kitchener Court File No.: CV-21-00000095-0000
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TRINITY BIBLE CHAPEL ET AL., CHURCH OF GOD (RESTORATION) AYLMER ET AL., WELLANDPORT UNITED REFORMED CHURCH, and STEPHEN RICHARDSON

Applicants/Respondents

-and -

THE ATTORNEY GENERAL OF ONTARIO

Respondent/Applicant

ONTARIO
SUPERIOR COURT OF JUSTICE

(ST. THOMAS)

AFFIDAVIT OF DRS. KARIM ALI and ZAIN CHAGLA

THE ATTORNEY GENERAL OF ONTARIO
Civil Law Division
Constitutional Law Branch
720 Bay Street, 4th Floor
Toronto, ON M7A 2S9
Fax: 416-326-4015

Joshua Hunter (LSO #45037M)
[redacted]
Daniel Guttman (LSO #43748E)
[redacted]
Ryan Cookson (LSO # 61448D)
[redacted]
Maia Stevenson (LSO #82958S)
[redacted]
Counsel for the Respondent

This is "**Exhibit A**"
to the Affidavit of Drs. Karim Ali and Zain Chagla,
affirmed this 5th day of July, 2021

_____

A Commissioner, etc.

1) Generation of Report

a) The following report was generated by Dr. Karim Ali and Dr. Zain Chagla and represent the opinions of the authors alone, and clinical evidence to support these.

b) Both Dr. Ali and Dr. Chagla have experience in COVID-19 first hand, in the prevention and management of COVID-19 transmission, both from a patient and staff standpoint in their respective healthcare systems, as well as assisting with outbreak management in other congregate settings.

c) The questions asked of this report are:
   i) What is your background and expertise related to COVID-19 and its transmission?
   ii) What are the dangers of COVID-19, including dangers of variants?
   iii) What are the modes of transmission of COVID-19 and the risk factors for COVID-19 transmission?
   iv) How does the public health risk of permitting places of worship to open compare to the public health risks of permitting other indoor establishments or activities like retail, stores, bars, and film/TV production to open?

d) Materials reviewed include the submissions by Dr. Schabas, Dr. Kettner, and Dr. Warren.

2.1) Your background and expertise related to COVID-19 and its transmission - Dr. Zain Chagla

a) Dr. Chagla did his B.Sc and MD at Queen's University in Kingston. He completed a residency in Internal Medicine at Western University. He completed a fellowship in Infectious Diseases at McMaster University.

b) Dr. Chagla also completed a M.Sc in Infectious Diseases through the London School of Hygiene and Tropical Medicine. He also completed a diploma in Tropical medicine through the same institute, which was done in East Africa.

c) Dr. Chagla has tenure at McMaster University as an Associate Professor.

d) Dr. Chagla practices as an Infectious Diseases Physician at St. Joseph's Healthcare in Hamilton, with interests in General Infectious Diseases, Renal Transplantation, and Complex Respiratory Infections.

e) Dr. Chagla serves as Co-Medical Director of Infection Control at St. Joseph's Healthcare, Niagara Health System.

f) Dr. Chagla is a Consultant Infection Control physician at Woodstock General Hospital.

g) Dr. Chagla is Section Chair for Infectious Diseases for the Ontario Medical Association.

h) During the pandemic, Dr. Chagla has provided pandemic planning, contact tracing, outbreak management, data modelling, clinical care and support, and advisory services for St. Joseph's Healthcare Hamilton, Hamilton Public Health, Niagara Health Systems, and Woodstock General Hospital.

i) This included a significant amount of work around the transmission and management of COVID-19 in congregate settings, which provided experience on the spread of COVID-19 in indoor settings, and the management of transmission events from both staff and patients. There was also experience preventing transmission across healthcare institutions with over 4000 employees.

j) Dr. Chagla has worked on provincial guidelines for COVID-19 through Ontario Health on personal protective equipment, procedures and surgical guidelines, and operating assessment clinics.

k) Dr. Chagla has served on federal committees with relation to foreign travel, as well as ventilation.

l) Dr. Chagla has co-authored 16 peer reviewed papers on COVID-19 over the past 16 months, including epidemiology, testing, serological analysis, therapeutics, infection control, and vaccine efficacy.

m) Dr. Chagla has co-authored 12 editorials in national newspapers, and had over 100 media interviews over Canadian, American, and global networks relating to COVID-19.

n) Dr. Chagla has also served as a mentor for global COVID-19 responses in India, Afghanistan, and Nepal.

2.2) Your background and expertise related to COVID-19 and its transmission - Dr. Karim Ali

a) Dr Ali completed his MBBS from Ziauddin Medical University in Karachi, Pakistan.

b) Dr. Ali completed his Internal Medicine Residency at Hennepin County Medical Center in Minneapolis, MN. He completed his Infectious Diseases fellowship at Creighton University Medical Center and University of Nebraska Medical Center.

c) Dr. Ali joined Niagara Health in 2012.

d) Dr. Ali established the Division of Infectious Diseases at Niagara Health.

e) Dr.Ali was instrumental in establishing a system wide Antimicrobial Stewardship program at Niagara Health.

f) Dr Ali currently serves as the Director, Division of Infectious Diseases and Antimicrobial Stewardship Program at Niagara Health.

g) Dr. Ali is also the pandemic preparedness lead for Niagara Health at this time. In this role, he has been advising Niagara Health on COVID-19 since January 2020.

h) Dr. Ali has provided support with contact tracing, management of outbreaks, pandemic planning and clinical care of COVID 19 patients.

i) Together with Dr Chagla, Dr. Ali has been part of the outbreak management and response team at Niagara Health.

j) Dr. Ali is an Assistant Clinical Professor (Adjunct) at McMaster University.

k) Dr. Ali is involved in multiple national and international clinical trials for COVID-19 therapeutics.

l) Dr. Ali has done numerous local and national media interviews with regards to COVID transmission, treatment, epidemiology and vaccines.

3) Background information on COVID-19 and the dangers it poses, including dangers of variants

a) SARS-CoV-2 is a novel coronavirus that was first identified in the human population in Dec. 2019. This virus is responsible for the disease COVID-19. There are numerous other coronaviruses that circulate in the human population. After initial spread in 2019, SARS-CoV-2 rapidly spread across the globe and led to sustained human to human transmission. This led to the World Health Organization declaring it a pandemic in March 2020. Thus far this is the only known pandemic due to a coronavirus in human history.

b) A novel virus poses a significant threat, as there is no immunity to this virus at the population level. Time and again we saw health care systems being overwhelmed by a large number of people becoming sick with COVID-19 in a short period of time, overrunning the health care systems. This was seen in New York, Los Angeles, Italy, Brazil and is currently unfolding in India and other parts of the world.

c) While other coronaviruses do show a seasonal pattern, given the novel nature of SARS-CoV-2, it is too early to make sound inferences about seasonality. For example, the Middle East Respiratory Syndrome Coronavirus (MERS CoV), does not show a clear seasonality pattern (16).

d) Like other respiratory viruses, SARS-CoV-2 undergoes genetic mutations as it replicates. We saw this in March 2020 with the D614G variant which likely arose in the People's Republic of China and then spread throughout the world. With a significant amount of disease burden across the world, it was expected that other variants would emerge. This is due to the fact that genetic mutations do occur with every individual infected, and any mutation that gives the virus an advantage to infect large populations would cause that variant to predominate as more people became infected. Furthermore, as there is an increase in spread, infections in immunocompromised individuals, who have chronic infections, may then lead to the generation of further variants.

e) The first such variant of concern (VOC) was identified in Kent, UK around Sept. 2020. This VOC was known as B.1.1.7 and has recently been renamed SARS-CoV-2

variant Alpha. It is not only approximately 60% more transmissible, it also carries a higher likelihood of hospitalization, ICU admission and death (1).

f) SARS-CoV-2 variant Alpha rapidly spread across the globe and became the predominant strain.

g) By February 2021, SARS-CoV-2 variant Alpha had become the predominant strain in Ontario and has been largely responsible for the third wave in Ontario. Although, one must acknowledge that vaccinations would have mitigated much of this, unfortunately the federal government was unable to secure a sufficient supply of vaccines at the time.

h) A study of 26,314 people in Ontario testing positive for SARS-CoV-2 between February 7 and March 11, 2021 showed that 9,395 people (35.7%) infected with VOCs had a 62% relative increase in COVID-19 hospitalizations, a 114% relative increase in ICU admissions and a 40% relative increase in COVID-19 deaths compared to prior circulating COVID-19 strains (2, 15).

i) In recent weeks, another VOC, SARS-CoV-2 variant Delta, was identified in India and has now spread to over 80 countries across the globe. SARS-CoV-2 variant Delta is relatively more transmissible, with some estimates at a 40-60% increase in infectivity over the Alpha variant (3).

j) SARS-CoV-2 variant Delta also has an increased risk of hospitalizations especially amongst people who are not vaccinated, or have been vaccinated with just one dose at this time (3). It is projected that SARS-Cov-2 variant Delta will be the predominant strain in Ontario by July 2021. The best defence against this is to have our populations fully vaccinated. Until that objective can be achieved, the next-best defence is to drive down transmission by Non-Pharmaceutical Interventions ("NPI") (e.g, limiting the number of people who can attend indoor gatherings or religious services etc.)

4) Modes of transmission of COVID-19 and risk factors

a) Respiratory viruses in general are transmitted by inhalation of respiratory particles, or contamination of surfaces and subsequent inoculation by contact with mucous membranes. Viruses can enter through either the respiratory tract (nasal and oral cavities), or through direct contact with mucous membranes such as the eye.

b) The fomite (contact) based transmission route of SARS-COV-2 has likely not played a large role in ongoing transmission globally. Although studies have suggested initial viability of SARS-COV-2 on surfaces (4), more recent analysis of high burden areas such as intensive care units show very little viral seeding of the environment (5). Based on this, the CDC has updated guidance identifying this as low risk (6).

c) With regards to respiratory transmission, SARS-COV-2 is generally transmitted by small respiratory droplets[1], leading to transmission typically within close contacts of an infected case (7). In most settings, transmission occurs within close contacts, particularly in close proximity (<2 meters). This has led to many of the precautions

[1] In limited circumstances, SARS-COV-2 is transmitted by aerosols. See para d) *infra*.

we see in day to day life including physical distancing, which is used to mitigate that risk. The use of masking, particularly in indoor settings, is meant to block the flow of respiratory droplets from the source, particularly in the context of individuals who are infectious prior to their symptom onset (presymptomatic) or people without symptoms.

d) In poorly ventilated spaces, particularly with long interactions, and with behaviours that generate increasing respiratory particles such as coughing, singing, talking, yelling, or breathing heavily, there has been aerosol based transmission of the virus. Such events have led to spread over increased distance over 2 meters, as well as to large degrees of people becoming infected in one setting.

e) The initial Skagit choir in Washington was a noted occurrence where 50-80% of individuals at the event were infected in a single event, likely worsened by high aerosol generation and ventilation (8).

f) A choir singer in an Australian church likely infected 12 individuals as far as 15 meters away from the source (9).

g) Other long range occurrences have been noted in a restaurant (10) and a bus (11), supporting longer range transmission in particular settings, with higher than normal attack rates.

h) Dr. Shabas notes in his materials that large indoor gatherings can contribute to the spread of COVID-19, but then also notes that evidence-based policies are lacking, and the larger impact of COVID-19 transmission is unknown. This would be contrary to the wealth of experience of superspreading events, such as the Skagit choir (8).

i) While mitigation measures such as masking and physical distancing do offer a pathway to minimize risk, they are fallible, and can still lead to transmission. In Ontario to date, there have been 213 outbreaks occurring in settings categorized as "other recreational" which includes religious congregations, each one involving several cases. With secondary transmission of the variants of concern being up to 12% for household members (3), and increasing social nodes of contact due to loosening restrictions, there likely have been further secondary cases generated from each of these known cases.

j) On top of the risks of transmission within a facility due to masking and physical distancing, the amount of COVID cases in the community also affect the risk of transmission. If there are increasing cases in the community, there is an increased risk of an individual entering a facility while asymptomatic or presymptomatic.

k) Even with this case data in mind, we also recognize that these numbers vastly underestimate risk, as many cases are not diagnosed due to minimal symptoms or a lack of access to testing, and appropriate contact tracing is not initiated unless outbreaks are recognized. Finally, even the mitigation measures such as masks and physical distancing are not perfect, as individuals may not wear well-fitting masks, ventilation may be suboptimal, and screening for active COVID-19 symptoms may miss people who are still infectious or who minimize their symptoms.

l) Dr. Warren's report notes that Canadian and Ontario COVID-19 data shows a small absolute number of cases associated with religious services. However, that data was collected during periods when there were regional controls in place to minimize the spread of COVID-19 in many provinces, many of which included restrictions on the size of religious gatherings. The paradox in public health is as cases are controlled and reduced through public health interventions, they are not accounted for as they are effectively prevented, and data is drawn from the "tip of the iceberg" of the cases that broke through. It is difficult to model the impact of not having public health measures against mechanisms of transmission.

m) Dr. Warren points to a paper on a randomized clinical trial of mask use for example (18) but this study was not used to assess the use of universal masking as a source control (i.e. as a method to reduce the user's shedding of aerosols and droplets to the environment), rather, the study only looked at the use of masking as personal protective equipment (i.e as a method to block aerosols and droplets from being inhaled by the user), which significantly underestimates the effect of masking on the overall reduction of transmission.

n) A randomized control trial would be ideal in this setting as Dr. Warren recognizes, however, the practicality of this within the context of a global pandemic is difficult. However, larger natural history studies comparing non-pharmaceutical interventions in the first wave showed cancellation of large and small gatherings, and minimization of gatherings to < 10 had significant impacts on reproductive rates (12, 13), which likely did have larger effects in pandemic prevention.

o) Dr. Kettner tries to approximate risk of infectivity by describing the local context of COVID-19, and approximating that to the risk of an individual being asymptomatic or presymptomatic on the day of attending a congregation. However, this approach underestimates the fact that a) many cases are undiagnosed, b) individuals are not truthful with screening, and c) presymptomatic transmission is a significant risk factor for spread. Finally, Dr. Kettner approximates his numbers from outbreaks in Ontario at the time, but only recognizes outbreaks where multiple cases acquired COVID-19 from a common link. There are still a significant number of cases in Ontario where no link is identified, and it is highly variable if contact tracing would identify these links in the community. This is due to the fact that contact tracing relies on self-reported data, and overwhelmed public health units may not trace individuals outside of very high risk facilities (eg hospitals, long term care, and workplaces), and the pattern of a common link between a number of cases is not easily recognized. In these circumstances, one could have acquired COVID-19 at a congregate facility like a church, but not attributed transmission to the church given the lack of contact tracing.

p) Adding to this underestimation of risk is the impact of overdispersed transmission. In large contact tracing studies, 20% of cases account for the bulk of transmission, particularly in superspreader events. This is magnified by the variants of concern. In the right environment with poor physical distancing, and high aerosol production, superspreader events can occur. The Skagat choir example had a 50-80% attack rate with a single exposure including deaths (8). Cumulatively these cases can also go back and infect community members, thereby worsening an outbreak.

5) How does the public health risk of permitting places of worship to open compare to other indoor establishments or activities like retail, stores, bars, and film/TV protection to open?

a) Prior to assessing risk, the major component of what can remain open relates to the ability to care for patients in acute care. When hospitals are overwhelmed with COVID-19, the ability to care for patients, both with COVID-19 and with other medical issues becomes compromised.

b) For example, at the peak of the 3rd wave in Ontario there were 891 people in Intensive care units. This required the halting of elective surgery, redeployment of healthcare staff into critical care units, transferring patients throughout the province to balance out hospitals dealing with surges, and the potential invocation of a triage protocol to limit access to intensive care units for those with the best prognosis.

c) During this interval, any pressures on the community leading to further transmission would have been devastating for providing healthcare to the community.

d) More generally, assessing risk in an individual setting requires an examination of the hierarchy of controls, which is a core principle of infection prevention and control (14).

e) Elimination is the most important element, and in the context of high transmission, may include closure of higher risk settings. While screening may offer the ability to eliminate symptomatic cases, presymptomatic cases often present the highest viral loads, and hence, may not be eliminated by a symptom screen.

f) Substitution Controls involve replacing the hazard. Engineering Controls involve isolating people from the hazard, and Administrative Controls involve changing the way people work. These types of control broadly encompass measures to prevent the spread of COVID-19 in environments, such as physical distancing, ventilation, prioritizing outdoor settings, minimizing capacity limits, cleaning and hand hygiene. These are important but less effective than Elimination in preventing the spread of infectious pathogens.

g) Personal protective equipment, such as the use of well fitted masks, may decrease the acquisition of COVID-19, as well as reduce the shedding of the user if they are unknowingly infected. While this has been an important measure, the effectiveness may be less than the measures above. For example, a meta-analysis showed masked use reduced the odds of infection by 85% with mask use, but 90-95% lower with physical distancing (17).

h) The decision to close or keep open across the province varied, but did have commonalities amongst settings with risk. For example, outdoor settings were considered much safer than indoors due to better ventilation. Capacity limits were used to mitigate transmission in retail settings.

i) Indoor settings often had a gradient of risk based on capacity, ventilation, controls, the ability to mask, and the production of aerosols through singing, talking, or heavy breathing.

j) In periods of harder "lockdowns", measures were put in place to limit the spread of COVID-19, using the risk profile above, and evaluating the essentialness of particular environments. It is outside of the scope of this report to determine what is considered essential, recognizing that the provision of food, essential goods, and medical care are very high on the list.

k) Ultimately, safety in settings opened during periods of high case transmission was related to the hierarchy of controls, particularly in the ability to operate safely while physical distancing, masking, having appropriate ventilation, screening, provide case and contact management, and the essential nature of work. These were the factors used by public health units, along with the health systems capacity, and the ability to contact trace cases effectively to determine what restrictions to impose.

l) Ultimately, settings such as restaurants and bars, had to either mitigate risk (such as by the use of patios, curbside pickup, and delivery), implement significant capacity restrictions or face closure during the highest periods of transmission.

m) Some businesses, such as film and TV used personal protective measures and serial testing in order to operate workplaces effectively. I have read the affidavit of Justin Cutler. As a result of COVID-19 health and safety measures in the last four months of 2020, 25 major MPA productions in Ontario administered more than 132, 938 PCR tests, with an overall positivity rate of 0.06%. This positivity rate was significantly less than the test positivity rate of between 0.6 and 9.7% for the general population at that time. Every positive test has been identified through testing without any further spread in the workplace.

n) While Dr. Warren asserts that there is no evidence for lockdown measures prior to COVID-19, a number of studies comparing non-pharmaceutical interventions do show differences between lockdowns, business closures, and low capacity limits for reductions of the community reproductive rate.

o) While Dr. Schabas compares the ability to keep a liquor store open and a church closed, it is important to remember that members of the public face lower risk in a liquor store or other retail setting given the transient nature of the gathering in those locations compared to religious gatherings.

6. Conclusion

a) Thank you for the opportunity to provide this report.

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This is "**Exhibit B**"
to the Affidavit of Drs. Karim Ali and Zain Chagla,
affirmed this 5th day of July, 2021

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A Commissioner, etc.

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Respondents

A N D B E T W E E N:

WELLANDPORT UNITED REFORMED CHURCH

Applicant

-and-

HER MAJESTY THE QUEEN AS REPRESENTED BY THE ATTORNEY GENERAL OF ONTARIO

Respondent

A N D B E T W E E N:

STEPHEN RICHARDSON

Applicant

-and-

THE ATTORNEY GENERAL OF ONTARIO

Respondent

ACKNOWLEDGMENT OF EXPERT'S DUTY

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1. My name is Dr. Karim Ali. I live in the City of [redacted] in the Province of Ontario.

2. I have been engaged by the Attorney General of Ontario to provide evidence in relation to the above-noted court proceeding.

3. I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:

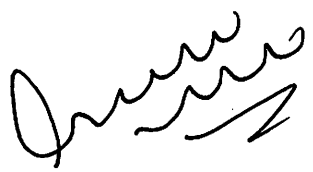
(a) to provide opinion evidence that is fair, objective and non-partisan;

(b) to provide opinion evidence that is related only to matters that are within my area of expertise; and

(c) to provide such additional assistance as the court may reasonably require, to determine a matter in issue.

4. I acknowledge that the duty referred to above prevails over any obligation which I may owe to any party by whom or on whose behalf I am engaged.

Date: July 5th, 2021



Dr. Karim Ali

This is "**Exhibit C**"
to the Affidavit of Drs. Karim Ali and Zain Chagla,
affirmed this 5th day of July, 2021

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A Commissioner, etc.

Kitchener Court File No.: CV-21-00000095-0000
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ONTARIO
SUPERIOR COURT OF JUSTICE

BETWEEN:

THE ATTORNEY GENERAL OF ONTARIO

Applicant

-and-

TRINITY BIBLE CHAPEL, JACOB REAUME, WILL SCHUURMAN, DEAN WANDERS, RANDY FREY, HARVEY FREY, and DANIEL GORDON

Respondents

AND BETWEEN:

HER MAJESTY THE QUEEN IN ONTARIO

Applicant

-and-

THE CHURCH OF GOD (RESTORATION) AYLMER, HENRY HILDEBRANDT, ABRAM BERGEN, JACOB HIEBERT, PETER HILDEBRANDT, SUSAN MUTCH, ELVIRA TOVSTIGA, and TRUDY WIEBE

Respondents

AND BETWEEN:

WELLANDPORT UNITED REFORMED CHURCH

Applicant

-and-

HER MAJESTY THE QUEEN AS REPRESENTED BY THE ATTORNEY GENERAL OF ONTARIO

Respondent

AND BETWEEN:

STEPHEN RICHARDSON

Applicant

-and-

THE ATTORNEY GENERAL OF ONTARIO

Respondent

ACKNOWLEDGMENT OF EXPERT'S DUTY

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1. My name is Dr. Zain Chagla. I live in the City of [redacted] in the Province of Ontario.

2. I have been engaged by the Attorney General of Ontario to provide evidence in relation to the above-noted court proceeding.

3. I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:

(a) to provide opinion evidence that is fair, objective and non-partisan;

(b) to provide opinion evidence that is related only to matters that are within my area of expertise; and

(c) to provide such additional assistance as the court may reasonably require, to determine a matter in issue.

4. I acknowledge that the duty referred to above prevails over any obligation which I may owe to any party by whom or on whose behalf I am engaged.

Date: 2021/7/5

Dr. Zain Chagla

This is "**Exhibit D**"
to the Affidavit of Drs. Karim Ali and Zain Chagla,
affirmed this 5th day of July, 2021

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A Commissioner, etc.

Dr. Karim Firdous Ali
[redacted]

Email: [redacted]

PROFILE
Infectious Diseases and Internal Medicine Physician with experience in general infectious diseases, antimicrobial stewardship & pandemic preparedness.

APPOINTMENTS
Staff Physician, Division of Infectious Diseases & Internal Medicine, Niagara Health - **2012- present**

Director, Division of Infectious Diseases Niagara Health - **2014- present**

Director Antimicrobial Stewardship Program, Niagara Health - **2014-present**

Pandemic Preparedness Lead, Niagara Health- **January 2020-present**

ACADEMIC APPOINTMENT
Assistant Clinical Professor of Infectious Diseases (Adjunct)
McMaster University DeGroote School of Medicine - **2014-present**

EDUCATION
MB, BS Ziauddin Medical University, Karachi, Pakistan - **2004**

POSTGRADUATE TRAINING
Internal medicine residency, Hennepin County Medical Center, Minneapolis, Minnesota - **2007-2010**
Infectious diseases fellowship. Creighton University-University of Nebraska Medical Center, Omaha, Nebraska - **2010-2012**

MEDICAL CERTIFICATION AND LICENSURE
United States Medical Licensing Examination. #06738363 - **2006**
Educational Commission for Foreign Medical Graduates. #06738363 - **2006**
Advanced Cardiac Life Support, American Heart Association - **2020**
Diplomate, Internal Medicine. American Board of Internal Medicine. #309784 - **2010**
Independent License College of Physicians and Surgeons of Ontario. # 99307 - **2012**
Diplomate, Infectious Diseases, American Board of Internal Medicine - **2013**

HONORS
Graduated medical school with honors - **2004**

PROFESSIONAL EXPERIENCE
Observer, Department of Hematology-Oncology, Shaukat Khanum Memorial Cancer Hospital and Research Center, Lahore, Pakistan - **2005**
Observer, Infectious diseases service, Jackson Park Hospital, Chicago, Illinois - **2005 -2006**

PROFESSIONAL SOCIETY MEMBERSHIPS
Infectious Disease Society of America, Member
Ontario Medical Association
Canadian Medical Association
Association of Medical Microbiology and Infectious Diseases, Canada, Member

REVIEWER
Journal of Pakistan Medical Association, student editor - **2002-2004**

PROFESSIONAL COMMUNICATIONS AND PUBLICATIONS
Ali KF, Fawad A. Complications of TURP: Do Comorbidities Have a Role? **2003**. Pakistan Association of Urological Surgeons, Yearly Meeting, Karachi, Pakistan

Ali KF, Rausch D. Intramedullary Buffet: A Case of Hemophagocytic Lymphohistiocytosis. **2007**. American College of Physicians, Minnesota Chapter meeting, Minneapolis, Minnesota

Wirt J, Ali KF, Rausch D. Case of Clear Cell Sarcoma in an HIV Positive Patient. **2008**. American College of Physicians, Minnesota Chapter meeting, Minneapolis, Minnesota

Ali KF. Transplant Infections, 3rd Edition (Book Review), **2010**. Doody Enterprises

Ali KF, Preheim LC, Neemann K. A Disturbing Case of Diplopia. **Feb. 16, 2011**. Creighton University Internal Medicine Grand Rounds, Omaha, Nebraska

Fleming, D, Ali, KF et al. When Antimicrobial Stewardship Isn't Watching: The Educational Impact of Critical Care Prospective Audit and Feedback. Open Forum Infectious Diseases, Volume 3, Issue 3, **Summer 2016**

RESEARCH
Resident Research Project. Effects of bortezomib on NK cell functions. **2008**. Laboratory of Dr.Jeffrey Miller, University of Minnesota.

Third-year Resident Project. Isolation of Echinococcus granulosus DNA from hydatid cyst. **2010**. Project supervisor Glen T. Hansen, Hennepin County Medical Center

Principle Investigator, Niagara Health, Medical Masks vs N95 Respirators to prevent 2019 Novel Coronavirus Disease (COVID-19) in Health Care Workers: A Randomized Controlled Trial. **August 2020- Present**

Co Principle Investigator, St Catharines Site, BALANCE (Bacteremia Antibiotic Length Actually Needed for Clinical Effectiveness) Trial. This is a multinational trial looking at length of treatment and outcomes in patients with bacteremia. **2018- Ongoing**

Co Principle Investigator, LOVIT-COVID (Lessening Organ Dysfunction with Vitamin C- COVID) **Oct 2020-Present**

Co Principle Investigator, Niagara Health, CATCO (Canadian Trials for COVID), Part of WHO Solidarity trial **July 2020-Present**

Co Principle Investigator, Niagara Health, VIRTUES (COVID 19 Virtual Care at Home) **Oct 2020- Present**

Co Principle Investigator, Niagara Health CONCOR-1 (A randomized open label trial of Convalescent Plasma for Hospitalized Adults with Acute COVID-19 Respitatory Illness) **September 2020- Present**

VOLUNTEERING

Positive living Niagara in their Streetworks? Harm Reduction program **August 2019- Present**

Deputy Pandemic Response and Public Health, The Aga Khan Health Board for Canada. **May 2020-Present**

This is "**Exhibit E**"
to the Affidavit of Drs. Karim Ali and Zain Chagla,
affirmed this 5th day of July, 2021

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A Commissioner, etc.

Dr. Zain Chagla

[redacted]

PROFILE

Infectious Diseases Physician with clinical, research, education, and leadership experience

APPOINTMENTS

Associate Professor, Department of Medicine, McMaster University — 2014-present
Prior Assistant Professor 2014-2019

Chair of Assessments, McMaster University — 2018 - 2020
Postgraduate Internal Medicine Program

Infectious Diseases and Internal Medicine Consultant, St. Josephs Healthcare and Hamilton Health Sciences — 2014-present
Specialization in general infectious diseases, transplantation, and global health

Medical Director, Infection Control, St. Joseph's Healthcare Hamilton - 2016-present
Consultative services, outbreak management, and policy planning for local and regional infection control strategy.

President, Medical Staff Association, St. Joseph's Healthcare Hamilton - 2021

COVID-19 Response 2020-2021
Co-Chair, Regional Subject Matter Expert Committee
Co-Chair, Metrics Evidence and Surveillance Committee, City of Hamilton
Consultant, St. Joseph's Hospital IMS, Pandemic Operations, Vaccination Committee
Consultant, Ontario Health Guidelines for PPE, Surgical Infection Control, Assessment Centers, Clinical Treatments
Consultant, CADTH Guidelines on Ventilation
Consultant, Canadian Parliamentary Hearing on Airline Travel in the Pandemic

Medical Director, Infection Control, Niagara Health System - 2019-present
Consultative services, outbreak management, and policy planning for local and regional infection control strategy.

Consultant, Infection Control, Woodstock General Hospital – 2019-Present
Consultative services, outbreak management, and policy planning for local and regional infection control strategy.

Invited Lecturer, University of Namibia - 2014-present
Undergraduate lectures, curriculum and examination development, planning and policy for postgraduate medical education.

Lecturer, McMaster Masters of Global Health Program 2015-present

Member, McMaster Institute for Infectious Diseases Research 2020-present

Locum Hospitalist, Thunder Bay Regional Health Sciences Centre — 2013-2020

Consultant, Hamilton Public Health Sexual Health Program —2013-2016

EDUCATION

Fellowship, Infectious Diseases, McMaster University — 2014
FRCPC Infectious Diseases

M.Sc Infectious Diseases, London School of Hygiene and Tropical Medicine — 2012

Diploma, Tropical Medicine and Hygiene, London School of Hygiene and Tropical Medicine (East Africa Program – Tanzania/Uganda) — 2013

Residency, Internal Medicine, Western University — 2012
FRCPC Internal Medicine

Medical Doctor, Queen's University — 2009

B.Sc in Life Sciences, Queen's University — 2005

Healthcare Leadership for Physicians Certificat, McMaster CME – 2019

MEMBERSHIPS

Ontario Medical Association
Chair – Section of Infectious Diseases

Infection Prevention and Control Canada

AMMI Canada

GRANTS

W. Watson Buchanan AFP Clinician Educator Award, Grant, McMaster University, Education Research

PUBLICATIONS

The BNT162b2 (BioNTech/Pfizer) vaccine had 95% efficacy against COVID-19 ≥7 days after the 2nd dose. Chagla, Z. Ann Intern Med. 2021 Feb 2

The efficacy and safety of hydroxychloroquine for COVID-19 prophylaxis: A systematic review and meta-analysis of randomized trials. PLoS ONE. 2021 Jan 6;16(1)

Canadian consensus of COVID-19 policy and management aspects. Tsang K, Mertz D, Chagla Z, Smaill F, Khan S. OFID. 2020 Dec 31;7:S312–3.

Desperate times call for evidence-based measures: Prioritizing science during the COVID-19 pandemic. Chagla Z, Laupland KB, Schwartz IS. Official Journal of the Association of Medical Microbiology and Infectious Disease Canada. 2020 Oct;5(3):127–9.

Tocilizumab versus the Covid19 tempest: All's well that ends well or much ado about nothing? Lee TC, Butler-Laporte G, Chagla Z, McDonald EG. Clinical Microbiology and Infection. 2020 Sep;

International Hospital and Community Epidemiology Group. Re: It Is Time to Address Airborne Transmission of COVID-19. Chagla Z, Hota S, Khan S, Mertz D. Clinical Infectious Diseases. 2020 Aug 11.

A regional Canadian expert consensus on recommendations for restoring exercise and pulmonary function testing in low and moderate-to-high community prevalence coronavirus disease 2019 (COVID-19) settings. Khan S, Tsang KK, Mertz D, Dolovich M, Tunks M, Chagla Z, et al. Infect Control Hosp Epidemiol. 2020 Nov 20;1–3.

Novel coronavirus COVID-19: current evidence and evolving strategies. C Vannabouathong, T Devji, Z Chagla, et al. The Journal of bone and joint surgery. 102 (9). 723. 2020.

Utility of asymptomatic inpatient testing for COVID-19 in a low-prevalence setting: A multicenter point-prevalence study. Bai AD, Li XX, Alsalem M, Khan S, Smieja M, Mertz D, Chagla, Z. Infect Control Hosp Epidemiol. 2020 Jul 22;1–3.

Safety of Hydroxychloroquine among Outpatient Clinical Trial Participants for COVID-19. S Lofgran, M Nichol, Z Chagla, et al. OFID. 7(11):Nov 2020

Development of a serological assay to identify SARS-CoV-2 antibodies in COVID-19 patients [Internet]. Infectious Diseases (except HIV/AIDS); Huynh A, Arnold DM, Kelton JG, Smith JW, Moore JC, Chagla Z, et al. medrxiv. 2020 Sep

Cryptococcemia presenting as an opportunistic infection due to chronic visceral leishmaniasis. K Gregory Miller, Z Chagla, D Yamamura, P El-Helou. JAMMI. 4(3). 44-48. 2019.

Distribution of hepatitis B virus infection in Namibia. P Mhata, TW Rennie, LF Small, PM Nyarang'o, Z Chagla, CJ Hunter. SAMJ: South African Medical Journal 107 (10), 882-886. 2017.

Successful use of intrathecal colistin in the treatment of Pseudomonas aeruginosa ventriculitis. JAMMI. D Whellams, Z Chagla, N Irfan. 2(1),93-96. Sep 2017.

Z Chagla, D Siegal, P El-Helou, W Lim, J Rudkowski. Severe Acute Cytomegalovirus Infection Complicated by Disseminated Intravascular Coagulation and Pneumonitis in a Healthy Female. Canadian Journal of General Internal Medicine 10 (4). 2016.

F AlMutawa, D Leto, Z Chagla. Disseminated Cryptococcal disease in non-HIV, nontransplant patient. Case reports in infectious diseases. 2016.

L Jiao, Z Chagla, RM Kaki, G Gohla, M Smieja. Case report of necrotizing fasciitis associated with Streptococcus Pneumoniae. Canadian Journal of Infectious Diseases and Medical Microbiology (2016).

Z Chagla, AK Boggild, S Chakrabarti. A venomous visitor from the tropics. Canadian Journal of Infectious Diseases and Medical Microbiology. 26(5):243-244. 2015.

Z Chagla, N Aleksova, J Quirt, J Emery, C Kraeker, S Haider. Melioidosis in a returned traveller. Canadian Journal of Infectious Diseases and Medical Microbiology.. 25(4):225-226. 2014.

Z Chagla, J Quirt, K Woodward, J Neary, C Rutherford. Chronic norovirus infection in a transplant patient successfully treated with enterally administered immune globulin. Journal of Clinical Virology. 58(1):306-8. Sep 2013.

Z Chagla, M Salvadori, J M Sontrop, M John, Z Hussain, Y Chagla, B Warshawsky, C Achiam, B Thompson. Genetically typed community-acquired methicillin-resistant Staphylococcus aureus in a Canadian hospital. Canadian Journal of Infectious Diseases and Medical Microbiology. 20(3):E113-114. 2009.

TEXTBOOK CHAPTERS

McMaster Textbook of Internal Medicine – CNS Infections, Mediastinitis, COVID-19. Published 2020.

McMaster COVID-19 Survival Guide, 2020