File No. CI 20-01-29284

THE QUEEN'S BENCH
Winnipeg Centre

APPLICATION UNDER: *The Constitutional Questions Act*, C.C.S.M., c. 180

AND UNDER: The Court of Queen's Bench Rules, M.R. 553/88

IN THE MATTER OF: *The Public Health Act*, C.C.S.M. c. P210

B E T W E E N:

GATEWAY BIBLE BAPTIST CHURCH, PEMBINA VALLEY BAPTIST CHURCH, REDEEMING GRACE BIBLE CHURCH, THOMAS REMPEL, GRACE COVENANT CHURCH, SLAVIC BAPTIST CHURCH, CHRISTIAN CHURCH OF MORDEN, BIBLE BAPTIST CHURCH, TOBIAS TISSEN, ROSS MACKAY

Applicants,

- and -

HER MAJESTY THE QUEEN IN RIGHT OF THE PROVINCE OF MANITOBA, DR. BRENT ROUSSIN in his capacity as CHIEF PUBLIC HEALTH OFFICER OF MANITOBA, and DR. JAZZ ATWAL in his capacity as ACTING DEPUTY CHIEF OFFICER OF HEALTH MANITOBA

Respondents.

AFFIDAVIT OF JAMES BLANCHARD
AFFIRMED: APRIL 20, 2021

DEPARTMENT OF JUSTICE
Constitutional Law Branch
[redacted]

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Respondents.

AFFIDAVIT OF JAMES BLANCHARD

I, JAMES BLANCHARD, of the City of Winnipeg, in the Province of Manitoba,

AFFIRM 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 in those I do verily believe to be true.

2. I am currently a Professor in the Department of Community Health Sciences, University of Manitoba, a position I have held since 2010. I am also the Canada Research Chair in Epidemiology and Global Public Health and am the Executive Director of the Institute for Global Public Health, University of Manitoba. I obtained my medical degree from the University of Manitoba in 1986. I also have a Masters Degree in Public Health from the Johns Hopkins School of Hygiene and Public Health, obtained in 1990 and Ph.D. in Epidemiology from the Johns Hopkins University, obtained in 1997. My curriculum vitae is attached hereto and marked as Exhibit "A" to this my affidavit.

3. At the request of Manitoba Justice, I have prepared a report that is limited to replying to the report of Dr. Joel Kettner, dated April 1, 2021. I acknowledge that in preparing this report, my role is to assist the court to determine the matters in issue. I further acknowledge that it is my duty to provide evidence that is fair, objective and non-partisan and to opine only on matters that are within my area of expertise. This duty prevails over any obligation that I may owe to any party on whose behalf I am engaged. My reply report is attached hereto and marked as Exhibit "B" to this my affidavit.

4. I make this affidavit bona fide.

AFFIRMED before me in the City of Winnipeg, in the Province of Manitoba, this 20th day of April, 2021.

A Barrister-at-law entitled to practice in and for the Province of Manitoba

JAMES BLANCHARD

This is Exhibit "A" referred to in the Affidavit of James Blanchard affirmed the 20th day of April, 2021.

A Barrister-at-law entitled to practice in and for the Province of Manitoba.

CURRICULUM VITAE

James Frederick Blanchard

PERSONAL INFORMATION

Data of Birth: [redacted]

Address: Department of Community Health Sciences
[redacted]

E-mail:

CURRENT POSITIONS

April, 2010	Professor, Department of Community Health Sciences, University of Manitoba
February, 2020	Executive Director, Institute for Global Public Health, University of Manitoba

PAST POSITIONS

2007-2008	Scientific Director, National Collaborating Centre for Infectious Diseases, International Centre for Infectious Diseases, Manitoba, Canada
2008-2020	Director, Centre for Global Public Health, Department of Community Health Sciences, University of Manitoba
2006-2010	Senior Technical Advisor, University of Manitoba HIV/AIDS Projects in India, Bangalore, India.
2001-2010	Associate Professor, Departments of Community Health Sciences and Medical Microbiology, University of Manitoba
2003-2007	Project Director, "Scaling up HIV Prevention in Karnataka", Bangalore, India
2001-2006	Resident Coordinator, India-Canada Collaborative HIV/AIDS Project, Bangalore, India.
1996-2001	Assistant Professor, Departments of Community Health Sciences and Medical Microbiology, University of Manitoba.
1992-2000	Provincial Epidemiologist and Head, Epidemiology Unit Public Health Branch, Manitoba Department of Health

ACADEMIC DEGREES

1986	**B.Sc. (Medicine)**, University of Manitoba
1986	**M.D.**, University of Manitoba
1990	**M.P.H.**, The Johns Hopkins University School of Hygiene and Public Health
1997	**Ph.D. (Epidemiology)**, The Johns Hopkins University

PREMEDICAL EDUCATION

1980-1982	University of Winnipeg

INTERNSHIP

1986-1987	Manitoba Teaching Hospitals, (Rotating Internship)

CLINICAL PRACTICE

1987-1989	General Practice, Northern Medical Unit, University of Manitoba, Fisher Branch, Manitoba

HONOURS and AWARDS

1980:	University of Winnipeg Alumni Association Scholarship
1981:	University of Winnipeg General Proficiency Scholarship
1990:	Delta Omega Honor Society in Public Health, Alpha Chapter (The Johns Hopkins University)
1991:	Marilyn Menkes Memorial Award (excellence in scholarship and leadership), Department of Epidemiology, The Johns Hopkins University
2000:	Health Scientist / Investigator Award, Canadian Institutes of Health Research / Manitoba Health Research Council (Regional Partnership Program), 2000-2004
2001:	Frederick G. Banting Award, Canadian Diabetes Association
2004-14:	Canada Research Chair (Tier 2) in Epidemiology and Global Public Health
2006:	Rh Award for Health Sciences, Winnipeg Rh Institute Foundation and University of Manitoba
2013:	Scholastic Award, Doctors Manitoba
2015-22:	Canada Research Chair (Tier 1) in Epidemiology and Global Public Health

RESEARCH COMMITTEES

1998-2000	Manitoba Health Research Council, Social and Population Health Committee (member)
May, 1999	Medical Research Council of Canada, Population Health Peer Review Committee (member)
2000-2003	Canadian Institutes of Health Research, Public, Community and Population Health Peer Review Committee (member)
2007	Canadian Institutes of Health Research, New Emerging HIV Team Grant Peer Review Committee (member)
2007-2013	Advisory Board, Institute of Population and Public Health, Canadian Institutes of Health Research (member)
2009-15	Canadian HIV/AIDS Research Advisory Committee, Canadian Institutes of Health Research (member)
2011-16	Advisory Board, Canadian HIV Vaccine Initiative (member)
2018-19	Scientific Co-Chair, STI and HIV World Congress, International Society for Sexually Transmitted Diseases Research and International Union against STIs.
2018-2020	Member, Health and Population Think Tank, Government of Pakistan.

PROFESSIONAL CONSULTANCIES (selected)

1998	**World Bank** – Consultant in the review and planning of the Government of India's planning for the National AIDS Control Programme, Phase 2, specializing in surveillance systems and prevention programs.
1999-2001	**Population Council** – Development and implementation of a curriculum entitled "Utilization of Research Results in Program Planning" for the Regional AIDS Training Network, University of Natal, Durban, South Africa.

2002-present	**Canadian International Development Agency** – Overall public health specialist and lead epidemiologist for the design of the Canada-Pakistan HIV/AIDS Surveillance Project, a CIDA-funded project to design and implement second generation HIV/AIDS surveillance for the National AIDS Control Programme of Pakistan.
2005-6	**World Bank** – Consultant for developing and writing a strategy paper entitled: "HIV/AIDS in South Asia: understanding and responding to a heterogeneous epidemic".
2006	**World Bank** – Consultant for Sri Lanka Country Program Review, Specialist for HIV Prevention.
2006-7	**World Bank** – Consultant for a "Mapping and Situation Assessment of High Risk Groups in Three Cities of Afghanistan".
2007-8	**Bill & Melinda Gates Foundation** – Consultant for "Knowledge Building and Dissemination", India AIDS Initiative.
2008-2009	**World Bank** – Consultant for strengthening operational research for HIV/AIDS prevention and control in India.
2010	**World Bank** – Consultant for "Support for a More Effective and Efficient HIV Response in Nigeria: A NACA-World Bank-DFID Partnership".
2012	**UNAIDS** – Consultant for review of Ukraine's National AIDS Programme, Specialist for HIV Prevention in female sex work.
2014	**World Bank** – Member of the World Bank's Technical Team for the review of the 4th phase of India's National AIDS Control Programme (NACP-IV).

RESEARCH GRANTS AND CONTRACTS

Principal Investigator

- "Risk factors for abdominal aortic aneurysms", Manitoba Medical Services Foundation, 1992-94, Grant ($20,000)
- "Manitoba Unlinked anonymous HIV seroprevalence studies", Laboratory Centre for Disease Control (LCDC), Health Canada, 1994-95, Contract ($160,000)
- "The Manitoba HIV database project", Laboratory Centre for Disease Control (LCDC), 1994, Contract ($8,000)
- "The epidemiology of inflammatory bowel disease in Manitoba", National Health Research and Development Program (NHRDP), 1995-97, (Co-principal investigator), Grant ($123,000)
- "Enhanced sexual risk behaviour surveillance in Winnipeg", Laboratory Centre for Disease Control, 1997-98, Contract ($80,000)
- "The epidemiology of injection drug use and HIV infection in Winnipeg, Manitoba", Laboratory Centre for Disease Control, 1997-98, Contract ($170,000)
- "Requirements of health care services by patients with inflammatory bowel disease in the province of Manitoba: a population-based study", Crohn's and Colitis Foundation of Canada, 1997-1999, (Dr. C. Bernstein, Co-principal investigator), Grant ($99,812)
- "Viral infections and inflammatory bowel disease: a population-based case-control study", Medical Research Council (Canada), 1999-2001, Grant ($147,474)
- "Epidemiologic projections of diabetes and its complications: a population-based study", H.E. Sellers Foundation, 2000-2002, Grant ($90,000)
- "An epidemiologic and ethnographic assessment of female sex work in rural India", World AIDS Foundation, 2000-2001, Grant ($85,000 U.S.)

- "Understanding the biological, clinical and psychosocial determinants of health outcomes in inflammatory bowel disease: a research program", Canadian Institutes of Health Research, 2002-2007, (Dr. C. Bernstein, Co-principal investigator), Grant ($1,125,000)
- "The determinants and societal impact of the HIV epidemic in India: research program development". Canadian Institutes of Health Research, 2002-2003, Grant ($99,480)
- "Scaling up HIV prevention in Karnataka, India", Bill & Melinda Gates Foundation, 2003-2008, Grant ($23,781,310 US)
- "Research laboratory for epidemiology and applied public health research". Canada Foundation for Innovation, 2004-2009, Grant ($312,500)
- "HIV prevention in the migration corridor of northern Karnataka and southern Maharashtra: the Corridors Project", Bill & Melinda Gates Foundation, 2005-2009, Grant ($5,877,637 US)
- "Understanding the migration patterns and associated HIV/AIDS vulnerability among rural female sex workers in northern Karnataka and southern Maharashtra", Bill & Melinda Gates Foundation, 2005-2008, Grant ($727,289 US)
- "Building capacity to respond to HIV/AIDS in China". Canadian International Development Agency, 2007-13, Grant ($998,000)
- "Individual, social and environmental barriers to HIV risk reduction among men who have sex with men and transgendered populations in India". Canadian Institutes of Health Research, 2007-9, Grant ($211,000)
- "Knowledge Synthesis and Translation for HIV Programs in Vulnerable Populations: A Global Workshop". Canadian Institutes of Health Research, 2008-9, Meeting Grant ($25,000)
- "Technical assistance to improve maternal, neonatal and child health outcomes through the National Rural Health Mission in Karnataka, India". Bill & Melinda Gates Foundation, 2009-14, Grant ($8,397,051)
- "Assessment of Sexual Networks for HIV Prevention Program Design". Ministry of Health, Royal Government of Bhutan, 2009, Contract ($48,868 USD)
- "Development of a global HIV/STI research agenda: three symposia". National Institutes of Health (Office of AIDS Research), 2010, Contract ($133,050 USD)
- "Assessment of Sexual Networks for HIV Prevention: Bhutan". Ministry of Health, Royal Government of Bhutan, 2010, Contract ($74,250)
- "HIV prevention in vulnerable populations: addressing complexity in program design and implementation". Canadian Institutes of Health Research, 2010, Grant ($100,000)
- "Enhancing the impact of HIV prevention programs for the most at risk populations in Kenya", Bill & Melinda Gates Foundation, 2011-2014, Grant ($6,979,956 USD).
- "Global HIV prevention program science technical support and knowledge management", Global HIV Program, World Bank, 2011-2013, Grant ($3,078,471 USD)
- "Social, behavioral and transmission properties associated with diversity in HIV epidemics among people who inject drugs and other key populations", Canadian Institutes of Health Research, 2012-15, Grant ($428,369).
- "Technical assistance to the Government of Uttar Pradesh (India) to improve health, nutrition and development coverage and outcomes", Bill & Melinda Gates Foundation, 2013-16, Grant ($21,083,518 USD).

- "Technical assistance to the Government of Uttar Pradesh to improve access, scale and quality of family planning", Bill & Melinda Gates Foundation, 2014-18, Grant ($22,835,657 USD).
- "TSU innovation cell to support the Uttar Pradesh reproductive, maternal, nutrition and child health program", Surgo Foundation, 2016-18, Grant ($1,109,385 USD).
- "Technical assistance for improving HIV program implementation for most-at-risk populations (West Africa)", World Bank, 2015-16, Contract ($94,640 USD).
- "Linkages across the continuum of HIV services for key populations affected by HIV", FHI 360 (USAID), 2016, Contract ($606,851 USD).
- "Techno-managerial support to the Government of Uttar Pradesh (India) to improve maternal, newborn and child health outcome", Bill & Melinda Gates Foundation, 2016-19, Grant ($14,938,984 USD).
- "Techno-managerial support to the Government of Uttar Pradesh (India) to improve health systems platforms", Bill & Melinda Gates Foundation, 2016-19, Grant ($29,650,245 USD).
- "Operations research on post-partum hemorrhage control, newborn asphyxia and breastfeeding in Uttar Pradesh (India)", Bill & Melinda Gates Foundation, 2016-19, Grant ($1,499,747 USD).
- "External evaluation of the Umeed-e-nau initiative to support women and girls in Pakistan", Bill & Melinda Gates Foundation, 2016-21, Grant ($2,803,064 USD).
- "Generating evidence on HIV self-testing within communities of men who have sex with men", Bill & Melinda Gates Foundation, 2018-20, Grant ($2,299,696 USD).
- "Technical support to the National Agency for the Control of AIDS, Nigeria for the implementation of HIV integrated biobehavioral sentinel surveillance", Global Fund to Fight AIDS, Tuberculosis and Malaria, 2020-21, Grant ($1,845,693 USD).
- "Evaluation of the Newborn Essential Solutions and Technologies (NEST) project", Children's Investment Fund Foundation, 2020-23, Grant ($133,430 USD).
- "Technical support for the evaluation of an intervention for advanced newborn care in Ghana", Children's Investment Fund Foundation, 2020-24, Grant ($288,211 USD).

Co-Investigator

- "The incidence of reactive arthritis following dysenteric illness in Manitoba", National Health Research and Development Program, 1995-96, Grant ($25,000)
- "Burden and impact of diabetes in the Canadian population (analysis of the National Population Health Survey)", National Health Research and Development Program, 1996-97, Grant ($26,000)
- "Health care costs associated with diabetes mellitus in Manitoba's First Nation population", Health Canada, 1997-1998, Contract ($25,000)
- "The effect of diabetes education on short and long term outcomes in diabetes", Canadian Diabetes Association, 1998-1999, Grant ($29,760)
- "Demonstration of the proposed National Diabetes Surveillance System in the 3 prairie provinces", Health Infostructure Support Program, Health Canada, 1999-2000, Grant ($140,000)
- "AIDS Prevention and Control: India", Canadian International Development Agency, 2000-2004, Contract ($12.7 million)
- "Establishment of a Western Canadian diabetes health outcomes research group, Medical Research Council of Canada (Opportunity Program), 2000, ($50,000)
- "Diabetes in the Aboriginal population: Defining, Understanding, and Controlling an Emerging Epidemic", Canadian Institutes of Health Research, Interdisciplinary Health Research Team, 2001-2005, ($506,000, Year 1)

- "The burden of inflammatory bowel disease in Canada", Crohn's and Colitis Foundation of Canada, 2003-2004, Grant ($200,000)
- "Monitoring and evaluation of the Avahan project in India: impact assessment and cost-effectiveness analyses using enhanced surveillance methods and mathematical modelling of HIV transmission dynamics", Bill & Melinda Gates Foundation, 2004-2011, Grant ($3.45 million US)
- "Enhance Karnataka: Scaling up HIV Prevention, Care and Support", United States Agency for International Development (USAID), 2006-2011, Grant ($22 million US)
- "Understanding the biological, clinical, and psychosocial determinants of health outcomes in inflammatory bowel disease: A research program", Canadian Institutes of Health Research, 2008-12, Grant ($1.5 million)
- "Frequency of comorbidity in multiple sclerosis". Multiple Sclerosis Society, 2009-11, Grant ($111,288)
- "Scaling up HIV prevention in Karnataka, phase 2." Bill & Melinda Gates Foundation, 2009-2014, Grant ($22,000,000 US)
- "The CIHR International Infectious Diseases and Global Health Training Program: Four Continents, One Shared Experience", Canadian Institutes of Health Research, 2008-14, Grant ($1,950,000)
- "Establishing the morbidity and mortality of ERCP: A population-based study", Canadian Institutes of Health Research and Canadian Association of Gastroenterology, 2010-11, Grant ($90,000)
- "CIHR Team in the socio-cultural aspects of implementing HIV vaccine programs among MSM and FSWs in Asia and Africa", Canadian Institutes of Health Research, 2010-13, Grant ($741,300)
- "Meeting critical health care and nutritional needs to improve maternal, neonatal and child health in vulnerable African populations", Canadian International Development Agency, 2011-14, Grant ($1,671,983)
- "Understanding patients' disease experience: A guide to disease management in IBD", Canadian Institutes of Health Research, 2013-16, Grant ($519,901)
- "Disentangling the role of biological and behavioural drivers of early HIV risk in female sex workers in India, Kenya and the Ukraine", Canadian Institutes of Health Research, 2014-15, Grant ($21,708)
- "Estimating female sex workers' early HIV risk and the implications for HIV epidemic control: A multi-country observational and mathematical modeling study", Canadian Institutes of Health Research, 2013-16, Grant ($337,568)
- "A South to South collaborative project to understand and address the HIV vulnerability of male sex workers in Nairobi, Kenya", Canadian Institutes of Health Research, 2013-16, Grant ($335,630)
- "Closing a critical HIV prevention gap: Demonstrating safety and effective delivery of daily oral pre-exposure prophylaxis (PrEP) as part of an HIV combination preventive intervention for sex workers in Kolkata and Mysore-Mandya, India", Bill & Melinda Gates Foundation, 2014-16, Grant ($1,542,537 USD).
- "Technical support to the government of Uttar Pradesh for improving nutritional status among mothers, infants and young children", Bill & Melinda Gates Foundation, 2015-19, Grant ($11,759,661 USD).
- "Improved quality of community and low level facility management of childhood pneumonia and diarrhea in Uttar Pradesh", Bill & Melinda Gates Foundation, 2014-17, Grant ($6,480,703 USD).
- "The impact of political conflict on the dynamics of sex work and the HIV/STI and HCV epidemic in Ukraine", Canadian Institutes of Health Research, 2017-21, Grant ($1,525,180).
- "Technical assistance to the Government of Uttar Pradesh for routine immunization", Bill & Melinda Gates Foundation, 2020-23, Grant ($6,483,054 USD).

INVITED PRESENTATIONS (selected)

1. March 1994: "Issues in tuberculosis control: the role of surveillance". National TB/HIV Consensus Conference, Canadian Public Health Association, Toronto, ONT.
2. June 1995: "The epidemiology of sexually transmitted infections in Manitoba". Manitoba STD Research Symposium, Winnipeg, MB.
3. September 1997: "Diabetes in Manitoba's First Nations". Western Canada Conference on Cardiovascular Disease, Kananaskis, Alberta.
4. October 1998: "Epidemiologic projections of diabetes and its complications". Canadian Diabetes Association Professional and Scientific Conference, Calgary, Alberta.
5. May 2000: "Is there a microbial etiology for inflammatory bowel disease?" Strange Bedfellows: Infection and Chronic Disease Conference, Canadian Public Health Association and Laboratory Centre for Disease Control.
6. October 2000: "Modeling the future health care system using diabetes surveillance data". Canadian Diabetes Association Professional and Scientific Conference, Halifax, Nova Scotia.
7. October 2000: "Global patterns and themes in sexually transmitted disease epidemiology and control". Phase-specific Strategies for the Prevention, Control and Elimination of Sexually Transmitted Diseases: Implications for Research, Policy and Programs, Rome, Italy.
8. July, 2001: "Populations, pathogens and epidemic phases: closing the gap between theory and practices in STI/HIV prevention". Division of STD Prevention, National Center for HIV, STD and TB Prevention, Centers for Disease Control and Prevention, Atlanta, GA.
9. February, 2002: "Strategic considerations for STI/HIV prevention in India". Center for AIDS Prevention Studies, University of California San Francisco, San Francisco, CA.
10. July, 2003: "Sex work in India: patterns embedded in societal tradition". International Society of STD Research Conference, Ottawa, ONT.
11. July, 2003: "A tale of two States: differentiating between epidemic phase and transmission dynamics in the Indian States of Rajasthan and Karnataka. International Society of STD Research Annual Conference, Ottawa, ONT.
12. November, 2005: "HIV epidemics in the South Asia Region – strategic considerations". World Bank, Washington, DC, USA.
13. May, 2006: "The forest and the trees: strategies for scaling up focused prevention at the macro and micro levels in India". Division of STD Prevention, Centers for Disease Control and Prevention, Atlanta, GA, USA.
14. May, 2006: "The sexual structure in Indian populations: observations and implications for HIV prevention". Princeton University, Princeton, NJ, USA.
15. July, 2007: "The new global environment and its effect on sex work and sexual behaviour". International Society for STD Research Conference, Seattle, USA.
16. July, 2007: "New developments in the social and behavioural aspects of sexually transmitted diseases: plenary panel review". International Society for STD Research Conference, Seattle, USA.
17. December, 2007: "Strategies for scaling up HIV prevention in South Asia: perspectives and experiences of an undifferentiated epidemiologist". Symposium on *Epidemiology as a Problem-Solving Discipline*. Johns Hopkins University School of Public Health, Baltimore, USA.
18. March, 2008: "Program Science: What is it?" Centres for Disease Control and Prevention meeting. Chicago, USA.

19. April, 2008: "HIV prevention in Canada: current challenges and future perspectives". Canadian Association for HIV Research Annual Congress. Ottawa, Canada.
20. June, 2008: "Outreach for Vulnerable Populations: Knowledge Translation for Prevention of HIV & STBBI". Canadian Public Health Association Annual Congress. Halifax, Canada.
21. August, 2008: "Program Science and the National Collaborating Centre for Infectious Diseases". National Collaborating Centres for Public Health Summer Institute on Knowledge Translation. Kelowna, Canada.
22. November, 2008: "The Importance of Knowledge Synthesis and Knowledge Exchange in STD Prevention". EGE University, Kusadasi, Turkey.
23. June, 2010. "Theory and Practice in the Prevention of Sexually Transmitted Infections". Baltic Association of Dermatovenereology, Congress. Tartu, Estonia.
24. September, 2010: "Programs and Science: Seeking the Academic Mission in Global Health". Consortium of Universities for Global Health Annual Meeting. University of Washington, Seattle, USA.
25. November, 2011: "Reflections on Program Science". Manitoba HIV Program Annual Conference, Winnipeg, Canada.
26. July, 2012: "Applying Program Science: Approaches and Experiences". World Bank Program Science Global Symposium, Washington DC, USA.
27. June, 2013: "Program Science in STI and HIV Prevention – Global Challenges and Emerging Experience". Division of STD Prevention, Centers for Disease Control and Prevention, Atlanta, USA.
28. February 2014: "Programs and platforms: From discovery to delivery in global health". Global Health 101 Series Lecture, Bill & Melinda Gates Foundation, Seattle, USA
29. February 2014: "Strategies and tactics for HIV prevention – Lessons from the field". Discovery Series, Washington Global Health Alliance, Seattle, USA
30. October 2015: "Application of Program Science: Principles and Practice from HIV to MNCH". World Bank Symposium on Health Systems Research, Cape Town, South Africa
31. November 2016: "Getting to Zero in HIV Prevention – The Role of Program Science". Nigeria's National Agency for the Control of AIDS – Annual Lecture on HIV, Abuja, Nigeria
32. May 2016: "Community Mobilization and Structural Interventions in HIV Prevention Programs". Canadian Association for Health Research (Keynote), Winnipeg, Canada
33. June, 2018: "What happened to the other 90s? The unintended consequences of test and treat interventions for key populations". International Union against Sexually Transmitted Infections Global Congress, Dublin, Ireland
34. October 2018: "Leave No One Behind: Implications for Global Health Programs and Research". Gairdner Global Health Symposium, University of Toronto, Toronto, Canada
35. November, 2018: "Scaling up sex work and HIV programmes: Observations and implications". UNAIDS Global Consultation on HIV and Sex Work, Geneva, Switzerland
36. December, 2018: "People, places and public health programs: Pursuing the academic mission in global public health". Annual Public Health Conference, Health Services Academy, Islamabad, Pakistan.

DISSERTATIONS

- Blanchard JF. Growth of *Chlamydia trachomatis* in HELA cells is inhibited by lymphokines. Degree: B.Sc. (medicine), University of Manitoba, 1984.
- Blanchard JF. Risk factors for abdominal aortic aneurysms: a case-control study. Degree: Ph.D. (epidemiology), The Johns Hopkins University, 1997.

PEER-REVIEWED PUBLICATIONS

1. Strickler HD, **Blanchard JF**, Vlahov D, Taylor E, Munoz A, Nelson KE, and Margolick JB, *Elevated serum levels of neopterin but not β2-microglobulin in HIV-1-seronegative injecting drug users.* AIDS, 1993. 7(3): p. 361-367.
2. Orr P, Sherman E, **Blanchard J**, Fast M, Hammond G, and Brunham R, *Epidemiology of infection due to chlamydia trachomatis in Manitoba, Canada.* Clinical Infectious Diseases, 1994. 19(5): p. 876-883.
3. **Blanchard JF**, Ludwig S, Wajda A, Dean H, Anderson K, Kendall O, and Depew N, *Incidence and prevalence of diabetes in Manitoba, 1986-1991.* Diabetes Care, 1996. 19(8): p. 807-811.
4. **Blanchard JF**, Dean H, Anderson K, Wajda A, Ludwig S, and Depew N, *Incidence and prevalence of diabetes in children aged 0-14 years in Manitoba, Canada, 1985-1993.* Diabetes Care, 1997. 20(4): p. 512-515.
5. James R, Young TK, Mustard CA, and **Blanchard J**, *The health of Canadians with diabetes.* Health reports / Statistics Canada, Canadian Centre for Health Information = Rapports sur la santé / Statistique Canada, Centre canadien d'information sur la santé, 1997. 9(3): p. 47-52 (Eng); 53-59 (Fre).
6. McKeown I, Embil J, Orr P, Macdonald S, **Blanchard JF**, Dawood M, Coghlan G, Smart G, Cook C, and Bernstein CN, *High seroprevalence of H. pylori infection, high hospitalization rate for peptic ulcer disease and low incidence of gastric cancer in a North American Indian (first nations) population.* Clinical Infectious Diseases, 1997. 25(2): p. 473.
7. Rosenberg T, Kendall O, **Blanchard J**, Martel S, Wakelin C, and Fast M, *Shigellosis on Indian Reserves in Manitoba, Canada: Its relationship to crowded housing, lack of running water, and inadequate sewage disposal.* American Journal of Public Health, 1997. 87(9): p. 1547-1551.
8. **Blanchard JF**, Moses S, Greenaway C, Orr P, Hammond GW, and Brunham RC, *The evolving epidemiology of chlamydial and gonococcal infections in response to control programs in Winnipeg, Canada.* American Journal of Public Health, 1998. 88(10): p. 1496-1502.
9. Bernstein CN, **Blanchard JF**, and Loftus E.V, Jr., *The epidemiology of Crohn's disease [1] (multiple letters).* Gastroenterology, 1999. 116(6): p. 1503-1504.
10. Bernstein CN, **Blanchard JF**, Rawsthorne P, and Wajda A, *Epidemiology of Crohn's disease and ulcerative colitis in a central Canadian province: A population-based study.* American Journal of Epidemiology, 1999. 149(10): p. 916-924.
11. Bernstein CN, McKeown I, Embil JM, **Blanchard JF**, Dawood M, Kabani A, Kliewer E, Smart G, Coghlan G, MacDonald S, Cook C, and Orr P, *Seroprevalence of Helicobacter pylori, incidence of gastric cancer, and peptic ulcer-associated hospitalizations in a Canadian Indian population.* Digestive Diseases and Sciences, 1999. 44(4): p. 668-674.
12. **Blanchard JF**, *Epidemiology of abdominal aortic aneurysms.* Epidemiologic Reviews, 1999. 21(2): p. 207-221.
13. Ilnyckyj A, **Blanchard JF**, Rawsthorne P, and Bernstein CN, *Perianal Crohn's disease and pregnancy: Role of the mode of delivery.* American Journal of Gastroenterology, 1999. 94(11): p. 3274-3278.
14. Luo M, **Blanchard J**, Maclean I, and Brunham R, *Identification of a novel HLA-DQA1 allele (DQA1*0106) by sequence-based DQA1 typing.* Tissue Antigens, 1999. 53(6): p. 595-596.

15. Luo M, **Blanchard J**, Maclean I, and Brunham RC, *Identification of a novel DQB1 allele DQB1*0616.* Tissue Antigens, 1999. 53(4 I): p. 381-382.

16. Luo M, **Blanchard J**, Pan Y, Brunham K, and Brunham RC, *High-resolution sequence typing of HLA-DQA1 and -DQB1 exon 2 DNA with taxonomy-based sequence analysis (TBSA) allele assignment.* Tissue Antigens, 1999. 54(1): p. 69-82.

17. Moses S, Nagelkerke NJD, and **Blanchard J**, *Analysis of the scientific literature on male circumcision and risk for HIV infection [2].* International Journal of STD and AIDS, 1999. 10(9): p. 626-628.

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105. Bhattacharjee P, Raghavendra T, Doddamane M, Sudheer C, Murugan SK, Narayana S, **Blanchard J**, Moses S. Across state borders: reaching migrant female sex workers with HIV prevention programs and services across the Karnataka, Maharashtra border in south India [Abstract THPE198].

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106. Thomson GTD, Minish E, Roos L, **Blanchard JF**. Reiter's syndrome and public health policy. "59th National Scientific Meeting", American College of Rheumatology, San Francisco, California, September, 1995.

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This is Exhibit "B" referred to in the Affidavit of James Blanchard affirmed the 20th day of April, 2021.

A Barrister-at-law entitled to practice in and for the Province of Manitoba.

Comments on Dr. Joel Kettner's "Expert Report on the COVID-19 pandemic response in Manitoba".

April 20, 2021

Prepared By:

James Blanchard, MD, MPH, PhD
Professor, Department of Community Health Sciences
Executive Director, Institute for Global Public Health
Canada Research Chair in Epidemiology and Global Public Health
University of Manitoba

A. General Comments

Dr. Kettner raises a number of questions about the scientific rationale for public health orders in Manitoba, with a particular focus on the justification for constraints related to quarantine provisions and orders regarding congregation in various public settings. He argues for what he describes as "risk-based strategies" for more "focused protection". Beyond some general principles, it is not clear from Dr. Kettner's report what these strategies might entail, nor any empiric evidence that they would be effective and feasible. Overall, there are several cross-cutting issues in Dr. Kettner's report that merit comment:

1. Throughout the report, Dr. Kettner indicates that the Manitoba public health orders should be based primarily on enhanced local epidemiological analyses of the actual risks and relative risks of exposure, and on morbidity and mortality estimates in different groups and settings within Manitoba. This is an untenable approach, and inconsistent with public health practice in the face of epidemics, particularly with emerging pathogens such as the SARS-CoV-2. Whereas it is important to analyze many of these aspects for the purpose of planning and response within the provincial jurisdiction, public health professionals have a responsibility to use the full range of scientific evidence, data, and emerging trends from national and global experience to guide their local public health policies. Much of the scientific evidence regarding the SARS-CoV-2 transmission routes, transmission dynamics, pathophysiology, morbidity and mortality was developed based on earlier and more robust research (based on larger populations and more extensive epidemics) in other global contexts, and it would be negligent to not use that evidence in guiding public health policies in Manitoba. The suggestion that these parameters should be recalculated in Manitoba to justify local public health policies to limit incidence, morbidity and mortality is impractical, unwarranted, and unwise. Once the biological characteristics of the SARS-CoV-2 had been characterized in terms of modes of transmission and transmission efficiency, rational decisions about policies to limit gatherings in different settings could be made to limit transmission. As an analogy, when there is a local outbreak of other infectious diseases (such as measles or mumps or a vector-borne pathogen), public health control measures are based on what we know about the pathogen, and where and how it might spread based on

the scientific knowledge, and are not dependent on demonstrating specific contexts of spread within the local jurisdiction. Similarly, policies for limiting transmission of SARS-CoV-2 in Manitoba should be based on the best available global evidence, without waiting to replicate that evidence locally. Dr. Kettner cautions specifically against using evidence from other jurisdictions as a guide to planning public health responses in Manitoba, referencing the COVID-19 epidemic in Brazil. Ignoring that evidence in the context of a pandemic with a new and evolving pathogen would be irresponsible. There is now ample evidence that earlier experience in other jurisdictions with new variant strains were not specific to those contexts, but as the pathogen spread to other contexts (including Manitoba, now), the more rapid spread and changing age and morbidity profiles was also experienced in those new contexts, as one would expect. Failing to plan in advance for what has been observed elsewhere would be very poor public health policy in the context of a rapidly evolving infectious disease pandemic. Dr. Kettner downplays the need to consider the potential emergence of novel variants that pose a greater risk as a "hypothesis". However, there is substantial global evidence that this virus does mutate quite rapidly, and that some of the new variants are more infectious and pathogenic than the wild type of virus. Public health officials have the responsibility to anticipate the potential epidemic trajectories and impact, and respond accordingly. Waiting until a propagated epidemic of a serious infectious disease is well-enough established to generate variants is unwise, particularly with effective vaccines becoming available.

2. Throughout his report, Dr. Kettner references estimates of risk and morbidity and mortality in Manitoba based on the extant scenarios, but has not considered the counterfactual – what would have happened without the public health interventions? For example, he references the morbidity and mortality burden experienced by Manitoba to date (approximately 1,000 estimated deaths). However, that level of morbidity and mortality is in the context of the various public health actions taken by the government and citizens of Manitoba since the beginning of the epidemic. Rather than assess this level of burden *per se*, it is important to consider a counterfactual circumstance wherein there were no restrictions or constraints, and SARS-CoV-2 transmission was not constrained (in most of the population). As an example, based on the latest estimates of the age-specific infection fatality rate (from the CDC, March 19, 2021 https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html), if there were no constraints on transmission, and 70% of those aged less than 75 were ultimately infected, the mortality toll in Manitoba would have been between 6,500 and 7,000. If 70% of all Manitobans were ultimately infected, based on the infection fatality rate estimates the total death toll would have been over 12,000. The morbidity and burden on the health-care system would be expected to have been several-fold more severe than was actually experienced.
3. The report questions the overall impact of COVID-19 on morbidity and mortality in Manitoba (and elsewhere), highlighting the need to use measures of life-years lost and quality-adjusted life-years lost. While these are important considerations, they do not negate the heavy toll that COVID-19 has had on our most elderly, and invoke value judgements about the quality of life and timing of death that are not easily adjudicated in terms of priorities. Moreover, Dr. Kettner goes into some detail about the attribution of the cause of death to SARS-CoV-2, and the potential for exaggerating the impact. While there is

some validity in the critique of cause-of-death classification schema, there is robust evidence that the COVID-19 pandemic has been a major contributor to excess premature mortality where the epidemic has been substantial.

4. Dr. Kettner has not offered persuasive evidence or practical examples to support his alternative proposition of a "focused" protection approach to epidemic management. In particular, the recommendation that the response should focus on protecting the more vulnerable, while allowing the epidemic to grow substantially to achieve herd immunity in younger / healthier populations is likely impracticable, and could result in calamitous consequences for the most vulnerable. How, for example, would the elderly be isolated from all of those who provide care for them? How would this impact the ability for designated family members to visit and support them? The reality is that if the incidence and prevalence reached very high levels, relying on a strategy of isolating all of the elderly in institutions and in the community would be reckless. This is particularly true considering the availability of highly effective vaccines. These have been anticipated for some time, and offer a much more reasonable method for achieving "herd immunity" than allowing the epidemic to expand to reach a high percentage of the population with natural infection. So, policies in the interim need to consider the entire set of public health solutions, including vaccination. Limiting risk and spread via policies to limit transmission until vaccines can reach sufficient coverage is a logical public health approach, with a much more credible pathway to longer term epidemic control, while limiting the morbidity and mortality.

B. Specific Comments

This section provides commentary on the specific topics / questions addressed in Dr. Kettner's report.

1. The use of PCR test and interpretation of results – As Dr. Kettner notes, there are uncertainties about the interpretation of a PCR test in specific cases, both with respect to diagnosis and infectiousness. However, this is true of most diagnostic tests, and does not negate the value of using the test to understand transmission patterns, and to assess the burden of disease. It's quite possible that the diagnostic criteria and case definitions are weighted to sensitivity over specificity, but that is a rational approach when facing a rapidly evolving infectious disease epidemic. Dr. Kettner expresses concern that this might result in overestimation of the public health burden, but again, responding based on the current public health burden is not the primary purpose of public health control measures. Instead, the main purpose of preventive public health interventions is to mitigate the future health burden. Dr. Kettner suggests less restrictive policies related to quarantine for infected persons, suggesting a shorter window (after symptoms), and the use of Ct values as a guide. I am surprised that he has such confidence in the accuracy and reliability of Ct thresholds to determine infectivity. As with any other diagnostic test for a biological parameter, there can be systematic and random errors. Moreover, the timing of symptom onset is not precisely or accurately recalled in many circumstances. Perhaps the quarantine time could be shortened without consequence in many cases, but it is a matter of policy judgement in relation to the imposition on those infected versus the safety of others that might be infected by an index case, and their resultant losses.

2. Restrictions on those with a "low risk" for severe illness or death – The purpose of restrictions is to limit epidemic transmission at a population level, not simply to protect individuals from acquiring disease. This is the very essence of public health control measures in a propagated epidemic. If no controls are in place to reduce transmission in the large majority of the population, the force of infection would be much higher, and greatly increase the risk for those that are vulnerable. As noted earlier, assessing the necessity based solely on morbidity and mortality observed and measured in Manitoba in the presence of public health control measures is not a reasonable approach. Instead, decisions should be based on the best available scientific evidence about what would happen without such controls. As an example, public health inspectors aren't constrained from sanctioning restaurants for poor hygiene practices unless there is sufficient documentation of cases of food-borne illness attributable to the restaurant. Action is taken based on infection control principles, to prevent future cases of infectious disease. It would be very difficult to justify widespread childhood immunization against viral pathogens based on the current disease burden, and many who oppose vaccines use this argument. However, the rationale for the public health measure (childhood vaccination) is not balanced against the current burden, but rather against the potential future burden in the absence of vaccination. That is not based on analysis of local data to support the case, but on scientific knowledge about the viral pathogens and previous global experience with epidemics in pre-vaccine eras. The transmission characteristics, epidemic potential, and pathogenicity of the SARS-CoV-2 virus are quite well-characterized based on global evidence. The full breadth of scientific evidence should guide local policies and responses.
3. Models to assess alternative strategies – Dr. Kettner makes a valid point that the use of mathematical models requires specific hypotheses, with a clear articulation of assumptions and alternative strategies. Modeling can provide important insights into the potential impact of different epidemic and public health response scenarios, and is therefore an important tool that is widely used for decision making in response to emerging infectious disease epidemics. The methodology and assumptions for mathematical models should be assessed and reviewed by epidemiologists and other public health specialists. External peer review is also valuable to assess the validity of assumptions and methods. With respect to the SARS-CoV-2 epidemic, I would note that there have been many models developed and published, in a variety of settings, with broad consensus that without widespread adoption of measures to reduce the probability of transmission (i.e. social distancing, limiting congregation, mask use) COVID-19 epidemics would grow rapidly, with concomitant increases in morbidity and mortality.
4. Measuring harmful consequences – Dr. Kettner makes an important point about the potential harmful consequences of public health measures to control the SARS-CoV-2 epidemic. Globally, this is an important question that will need to be continually assessed. It is important to note that the impact of the pandemic is not restricted to the direct morbidity and mortality from COVID-19, but has also greatly affected hospital and public health capacity, which in turn constrains the provision of other health services. Much more widespread transmission, with its impact of hospital capacity and morbidity among health care providers, has been seen to have a substantial impact on acute and primary care and community-based services. The economic impacts could certainly exacerbate poverty and

adversely affect social determinants of health. But governments and societies are not powerless to mitigate these impacts to some extent by directing policies to provide financial and other support to those most affected.

5. Risk in church services – Dr. Kettner appears to propose that public health constraints should be guided by continuous monitoring of specific epidemic transmission clusters, rather than rational use of scientific evidence about viral transmission dynamics. This would be a very unwise policy. The purpose of restricting indoor gatherings is part of an overarching policy to prevent transmission at a population level. Not surprisingly, with a relatively low prevalence in Manitoba, few clusters might be seen in churches, or in many other indoor settings. This does not provide any real evidentiary value in assessing whether indoor gatherings should be permitted. Waiting until there is sufficient documentation of specific clusters tied to specific indoor settings ignores the full breadth of scientific evidence that should guide public health policy, and instead relies on local phenomenology, which is antithetical to public health principles and practice.