

**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.

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**AFFIDAVIT OF JARED MANLEY PETER BULLARD**  
**AFFIRMED: March 5, 2021.**

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**DEPARTMENT OF JUSTICE**  
**Constitutional Law Branch**  
**1205 - 405 Broadway**  
**Winnipeg, Manitoba**  
**R3C 3L6**

**Per: Michael Conner**

**Telephone No. 204-391-0767**  
**Facsimile No. 204-945-0053**

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OFFICER OF HEALTH OF MANITOBA**

Respondents.

**AFFIDAVIT OF JARED MANLEY PETER BULLARD**

I, JARED MANLEY PETER BULLARD, of the rural municipality of Headingley, 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 stated to be based upon information and belief, in which case I believe them to be true.

2. I am an Associate Professor and Section Head of Infectious Diseases in the Departments of Pediatrics & Child Health and Medical Microbiology at the University of Manitoba. I am a licensed physician and have Fellowships with the Royal College of Physicians and Surgeons of Canada in Pediatrics, Medical Microbiology and Infectious Diseases. I am currently the Associate Medical Director of Cadham Provincial Laboratory (CPL), a position I have held since 2011. CPL is one of the laboratories that performs reverse transcription polymerase chain reaction (RT-PCR) testing for the presence of the SARS-CoV-2 novel coronavirus, which is responsible for the COVID-19 pandemic. Attached as **Exhibit "A"** to my affidavit is a copy of my curriculum vitae (CV).

3. I currently serve on several teams and committees established to respond to the COVID-19 pandemic, including:

- COVID-19 Pandemic Pediatric Incident Command Team – I am the Pediatric Infectious Disease representative on the team.
- SARS-CoV-2/COVID-19 Response Committee. I provide laboratory leadership for the pandemic response and testing operations.
- COVID-19 Public Health Operations Committee. I serve as the laboratory and clinical representative on this provincial committee, which consults and provides recommendations on the public health response to the COVID-19 pandemic.
- Respiratory Virus Public Health Working Group. I am the laboratory and clinical representative on this provincial working group, providing guidance on respiratory viruses, including influenza and SARS-CoV-2.
- Canadian Public Health Laboratory Network CanCOGeN Sequencing Group. I am the provincial co-representative for genetic sequencing of Canadian SARS-CoV-2 isolates on this national committee.
- COVID 19 Vaccine: Vaccine Priority Populations Group and the Clinical/Medical Oversight Group.

4. I have considerable experience and expertise in the design and optimization of RT-PCR diagnostic technology. Among other training, I have received training at the National Microbiology Laboratory to examine state of the art molecular diagnostics in HIV and measles, mumps and rubella including RT-PCR testing. My Bachelor of Science in Medicine, HIV

Immunology also had a focus on RT-PCR testing for HIV diagnostics. During the current pandemic, to date CPL has performed over 230,000 RT-PCR diagnostic tests to identify SARS-CoV-2, which I have assisted in supervising.

5. As outlined in my CV, I have assisted in the preparation of educational materials on various topics related to Covid-19 including the spread of the disease and protecting the public, clinical description and epidemiology, diagnostics and surveillance, therapeutics, infection prevention and control, and public health interventions.

6. My CV lists my peer reviewed journal articles, publications, research collaborations, lectures and presentations on SARS-CoV-2, including on the topic of laboratory diagnostics and the RT-PCR test. I have also peer reviewed a number of manuscripts written by other researchers. A sample of these include:

- “Comparison of Commercial Assays and Laboratory Developed Tests for Detection of SARS-CoV-2” (September 10, 2020, *J. Viral Methods*, co-author)
- “Diagnostic Testing for SARS-CoV-2” (June 3, 2020, *CMAJ*, co-author)
- “Predicting Infectious Severe Acute Respiratory Syndrome Coronavirus 2 From Diagnostic Samples” (May 22, 2020, *Clinical Infectious Diseases*. Lead investigator and author).
- “Positive or Not? Laboratory Testing for Covid-19” (October 2020, Symposium presentation).
- “Clinical Presentation of COVID-19 Infections” (April 2020, National presentation to the College of Family Physicians of Canada)
- Covide-19 Seminar Series: Pediatric Cases, Laboratory Diagnostics and Critical Care” (June 2020, International presentation to the Pacific Island Health Officers’ Association)
- Diagnostic yield of repeat testing for SARS-CoV-2: Experience from a large health system in Los Angeles. (Manuscript peer reviewer for *International Journal of Infectious Disease*; August 2020)
- Development and validation of reserves transcriptase-PCR assays for the testing of SARS-CoV-2 (Manuscript peer review for *Journal of the Association of Medical Microbiology and Infectious Diseases*; August 2020)

- Comparison of RT-PCR Cycle Threshold Values from Respiratory Specimens in Symptomatic and Asymptomatic Children with SARS-CoV-2 Infections (December 2020, Manuscript peer reviewer for JAMA Pediatrics)
- “Infectious period of SARS-CoV-2 in 17 nursing home residents – Arkansas, June-August 2020” (December 2020, Manuscript peer reviewer for Open Forum of Infectious Diseases)
- “SARS CoV-2 Surveillance and Exposure in the Perioperative Setting with Universal testing and Personal Protective Equipment (PPE) Policies” (October 2020, Manuscript peer reviewer for Clinical Infectious Diseases)
- “Respiratory tract samples collected from patients within a region of Quebec, Canada indicate the absence of early circulation of SARS-CoV-2 Infection” (September 2020, Manuscript peer reviewer for Journal of the Association of Medical Microbiology and Infectious Diseases)
- Prevalence of COVID-19 among children and adolescents while easing lockdown restrictions in Cologne, North Rhine-Westphalia, Germany (August 2020, Manuscript peer reviewer for Archives of Disease in Childhood).
- Development and validation of reverse transcriptase-PCR assays for the testing of SARS-CoV-2 (August 2020, Manuscript peer reviewer for Journal of the Association of Medical Microbiology and Infectious Diseases)
- Diagnostic yields of repeat testing for SARS-CoV-2: Experience from a large health system in Los Angeles (August 2020, Manuscript peer reviewer for International Journal of Infectious Disease).
- “SARS-CoV-2 RT-PCR Cycle Thresholds (Ct) values and Correlation with Symptom onset to Test (STT) in Pediatric Patients in Manitoba during the COVID-19 Pandemic” (2018 to present; Supervisor of Pediatric Resident Research Project)
- “Seasonality of Coronaviruses: Implications for COVID-19” (Accepted for publication in Canadian Communicable Disease Report).

7. I was asked to provide my independent, expert opinion on how RT-PCR testing is used to identify the SARS-CoV-2 virus in respiratory samples and diagnose COVID-19. I discuss the accuracy of RT-PCR molecular testing to identify suspected cases of SARS-CoV-2 in a pandemic and compare it to cell culture. I explain cycle threshold (Ct) values in RT-PCR tests and how Ct values correlate to potential infectiousness of positive cases. Finally, I explain the role of RT-PCR testing and the implication of a positive result for the public health response.

8. I wrote the report jointly with Dr. Paul Van Caesele, a professor in the departments of Medical Microbiology & Infectious Diseases, and Pediatrics & Child Care Health at the University of Manitoba. Dr. Van Caesele is also the Medical Director of CPL, a position he has held since 2000, and the co-chair of the Canadian Public Health Laboratory Network. Dr. Van Caesele's curriculum vitae is attached as **Exhibit "B"** to my affidavit.

9. Attached as **Exhibit "C"** to my affidavit is a copy of our expert report entitled "Principles and practice of molecular testing for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-Cov-2) during the Coronavirus Disease 2019 (COVID-19) pandemic in Manitoba, Canada".

10. As we explain in more detail in the report, the RT-PCR test is the most accurate test available for identifying cases of SARS-CoV-2. The Ct value associated with the RT-PCR test represents the number of times that the genetic material in the sample must be amplified (doubled) before the particular genetic material of the virus can be positively identified. The Ct value is inversely related to the amount of virus originally present in a sample. In other words, the higher the Ct value, the less virus initially present. Regardless of the particular Ct value, a positive RT-PCR result represents a true positive case of the SARS-CoV-2 virus.

11. Research has shown that there is a progressively lower probability that the virus can grow in a cell culture (a proxy for an individual being infectious) when the SARS-CoV-2 virus is detected at a Ct value of 25 or higher. This means that the higher the Ct value, the less likely the person is infectious at that time. However, cell culture is only a proxy and the possibility that an individual is infectious at the time of the RT-PCR test or will later become infectious cannot be ruled out based on Ct value alone. Further clinical investigation is required.

12. From a public health perspective, it is important to identify and report all positive cases of SARS-CoV-2, regardless of the Ct value. First, while less likely, some individuals might still be infectious even at a higher Ct value. Secondly, a positive test at a higher Ct value (indicating a lower viral load) may result because the individual is only at the early stages of the COVID-19 disease. In other words, the SARS-CoV-2 virus will continue to multiply in that individual and the person will become infectious in the near future. Finally, even if a person who tested positive at a higher Ct value is no longer infectious, that individual did have COVID-19 and was

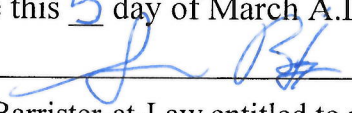


13. I acknowledge that in preparing this report and providing expert evidence, legal counsel for the Government explained that my role is to assist the court to determine the matters in issue. I further acknowledge that it is my duty to provide evidence that is fair, objective and non-partisan and to 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.

**AFFIRMED** before me in the City )  
of Winnipeg, in the Province )  
of Manitoba, this 5<sup>th</sup> day of )  
March, 2021. )

  
JARED MANLEY PETER BULLARD

This is Exhibit " A " referred to  
in the Affidavit of Jared Manley  
Peter Bullard Affirmed before  
me this 5<sup>th</sup> day of March A.D. 2021

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



**Dr. Jared Bullard MD, FRCPC**

**Section Head, Pediatric Infectious Diseases**

**Associate Professor, Pediatrics & Child Health and Medical Microbiology & Infectious  
Diseases**

**Associate Medical Director, Cadham Provincial Laboratory**

## **Curriculum Vitae**



**University  
of Manitoba**

**January 2021**

# **CURRICULUM VITAE**

## **Jared Manley Peter Bullard, MD FRCPC**

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**Business Address:** Cadham Provincial Laboratory, 750 William Avenue, Box 8450,  
Winnipeg, Manitoba, R3C 3Y1  
Tel: (204) 945-1306  
Fax: (204) 786-4770  
Email: jared.bullard@gov.mb.ca

**Citizenship:** Canada/Bahamas

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### **Positions Held:**

Assistant Medical Director – Cadham Provincial Laboratory (CPL), July 2010-November 2011  
Associate Medical Director – Cadham Provincial Laboratory (CPL), November 2011- present  
Section Head – Pediatric Infectious Diseases, University of Manitoba, April 2020 - present

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### **Appointments:**

Section Head – Pediatric Infectious Diseases, University of Manitoba, April 2020 - present  
Associate Professor – Promoted March 31, 2017 in the Departments of Pediatrics & Child Health and Medical Microbiology & Infectious Diseases, University of Manitoba, 2017 – present  
Assistant Professor – Departments of Pediatrics & Child Health and Medical Microbiology, University of Manitoba, 2010 – 2017  
Infectious Disease Consultant – Winnipeg Regional Health Authority, 2009 – present  
Medical Consultant to Cadham Provincial Laboratory – temporary assistant to the Medical Director, August 2009.  
Medical Consultant at Children's Hospital, January-October 2008

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### **Education Completed:**

2010	<b>Royal College of Physicians and Surgeons of Canada (FRCPC)</b> Medical Microbiology, University of Manitoba, Faculty of Medicine
2007 to 2010	<b>Fellowship training in Medical Microbiology</b> Completed training in June 2009 at the University of Manitoba, Department of Pediatric Infectious Diseases.
2009	<b>Royal College of Physicians and Surgeons of Canada (FRCPC)</b> Infectious Diseases, University of Manitoba, Faculty of Medicine
2007 to 2009	<b>Fellowship training in Pediatric Infectious Diseases</b> Completed training in June 2009 at the University of Manitoba, Department of Pediatric Infectious Diseases
2008	<b>Royal College of Physicians and Surgeons of Canada (FRCPC)</b> Pediatrics
2004 to 2008	<b>Postgraduate Medical Training in Pediatrics</b> Completed training in June 2008 at the University of Manitoba, Department of Pediatrics
2005	<b>Licentiate of the Medical Council of Canada (LMCC) Part 2</b>
2004	<b>Licentiate of the Medical Council of Canada (LMCC) Part 1</b>
2000 to 2004	<b>Doctorate of Medicine, M.D.</b> Faculty of Medicine, University of Manitoba, 2004

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2000 to 2002	<b>Bachelor of Science in Medicine, BSc (Medicine), HIV Immunology</b> University of Manitoba, Department of Medical Microbiology, Faculty of Medicine
1995 to 1999	<b>Bachelor of Science, BSc (4 year with highest distinction), Biochemistry</b> University of Winnipeg, Department of Biochemistry

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## Training and Informal Education

2020	<b>Health Canada Division 5 – Drugs for Clinical Trials Involving Human Subjects Stage 1</b> Record ID 3637609
2020	<b>Canadian Good Clinical Practice (GCP) – Investigators 1-Basic</b> Record ID 36397608
2017	<b>Transportation of Dangerous Goods (TDG)</b> Canadian Certification (Certificate 7434)
2016	<b>CMA Physician Leadership Institute</b> Engaging Others
2016	<b>Emergency Spill Response Team</b> Manitoba Member Certified (MB-023-12) by the Public Health Agency of Canada (PHAC)
2015	<b>Manitoba Health Organization &amp; Staff Development (OSD)</b> <ul style="list-style-type: none"> <li>• Conflict Resolution</li> <li>• Media Relations Training</li> </ul>
2015	<b>CMA Physician Leadership Institute</b> Physician as a Coach
2013	<b>CMA Physician Leadership Institute</b> Self-awareness and Effective Leadership
2013	<b>Transportation of Dangerous Goods (TDG)</b> Canadian Certification (Certificate 5732)
2011	<b>WRHA Organization &amp; Staff Development (OSD)</b> <ul style="list-style-type: none"> <li>• Managing the Generational Differences at Work</li> <li>• Progressive Discipline</li> </ul>
2010	<b>The College of American Pathologists (CAP)</b> Initial Team Member Training with Post-Test

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## Professional Associations and Memberships

2019	International Union against Sexually Transmitted Infections – Canada (IUSTI-Canada)
2015	American Society of Microbiology (ASM), Member
2010	HIV Medicine Association (HIVMA), Member
2008	Royal College of Physicians and Surgeons of Canada (FRCPC), Fellow (Pediatrics, Infectious Diseases, Medical Microbiology)
2007	Infectious Diseases Society of America (IDSA), Member
2007	Association of Medical Microbiology and Infectious Diseases Canada (AMMI), Member
2004	Canadian Pediatric Society (CPS), Fellow (Global Child & Youth Health, Hospital Pediatrics)
2000	Canadian Medical Association (CMA), Member

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## Professional and Academic Affiliations

### Hospital/Laboratory:

2020	<b>COVID-19 Pandemic Pediatric Incident Command Team</b> Section Head Pediatric ID representative
2020	<b>SARS-CoV-2/COVID-19 Response Committee</b> Laboratory leadership addressing the response to the SARS-CoV-2/COVID-19 pandemic and testing operations
2019	<b>Shared Health Clinical Practice Change</b> Diagnostic Testing Recommendations for Investigation of Urinary Tract Infections (UTI)
2014 to present	<b>Manitoba Health FOCUS Facilitator</b> Representative for Cadham Provincial Laboratory to facilitate use of the PEAK communication tool for Departmental/Divisional Alignment Meetings
2014 to 2017	<b>Workplace Wellness Working Group (WWWG)</b> CPL representative to the Manitoba Health WWWW
2013 to present	<b>Cadham Provincial Laboratory Management Committee (LMC)</b>
2012 to 2016	<b>Winnipeg Children's Hospital First Febrile UTI Working Group</b> Infectious Disease consultant providing advice regarding treatment and diagnostics for UTIs
2012 to present	<b>Cadham Provincial Laboratory Quality Assurance (QA) Committee</b>
2011 to present	<b>Cadham Provincial Laboratory Risk Management Committee</b> Chair
2010 to present	<b>Cadham Provincial Laboratory Workplace Health and Safety Committee</b> Employer co-chair

### Provincial:

2021 to present	<b>COVID-19 Vaccine: Vaccine Priority Populations Group</b>
2020 to present	<b>COVID-19 Vaccine: Clinical/Medical Oversight Group</b>
2020 to present	<b>Respiratory Virus Public Health Working Group</b> Laboratory and clinical representative providing guidance on respiratory viruses including influenza and SARS-CoV-2.
2020 to present	<b>COVID-19 Public Health Operations Committee</b> Laboratory and clinical representative on the Manitoba committee providing recommendations and consultation to the public health response for the SARS-CoV-2/COVID-19 pandemic.
2019 to present	<b>Provincial Sexually Transmitted and Blood-borne Infections Outbreak Response Committee (SORC)</b> Member on Testing Sub-Committee and co-chair on Treatment Sub-Committee
2018 to present	<b>Collective Impact Network – HIV/STI Testing and Linkage Working Group</b>
2017 to present	<b>Provincial STBBI Outbreak Management Steering Committee</b>
2015	<b>City of Winnipeg Boil Water Advisory Investigation Committee</b> Laboratory representative and author of CPL report investigating the boil water advisor in Winnipeg, Manitoba in January 2015.
2014 to present	<b>Adverse Events Following Immunization (AEFI) Causality Assessment</b> Consultant for cases of potential AEFI events
2014 to present	<b>Manitoba Perinatal Screening Committee</b> Interdisciplinary team evaluating the provincial newborn screening program
2013 to 2015	<b>Communicable Disease Control, Manitoba Health Reportable Diseases Working Group</b> Revision of the Manitoba Reportable Diseases list to harmonize with National list
2013 to 2017	<b>Manitoba Health Grant Evaluations Committee</b>

	Review and advise on grant applications for funding by Manitoba Health based on core objectives
2013 to present	<b>Public Health Laboratory Committee</b> Chair of the group reviewing important information and data provided by the Public Health team including Cadham Provincial Laboratory
2013 to present	<b>Maternal Serum Screening Committee</b> Interdisciplinary team evaluating the provincial MSS program
2013 to present	<b>HIV Prevention of Mother to Child Transmission (PMTCT) Committee</b> Chair of the group responsible for regular review and implementation of the HIV PMTCT protocol at the Women's Hospital, health Sciences Centre and ultimately on a provincial level.
2012 to present	<b>HIV Point of Care Testing (POCT) Committee</b> Chair of the group responsible for discussing issues and administration of sites currently offering HIV POCT in Manitoba and selection of new sites
2012 to 2017	<b>Communicable Disease Control, Manitoba Health Antibiotic Resistant Organisms (AROs) Revision Committee</b> Review and discussion of Infection Prevention and Control guidance documents
2011 to present	<b>Manitoba HIV Program</b> Pediatric and Laboratory consultant and liaison
2010 to 2012	<b>Manitoba STBBI Strategy Steering Committee</b> Working group of Manitoba Health, Healthy Living and Public Health updating the 1996 Manitoba HIV Strategy Co-chair of the Treatment Pillar

University:

2020 to present	<b>Department of Medical Microbiology &amp; Infectious Diseases Clinical Studies Fund</b> Executive Member as Head of Pediatric Infectious Diseases
2019 to present	<b>Biosafety &amp; Wellness Coordinator</b> For Infectious Diseases, Medical Microbiology, Clinical Microbiology and Pediatric Hematology/Oncology trainees
2016 to 2018	<b>Pediatric Residents' Educational Case Review (ECR)</b> Primary Staff Supervisor and Advisor
2016 to present	<b>Academic Appeals Committee</b>
2015 to 2016	<b>Undergraduate Medical Education Consolidation Committee</b> Medical Microbiology representative
2013 to present	<b>Public Health and Preventative Medicine Residency Training Program Committee</b> Responsible for reviewing individual PHPM resident's progress and discussing ways to help them achieve their academic and professional goals
2011 to 2012	<b>Curriculum Renewal Task Group 7: Health Systems</b> Revision of undergraduate medical education courses regarding systems in Health
2011 to present	<b>Children's Hospital Research Institute of Manitoba (CHRIM)</b> Scientist Member
2010 to 2011	<b>Undergraduate Medical Education (UGME) Curriculum Review and Renewal Planning Committee</b> Responsible for revision of UGME course material in the areas of diagnostics and medical microbiology
2010 to present	<b>Pediatric Infectious Disease Resident Program Committee</b> Responsible for reviewing individual Pediatric Infectious Diseases resident's progress and discussing ways to help them achieve their academic and professional goals
2010 to present	<b>Medical Microbiology Resident Program Committee</b> Responsible for reviewing individual Medical microbiology resident's progress and discussing ways to help them achieve their academic and professional goals

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2010 to present	<b>Medical Microbiology Council</b> Voting member as Associate Professor
2009 to 2016	<b>Infectious Diseases/Medical Microbiology Half-Day Committee</b> Review and modification of the existing half-day to ensure preparation for the Royal College exam for these sub-specialties and helping trainees to remain up to date.
2009 to 2013	<b>Pediatric sub-committee for the resident Academic Half-day</b> Optimizing the current pediatric half-day to ensure its compliance with the Royal College of Physicians and Surgeons of Canada objectives
2009 to 2010	<b>Medical Microbiology/Infectious Diseases Fellow Representative</b> Medical Microbiology Council, Faculty of Medicine, University of Manitoba
2008 to 2011	<b>Pediatric Resident OSCE Committee</b> Designing and implementing OSCE stations to prepare residents for the Royal College examination in Pediatrics
2008 to 2009	<b>Chief Resident of Infectious Diseases and Medical Microbiology</b> University of Manitoba

National Committees:

2020 to present	<b>Canadian Public Health Laboratory Network (CPHLN) CanCOGeN Sequencing Group</b> Provincial co-representative for genetic sequencing of Canadian SARS-CoV-2 isolates
2019 to present	<b>National Advisory Committee on Sexually Transmitted and Blood-borne Infections</b> Clinical and laboratory provincial representative and Chair of Syphilis sub-group
2019 to present	<b>Canadian Public Health Laboratory Network (CPHLN) Syphilis Diagnostics Working Group</b> Provincial representative and co-chair for diagnosis of congenital syphilis
2018 to present	<b>Canadian Association of HIV Clinical Laboratory Specialists (CAHCLS)</b> Provincial representative
2017 to present	<b>Royal College of Physicians of Surgeons of Canada</b> Infectious Diseases Certification Examiner
2017	<b>Royal College of Physicians of Surgeons of Canada</b> Infectious Diseases Certification Examination Quality Reviewer
2016 to present	<b>Royal College of Physicians of Surgeons of Canada</b> Medical Microbiology Certification Examination Examiner
2016 to 2017	<b>The Canadian Public Health Laboratory Network Gold Standards of Laboratory Tests (GSLT) Working Group</b> Provincial Representative
2015 to 2018	<b>The Canadian Public Health Laboratory Network Antimicrobial Resistance Working Group</b> Provincial Representative
2014 to 2015	<b>Canadian Public Health Laboratory Network (CPHLN) Ebola Working Group</b> Provincial diagnostic laboratory representative
2010 to present	<b>Canadian Pediatric AIDS Research Group (CPARG)</b> Manitoba co-member of CPARG
September 2009	<b>Facilitator at the Severe H1N1 Disease: Preventing Cases, Reducing Mortality</b> Responsible for summarizing key points and recommendations from the breakout session dedicated to Public Health, Primary Practice and Special Populations

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International Committees:

2019 to present	<b>Clinical Infectious Diseases (CID) Editorial Advisory Board</b> One of six Canadian board members for the CID journal, assisting in peer review of submitted manuscripts and direction of the journal
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**Academic Awards and Achievements**

2020	<b>Pediatric Chairs of Canada 2020 COVID Leadership Award</b> Awarded to the Pediatric Incident Command Team
2019	<b>Manitoba Medical Student Association Teaching Awards 2017/18</b> Nominee for the Class of 2021: Teaching in a Small Group Setting Award
2017	<b>Manitoba Medical Student Association Teaching Awards 2015/2016</b> Nominee for the Class of 2017 (Med III): Attending – Mentorship and Class of 2018 (Med II): Best Teaching in Small Group Setting awards
2016	<b>Department of Medical Microbiology &amp; Infectious Diseases Clinical Educator Award 2016</b> Selected by residents in the Infectious Diseases and Medical Microbiology programs for excellence in teaching
2016	<b>2015 Pediatrics Faculty Development Fund</b> Awarded \$500 for attending CMA Physician Leadership Course, University of Manitoba
2016	<b>Manitoba Medical Student Association Teaching Awards 2014/2015</b> Nominee for the Med II Pre-clerkship awards in both Innovation and Inspiration categories
2008	<b>Children's Hospital Foundation Local Research Competition</b> Best presentation in the Fellow category
2006	<b>Professional Association of Residents and Interns of Manitoba Resident of the month December 2006</b> Voted on by the PARIM committee based on nominations from its members from their positive interactions with the nominated resident
2006	<b>Manitoba Medical Students Association Resident Award for Teaching Excellence</b> Voted on by medical students in their graduating year from over 350 residents
2004	<b>Dr. Harold Popham Scholarship</b> Highest academic standing going into post-graduate studies in the field of Pediatrics
2002	<b>Nicholson Prize</b> BSc (medicine) Project with Most Scientific Merit
2002	<b>Merck, Sharp &amp; Dome Scholarship</b> Best Basic Sciences BSc (medicine) project
2002	<b>National Student Research Forum (NSRF) Award</b> Attended NSRF in Galveston, Texas in April 2003
2002	<b>American Society for Clinical Pathology Award</b> Academic Excellence and Achievement
2001	<b>Morris Neamon Award</b> Excellence in first year of the BSc (medicine) program
1999	<b>Gold Medalist in Biochemistry (4 year)</b> University of Winnipeg
1999	<b>Student Merit Award in Biochemistry</b> Society of Chemical Industry



## Professional Activities

### Newsletters and Educational Products:

November 2020	<b><i>College of Family Physicians of Canada (CFPC) COVID-19 eLearning Course for Family Physicians</i></b> Module 2 COVID-19: Spread of disease and protecting the public Content expert and editor of national resource for CFPC members CME
Spring 2020	<b><i>The Manitoba COVID-19 Report</i></b> Conceptualized, and Faculty Lead and Editor for, a collaborative report generated by idle medical and graduate students, residents and infectious diseases/medical microbiology/clinical microbiology fellows with assistance by the Neil John MacLean Health Sciences Library librarian team to review COVID-19 literature and research in the domains of Clinical Description and Epidemiology, Diagnostics & Surveillance, Therapeutics, Infection Prevention & Control, Public Health Interventions and Pediatric Corner. Eight weekly reports were distributed to practitioners in Manitoba, Canada and internationally. <a href="https://www.mbcovid19report.com/">https://www.mbcovid19report.com/</a>

### Peer Reviewed Journal Articles:

January 2021	<b><i>Congenital Syphilis Diagnosed Beyond the Neonatal Period in the United States, 2014-2018</i></b> Manuscript peer reviewer for Pediatrics
December 2020	<b><i>Comparison of RT-PCR Cycle Threshold Values from Respiratory Specimens in Symptomatic and Asymptomatic Children with SARS-CoV-2 Infections</i></b> Manuscript peer reviewer for JAMA Pediatrics
December 2020	<b><i>Infectious period of SARS-CoV-2 in 17 nursing home residents – Arkansas, June-August 2020</i></b> Manuscript peer reviewer for Open Forum of Infectious Diseases (OFID)
November 2020	<b><i>Sub-optimal adherence to prenatal screening guidelines of Chlamydia trachomatis and Neisseria gonorrhoeae infection in a Montreal tertiary care hospital: a retrospective cohort study</i></b> Manuscript peer reviewer for Canadian Communicable Disease Report (CCDR)
November 2020	<b><i>SARS-CoV-2 antibody status in decedents undergoing forensic postmortem examination in Maryland, May 24 to June 30, 2020</i></b> Manuscript peer reviewer for Open Forum Infectious Diseases (OFID)
October 2020	<b><i>SARS CoV-2 Surveillance and Exposure in the Perioperative Setting with Universal testing and Personal Protective Equipment (PPE) Policies</i></b> Manuscript peer reviewer for Clinical Infectious Diseases
September 2020	<b><i>Findings among Indigenous participants of the Tracks survey of people who inject drugs in Canada, Phase 4, 2017-2019</i></b> Manuscript peer reviewer for Canadian Communicable Disease Report (CCDR)
September 2020	<b><i>Respiratory tract samples collected from patients within a region of Quebec, Canada indicate the absence of early circulation of SARS-CoV-2 infection</i></b> Manuscript peer reviewer for Journal of the Association of Medical Microbiology and Infectious Diseases (JAMMI).
August 2020	<b><i>Prevalence of COVID-19 among children and adolescents while easing lockdown restrictions in Cologne, North Rhine-Westphalia, Germany</i></b> Manuscript peer reviewer for Archives of Disease in Childhood
August 2020	<b><i>A pilot RCT evaluating InThistoGether, an mHealth HIV Prevention Program for Ugandan Youth</i></b>

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August 2020	Manuscript peer reviewer for Pediatrics <i>Development and validation of reverse transcriptase-PCR assays for the testing of SARS-CoV-2</i>
August 2020	Manuscript peer reviewer for Journal of the Association of Medical Microbiology and Infectious Diseases (JAMMI) <i>Diagnostic yield of repeat testing for SARS-CoV-2: Experience from a large health system in Los Angeles</i>
May 2020	Manuscript peer reviewer for International Journal of Infectious Disease <i>Positive Tracheal SARS-CoV-2 RNA Test After Three Negative SARS-CoV-2 RNA Tests in a Patient with COVID-19</i>
May 2020	Manuscript peer reviewer for Canadian Journal of Anesthesia <i>Surveillance of laboratory exposures to human pathogens and toxins: Canada 2019</i>
December 2019	Manuscript peer reviewer for Canadian Communicable Diseases Report (CCDR) <i>Routine HIV testing in acute care hospitals: Changing practice to curb a local HIV epidemic in Vancouver, BC</i>
June 2019	Manuscript peer reviewer for Preventive Medicine <i>Review of Rates of Hospitalization and Infection-Related Hospitalization Among HIV-Exposed Uninfected Children Compared to HIV-Unexposed Uninfected Children in the United States, 2007–2016</i>
April 2019	Manuscript peer reviewer for Clinical Infectious Diseases <i>Review of Incidence and progression of echocardiographic abnormalities in HIV-infected older children and adolescents taking antiretroviral therapy: A prospective cohort study</i>
November 2018	Manuscript peer reviewer for Clinical Infectious Diseases <i>Review of Substance Use, Demographic, and Socioeconomic Factors are Independently Associated with Post-Partum HIV Care Engagement in the Southern United States, 1999-2016</i>
August 2018	Manuscript peer reviewer for Clinical Infectious Diseases <i>Maternal and Infant Bone Mineral Density One Year after Delivery in a Randomized Controlled Trial of Maternal Tenofovir Disoproxil Fumarate to Prevent Mother-to-Child Transmission of Hepatitis B Virus</i>
July 2017	Manuscript peer reviewer for Clinical Infectious Diseases <i>The Impact of Gestational Age at ART initiation on Adverse Birth Outcomes</i>
May 2017	Manuscript peer reviewer for Clinical Infectious Diseases <i>First record of locally acquired human babesiosis in Canada caused by Babesia duncani: a case report</i>
March 2017	Manuscript peer reviewer for SAGE Open Medical Case Reports <i>Performance of point-of-care birth HIV testing in primary health care clinics: an observational cohort study</i>
July 2016	Manuscript peer reviewer for Clinical Infectious Diseases <i>Failure to suppress HIV in children on antiretroviral treatment in low- and middle-income countries: a meta-analysis</i>
April 2016	Manuscript peer reviewer for Clinical Infectious Diseases <i>Prevalence of locomotor disorders among people living with HIV followed in the Department of Infectious and Tropical Diseases, Abidjan, Côte d'Ivoire</i>
April, June 2016	Manuscript peer reviewer for the Canadian Journal of Infectious Diseases and Medical Microbiology <i>N-terminal pro-B-type Natriuretic Peptide for the Progressive Prediction of Severe Hand, Foot and Mouth Disease</i>
July 2015	Manuscript peer reviewer for BMC Infectious Diseases <i>Incidence, risk factors, and outcomes of opportunistic infections in pediatric renal transplant recipients</i>
May 2015	Manuscript peer reviewer for Pediatric Transplantation <i>Mycoplasma hominis as a Cause of Septic Hip Arthritis in a Neonate: The First Case Report</i>
	Manuscript peer reviewer for the Journal of Medical Microbiology

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May 2015	<i>High prevalence of K65R drug resistance mutation in HIV-1 infected infants exposed to maternal therapy of lamivudine, zidovudine and either nevirapine or nelfinavir in breast milk</i> Manuscript peer reviewer for Clinical Infectious Diseases
August 2014	<i>Pregnancy and HIV disease progression: a systematic review and meta-analysis</i> Manuscript peer reviewer for Clinical Infectious Diseases
August 2013	<i>A Multicentre Study of Initiation of Antiretroviral Therapy and Transmitted Drug Resistance in Antiretroviral Naïve Adolescents and Young Adults with HIV in New York City</i> Manuscript peer reviewer for Clinical Infectious Diseases
August 2013	<i>A Multicentre Study of Initiation of Antiretroviral Therapy and Transmitted Drug Resistance in Antiretroviral Naïve Adolescents and Young Adults with HIV in New York City</i> Manuscript peer reviewer for Clinical Infectious Diseases
August 2013	<i>Chikungunya Fever in Canada: Common Presentations and Management Challenges highlighted by Two Reported Cases</i> Manuscript peer reviewer for Canadian Medical Association Journal
September 2012	<i>Polymerase-Chain-Reaction-based Diagnosis of Viral Pulmonary Infections in Immunocompromised Children</i> Manuscript peer reviewer for Pediatric Pulmonology
August 2012	<i>Spinal bone mineral density increases in HIV-infected children treated with long-term combination antiretroviral therapy</i> Manuscript peer reviewer for Clinical Infectious Diseases

#### Grants Review:

2019	<i>Children's Hospital Research Institute of Research (CHRIM) Basic Science Operational Grant Reviewer</i>
2014	<i>Public Health Agency of Canada (PHAC) GRDI 6 Virology Subcommittee Grant proposal reviewer</i>

#### Abstract Review:

2014, 2016	<b>Canadian Association of HIV Research (CAHR)</b> Pediatric and Laboratory HIV Abstract Reviewer
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#### Academic Theses Reviewed:

2013	<b>University of Manitoba Bachelor of Science (Medicine)</b> Thesis Title: ““You’d be surprised how many kids don’t know this stuff. They act like they do, but they don’t”: Designing Healthy Sexuality Initiatives with At-Risk Youth Internal Examiner for Ms. Heather Ashdown
2012	<b>University of Manitoba Bachelor of Science (Medicine)</b> These Title: Understanding the impact of HIV among vulnerable populations in South India. Internal Examiner for Ms. Melina Zylberman
2011	<b>University of Manitoba Bachelor of Science (Medicine)</b> These Title: Supportive care in the management of severe pneumonia in Nigerian children. External Examiner for Ms. Tito Daodu

Chair activities:

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|------|--|
| 2016 | <b>Co-chair at the 25<sup>th</sup> Annual Canadian Association of HIV Research (CAHR)</b><br>Clinical Care Session, Clinical Sciences Track<br>Winnipeg, MB, Canada May 13, 2016 |
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Royal College of Physicians and Surgeons of Canada Exam Committees:

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|------|--|
| 2017 | Infectious Diseases Certification Exam Committee                             |
| 2017 | Infectious Diseases Certification Exam Quality Reviewer and Committee Member |
| 2016 | Medical Microbiology Certification Exam Committee                            |

**Teaching and Students Supervised/Mentored**

Graduate Level Students Supervised:

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|--------------|--|
| 2012 to 2014 | <b><i>Screening Tests for Congenital Infectious Diseases in Manitoba: Are all Pregnant Women in Manitoba Screened?</i></b><br>Co-supervisor of Arwa Faizo, Masters of Science (MSc)<br>Graduated in October 2014 |
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Graduate Level Courses Taught:

- |                  |   |
|------------------|---|
| 2017, 2019, 2021 | <i>Parasitology Course MMIC 7140.</i> Laboratory skills supervisor. University of Manitoba, Winnipeg, MB.   |
| 2016, 2018       | <i>Clinical Virology MMIC 7210.</i> Guest lecturer, 3 separate lectures (Herpesviruses, Mumps/Measles/Rubella, Introduction to Virology). University of Manitoba, Winnipeg, MB. |
| 2015             | <i>Parasitology Course MMIC 7140.</i> Laboratory skills co-supervisor. University of Manitoba, Winnipeg, MB.  |
| 2013, 2015, 2017 | “Staphylococcus aureus”. Guest lecturer. <i>University of Manitoba, Clinical Bacteriology MMIC 7040.</i> Winnipeg, MB.  |
| 2011, 2015, 2017 | “Enterococci”. Guest lecturer. <i>University of Manitoba Clinical Bacteriology MMIC 7040.</i> Winnipeg, MB.   |

Undergraduate Medical Students Supervised:

- |      |   |
|------|---|
| 2018 | <b><i>Surveillance of Echinococcus multilocularis in the periurban and urban area of Winnipeg, Manitoba in coyotes and domestic dogs</i></b><br>Primary supervisor of Carmen Tse with Drs. Pierre Plourde and Richard Rusk<br>Med 2 Summer Research Program<br>Awarded the MED II Summer Research Best Scientific Prize 2018<br>Published in Canadian Communicable Disease Report (CCDR) July 2019  |
| 2015 | <b><i>Descriptive Epidemiology of HIV Point-of-Care Testing in Manitoba from 2010 to the Present (June 2015)</i></b><br>Primary supervisor of James Johnston with Dr. Joss Reimer<br>Med 2 Summer Research Program<br>Presented at the Association for Medical Microbiology and Infectious Diseases (AMMI) Annual Conference March 2016<br>Published in Sexually Transmitted Infection October 2017 |

- 2012 ***Clinical Correlation of EBV and CMV viral loads as predictors of disease and therapeutic monitoring in blood and marrow transplant patients in Manitoba***  
Co-investigator with Dr. Donna Wall, Jesse Marantz  
BSc (medicine) Project 2012-13  
Student unable to complete research due to personal reasons

### Undergraduate Students Mentored:

- 2020 **Med 1 and Med 2 Panel Discussions: Beyond the Bedside**  
Invited speaker to discuss medical practice outside of direct clinical care with University of Manitoba Medical Students in their first and second years
- 2019 **Med 1 and Med 2 Panel Discussions: Beyond the Bedside**  
Invited speaker to discuss medical practice outside of direct clinical care with University of Manitoba Medical Students in their first and second years
- 2018 **Internal Medicine Interest Group: Infectious Diseases Panel Discussion**  
Invited by the University of Manitoba Students IMIG to discuss careers in ID
- 2017 **Public Health Panel Discussion**  
Invited by the University of Manitoba Students Public Health Interest Group to discuss and mentor medical students about careers in Public Health (provincial and public health laboratory focus)
- 2011 to 2018 ***“Speed Date a Pediatrician”***  
Invited by the University of Manitoba Medical Students Pediatric Interest Group to discuss and mentored medical students about a career in Pediatric Infectious Diseases
- 2012 to 2015 **Faculty Mentor to University of Manitoba Medical Students**  
Providing guidance and advice to medical students on their journey through 4 years of medical school

### Undergraduate Student Teaching:

- November 2020 WRH232 Perinatal Infections II tutorial: M2 students
- November 2020 PAEP 7084: HIV and Infections in the Immune Suppressed
- October 2020 Physician Assistant Year 1 Lecture: Practical Diagnostic Microbiology
- September 2020 Transition to Clerkship (TTC) Childhood History Taking/Physical Examination Bootcamp: M3 students
- November 2019 WRH232 Perinatal Infections II tutorial: M2 students
- November 2019 Physician Assistant Year 1 Lecture: Practical Diagnostic Microbiology
- November 2019 PAEP 7084: HIV and Infections in the Immune Suppressed
- September 2019 BII Tutorial M1: Respiratory Infections in the Immunocompromised
- August 2019 BII Tutorial M2: Infections in the Immune Compromised Host
- February 2019 Adolescent History Taking: M1 students
- November 2018 WRH232 Perinatal Infections II tutorial: M2 students
- May 2018 Pediatric Clinical Skill Teaching: M1 students
- February 2018 Adolescent History Taking: M1 students
- November 2017 Pediatric Observed History and Physical: M3 clerks
- May 2017 Pediatric Clinical Skills Teaching: M2 students
- May 2017 Integration Case 13 (CM372/376) Adolescent Medicine: M2 students
- November 2016 WRH232 Perinatal Infections II tutorial: M2 students
- May 2016 Pediatric Clinical Skills Teaching, cardio-respiratory exam: M1 students
- April 2016 CM341/342 Integration Case 5 Neonate with Lethargy: M2 students
- November 2015 WRH232 Perinatal Infections II tutorial: M2 students
- November 2015 Pediatric Observed History and Physical: M3 clerks
- September 2015 Pediatric Observed History and Physical: M3 clerks
- May 2015 LRTI tutorial: M2 students
- February 2015 Pediatric Clinical Skills Teaching: M2 students

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January 2015	Pediatric Observed History and Physical: M3 clerks
December 2014	Pediatric Clinical Skills Teaching: M2 students
October 2014	Pediatric Clinical Skills Teaching: M2 students
September 2014	Pediatric Observed History and Physical: M3 clerks
December 2013	Pediatric ID UGME M3 Academic Half-day session
October 2013	SF109 <i>Staphylococcus aureus</i> tutorial: M1 students
October 2013	SF111 <i>Streptococcus</i> spp. tutorial: M1 students
July 2013	Pediatric ID UGME M3 Academic Half-day session
February 2013	Pediatric Observed History and Physical: M3 clerks
September 2012	Pediatric ID UGME M3 Academic Half-day session
October 2011	SF109 <i>Staphylococcus aureus</i> tutorial: M1 students
November 2011	SF111 <i>Streptococcus</i> spp. tutorial: M1 students
July 2011	Pediatric ID UGME M3 Academic Half-day session
April 2011	Pediatric ID UGME M3 Academic Half-day session
January 2011	Pediatric ID UGME M3 Academic Half-day session
September 2010	Pediatric ID UGME M3 Academic Half-day session
2010 to 2018	<i>The Infectious Diseases/Medical Microbiology Case of the Week (ID/MM COTW).</i> Produce, administer, and review cases that reinforce key ID and MM principles to medical students in their first and second years through the OPAL online system at the University of Manitoba

#### Postgraduate Trainees Supervised:

2020 to present	<b><i>Therapeutic factors influencing the disclosure process of HIV status on Manitoba children and adolescents born with HIV</i></b> Supervisor of Trisha Vera Physician's Assistant Capstone Project Participant recruitment and interview
2020 to present	<b><i>Correlation of Syphilis Serology Chemiluminescent Immunoassay (CMLA) to Rapid Plasma Reagin (RPR) to Assess Disease Activity</i></b> Co-Supervisor of Dr. Matthew Kochan Drafting research proposal
2019 to present	<b><i>Radiological features of congenital syphilis in Manitoba 2015-2020</i></b> Co-supervisor with Dr. John Bonanni of Dr. Andrea Marks Pediatric Resident Research Project Protocol being drafted, consulting with REB
2018 to present	<b><i>SARS-CoV-2 RT-PCR Cycle Thresholds (Ct) values and Correlation with Symptom onset to Test (STT) in Pediatric Patients in Manitoba during the COVID-19 Pandemic</i></b> Supervisor of Dr. Jonathan Ripstein Pediatric Resident Research Project Data collection and analysis
2017 to 2019	<b><i>Syphilis in Pregnancy and Infant Outcomes in Manitoba from 2012-2017</i></b> Supervisor of Drs. Alison Lopez and Santana Lee Data analysis and manuscript preparation
2016 to 2019	<b><i>Detection of HIV in Urine from Patients with Known HIV-1 Infection utilizing the Aptima™ HIV-1 Quant Dx Assay: A Proof of Concept Study</i></b> Supervisor of Dr. Jennifer Wiebe Pediatric Resident Research Project Manuscript preparation and revisions
2015 to 2016	<b><i>Ixodes scapularis, Fighting Back! A Clinician's Guide to Lyme disease testing in Manitoba: A Critical Appraisal of Current and Proposed Testing Methods</i></b> Supervisor of Elizabeth Paulson Physician's Assistant Capstone Project Mentor Final paper and poster presentation completed

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2015 to 2018	<b><i>Clinical and Epidemiological Characteristics and outcomes of Children Infected with Enterovirus D-68 in Manitoba in 2010 and 2014</i></b> Supervisor of Dr. Santina Lee Pediatric Resident Research Project Presented at the Local Pediatric Resident Research Competition
2014 to 2017	<b><i>Bloodborne Sexually Transmitted Infection Testing Discrepancies in the Pediatric Population in Manitoba: A Retrospective Database Review</i></b> Supervisor of Dr. Teryl Sansom Pediatric Resident Research Project Presented at 29 <sup>th</sup> Annual Local Pediatric Resident and Fellow Research Competition (2017)
2013	<b><i>First In Vivo Evidence of a Rare Mutation Causing Drug-Resistant HSV Stomatitis</i></b> Co-advisor for Dr. Aly-Khan Lalani Podium presentation at CancerCare Manitoba and Department of Medicine Research Day Second Prize by a Core resident for a case report at Medicine Research Day
2010 to 2014	<b><i>Clinical and Microbiological characteristics of peritoneal dialysis-associated peritonitis (PDAP) and exit site infections (ESI) in pediatric patients in Manitoba from 1992 to 2010</i></b> Co-supervisor of Dr. Samantha Witt Pediatric Resident Research Project Presented at Children's Hospital Foundation Local Research Competition (2013)

#### Postgraduate Trainees Mentored:

June 2019	<b><i>Pediatric Resident Journal Club Host</i></b>
May 2018	<b><i>Pediatric Resident Journal Club Mentor</i></b> Select, review and provide guidance for residents in their scholarly review of recent diagnostic Pediatric literature
June 2015	<b><i>Pediatric Resident Journal Club/Mentoring Session</i></b> Hosted and led discussions on work-life balance with the Pediatric Resident group
2011 to 2015	<b><i>Pediatrician Mentor for Dr. Diana Popescu</i></b> Provision of personal and professional guidance to Pediatric Residents during their training

#### Postgraduate Teaching:

August 2020	Infectious Diseases/Medical Microbiology Resident Academic Half-day: Pediatric HIV Cases
August 2020	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
November 2019	Physician Assistant Student Lecture: Practical Diagnostic Microbiology for Future Physician Assistants
November 2019	Physician Assistant Student Case Studies: Infections in Special Populations 3 (HIV and Immunocompromised)
December 2019	STACER for Dr. Kaitlyn Hogue (Pediatric Resident)
July 2019	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
June 2019	STACER for Dr. James Johnston (Pediatric Resident)
November 2018	Physician Assistant Student Case Studies: Infections in Special Populations 3 (HIV and Immunocompromised)
August 2018	Infectious Diseases/Medical Microbiology Resident Academic Half-day: Pediatric HIV NIH Guideline Review: Part 2 – Pediatric/Adolescent Guidelines
July 2018	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics

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June 2018	Physician Assistant Student Case Studies: Infections in Special Populations 3 (HIV and Immunocompromised)
June 2018	Pediatric Resident Academic Half-day: Practical Diagnostic Microbiology for the Pediatric Clinician
May 2018	Infectious Diseases/Medical Microbiology Resident Academic Half-day: Pediatric HIV NIH Guideline Review: Part 1 – Perinatal Guidelines
February 2018	STACER for Dr. William Li (Pediatric Resident)
July 2017	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
May 2017	Infectious Diseases/Medical Microbiology Resident Academic Half-day: Pediatric HIV Cases
May 2017	Physician Assistant Student Case Studies: GI and GU Infections
January 2017	Pediatric Resident R4 Royal College Examination Preparation
July 2016	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
June 2016	PAEP 7084: Infections in special populations – Neonates, pregnancy, hospitalized patients: Physician Assistant course
May 2016	Pediatric Resident R4 OSCE
May 2016	Infectious Diseases/Medical Microbiology Resident OSCE
May 2016	Family Medicine Resident Academic Half Day: Lower Respiratory Tract Infections (LRTIs)
March 2016	STACER for Dr. Teryl Sansom (Pediatric Resident)
January 2016	Pediatric Residents Academic Half-day: Antimicrobial Resistance
December 2015	STACER for Dr. Shannon Mohoric (Pediatric Resident)
July 2015	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
June 2015	STACER for Dr. Miriam Katzman (Pediatric Resident)
May 2015	Pediatric Resident R4 OSCE
February 2015	Senior Pediatric Resident Morning Report: 5 sessions (Feb-Dec 2015)
December 2014	Infectious Diseases/Medical Microbiology Resident OSCE
December 2014	STACER for Dr. Rachael Gardner (Pediatric Resident)
November 2014	Infectious Diseases/Medical Microbiology Resident Academic Half-day: Pediatric HIV Cases
October 2014	Pediatric Resident R4 Royal College Examination Preparation
August 2014	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
July 2014	Pediatric Resident Academic Half-day: Common Pediatric ID Problems II
May 2014	Physician Assistant Student Case Studies: Sepsis and CNS Infection
March 2014	Pediatric Resident OSCE
October 2013	Public Health and Preventative Medicine Resident Academic Half-day: STBBI Testing and Public Health Implications
September 2013	Pediatric Resident Academic Half-day: Pediatric HIV/AIDS
July 2013	Pediatric Resident R1 Academic Half-day: ABCs of Antibiotics
July 2013	STACER for Dr. Megan Cooney (Pediatric Resident)
May 2013	Pediatric Resident R4 Royal College OSCE Preparation
May 2013	Pediatric Resident R4 OSCE
March 2013	Pediatric Resident OSCE
January 2013	STACER for Dr. Diana Popescu (Pediatric Resident)
January 2013	Infectious Diseases/Medical Microbiology Resident Academic Half-day: Viral Monitoring in the Immunocompromised Host
November 2012	Pediatric Resident R4 Royal College Examination Preparation
May 2012	Pediatric Resident R4 Royal College OSCE Preparation
May 2012	Pediatric Resident R4 OSCE
March 2012	Pediatric Resident OSCE
June 2011	Pediatric Resident Academic Half-day: Infection Control Practices (ICP)
May 2011	Pediatric Resident R4 Royal College OSCE Preparation
January 2011	Structured Assessment of Clinical Evaluation Report (STACER) for Dr. Meghan McPherson (Pediatric Resident)
November 2010	Pediatric Resident OSCE
October 2010	Pediatric Residents Academic Half-day: Pediatric HIV
July 2010	Physician Assistant Student Lecture: Sepsis, Fevers and FUOs

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July 2010 to present      Primary supervisor of trainees rotating through CPL:  
Dr. Josh Aquin, Public Health and Preventative Medicine, August 2020  
Dr. Carl Boodman, Adult ID and Medical Microbiology, April-May 2020  
Dr. Robert Taylor, Clinical Microbiology, January-February 2020  
Dr. Jessica Kafka, Clinical Microbiology, November 2019  
Dr. Sarah Lesperance, Public Health and Preventative Medicine, September 2019  
Dr. Milena Semproni, Adult ID, February 2019  
Dr. Thomas Fear, Adult ID, January 2019  
Dr. Santana Lee, Pediatric ID, October 2018  
Dr. Jordyn Lerner, Public Health and Preventative Medicine, July 2018  
Dr. Natalie Casacang, Public Health and Preventative Medicine, June 2018  
Dr. Sarah Henni, Adult ID, April 2018  
Dr. Alison Lopez, Pediatric ID, December 2017  
Dr. Rupeena Purewal, Pediatric ID, September 2017  
Dr. Peter Benoit, Public Health and Preventative Medicine, May 2017  
Dr. Salem Agabawi, Adult ID, April 2017  
Dr. Joanna Joyce, Adult ID, March 2017  
Dr. Vanessa Tran, Clinical Microbiology, January 2017  
Dr. Lydia Chen, Public Health and Preventative Medicine, December 2016  
Dr. Sameer Kassim, Medical Microbiology, May-June 2017, June-August 2016, December 2013  
Dr. Chloe Bogaty, Adult ID/Medical Microbiology, March 2016, July 2017, March-April 2018  
Dr. Beverly Wudel, Adult ID, February 2016  
Dr. Jasdeep Atwal, Public Health and Preventative Medicine, July 2015  
Dr. Davinder Singh, Public Health and Preventative Medicine, May 2015  
Dr. Rachel Dwilow, Pediatric ID, May 2015  
Dr. Abed El-Allegry, Public Health and Preventative Medicine, April 2015  
Dr. Cheryl Foo, Pediatric ID, January 2015  
Dr. Maher Al-Harbi, Adult ID, November 2014  
Dr. Matthew Gilmour, Clinical Microbiology, October 2014  
Dr. Vanessa Poliquin, Reproductive ID, October 2014  
Dr. Marc Wallace, Public Health and Preventative Medicine, September 2014  
Dr. Safa Edagiz, Medical Microbiology, May 2014  
Dr. Siddarth Kogilwaimath, Adult ID, March 2014  
Dr. Majid Daraj, Adult ID, February 2014  
Dr. Michael Isaac, Public Health and Preventative Medicine, October 2013  
Dr. Susan Cuvelier, Gastroenterology/Hepatology, August 2013  
Dr. Meaghan O'Brien, Gastroenterology/Hepatology, July 2013  
Dr. Lorine Pelly, Pediatric ID, April 2013  
Dr. Lauren MacKenzie, Adult ID, February 2013  
Dr. Ilan Schwartz, Adult ID, January 2013  
Dr. Shadi Sepehri, Clinical Microbiology, January 2013, September 2011  
Dr. Nora Al-Fattoh, Pediatric ID, November 2012  
Dr. Adrienne Morrow, Community Medicine, September 2012  
Dr. Heejune Chang, Community Medicine, July 2012  
Dr. Guillaume Poliquin, Pediatric ID, April 2012  
Dr. Yahya Al-Fifi, Adult ID, February 2012  
Dr. Assim Al-Saedi, Adult ID, January 2012  
Dr. Joss Reimer, Community Medicine, July 2011  
Dr. Terry Wuerz, Adult ID, May 2011  
Dr. Alaa Al-Juaid, Pediatric ID, March 2011  
Dr. Brent Roussin, Community Medicine, August 2010  
Dr. Sandra Allison, Community Medicine, July 2010

## Research Collaborations

2020	<b>Canadian Paediatric Surveillance Program (CPSP) for Congenital Syphilis</b> Principal investigator with Dr. Carsten Krueger Finalizing questionnaire
2020	<b>Evaluation of Point-of-Care Testing for detection of SARS-CoV-2 infection</b> Local co-investigator with Drs. Guillaume Poliquin, Paul Sandstrom, Adrienne Myers, John Kim, Yoav Keynan and Michael Becker Evaluation of POCT under way
2020	<b>Canadian Population Serological Survey Utilizing Antenatal Serum Samples (CANCOVID-Preg)</b> Manitoba Lead and co-investigator, project for the COVID-19 Immunity Task Force Samples being collected and analyzed
2020	<b>Manitoba COVID-19 Serology (MaCS) Network</b> Co-investigator with Drs. Lauren MacKenzie, Yoav Keynan, Sylvain Lothier <i>et al.</i> Research Manitoba COVID-19 Rapid Response Grant for \$448,500
2020	<b>Rapid research in the CHILD Cohort to inform Canada's response to the COVID-19 pandemic: investigating the prevalence and predictors of SARS-CoV-2 infection, and the health and psychosocial impact of the COVID-19 crisis on Canadian families</b> Knowledge User for Dr. Meghan Azad CIHR Grant for \$1,689,795
2020	<b>A Multi-centre, Adaptive, Randomized, Open-label, Controlled Clinical Trial of the Safety and Efficacy of Investigational Therapeutics for the Treatment of COVID-19 in Hospitalized Patients (CATCO)</b> Local co-investigator in CATCO-ADULT Local principal investigator in CATCO-KIDS, co-investigator Dr. Lauren Kelly Awaiting recruitment in Wave 2 Project discontinued at national level
2020	<b>SARS-CoV-2 and COVID-19 in children admitted to Canadian Hospitals: Understanding clinical spectrum and severity. A Paediatric Investigators Collaborative Network on Infections in Canada (PICNIC) study</b> Local co-investigator with Dr. Rachel Dwilow Supported by the Children's Hospital Research Institute of Manitoba (CHIRM) Manuscript in draft
2020	<b>Correlation of positive COVID-19 respiratory samples with time from symptom onset to sample, RT-PCR cycle threshold (Ct) values and viral viability through cell culture</b> Primary investigator with co-investigators Drs. Kerry Dust, Duane Funk, Jim Strong and Guillaume Poliquin Investigation to predict infectious SARS-CoV-2 from diagnostic samples Supported by the National Microbiology Laboratory Manuscript published in Clinical Infectious Diseases (CID) Currently drafting pediatric infectivity manuscript Recruiting for ICU/hospitalized patient infectivity study
2020	<b>Serology-based tests for Healthcare Workers exposed to COVID-19</b> Co-investigator with Drs. Ken Kasper, Yoav Keynan, Allen Kraut, Mike Drebot, Robbin Lindsay and Tim Booth Study to determine seroconversion in exposed healthcare workers from a hospital outbreak in Winnipeg Supported by the National Microbiology Laboratory Analysis phase
2020	<b>Point of care testing to identify COVID-19</b> Co-investigator with Drs. Ken Kasper and Yoav Keynan

- Validation of the Cepheid GeneXpert and Spartan Cube for SARS-CoV-2 detection  
Supported by the National Microbiology Laboratory  
Final report completed
- 2019 **A Study to Evaluate the Accuracy, Usability and Readability of the INSTI HIV Self Test Performed by Observed Intended Users in Canada**  
Co-investigator at Manitoba Site with Dr. Laurie Ireland  
Sponsored by bioLytical Laboratories, Inc.  
Recruitment complete, data analysis
- 2016 **Mother to Child Transmission of Hepatitis B and C in Manitoba**  
Co-investigator with Drs. Stacy Chapman, Safa Edagiz, Sameer S. Kassim, Jared Bullard, Paul Van Caesele and Joanne Embree (PI)  
Presented at AMMI/CACMID in May 2018  
Manuscript being prepared for publication
- 2015 **Evaluation of HIV Screening Among Admitted Patients to the Health Sciences Centre (HSC) Medical Wards**  
Co-investigator with Drs. Majid Darraj, Yoav Keynan, Marissa Becker, Anas Merdad, Beverly Wudel  
Gilead Grant for \$32,400  
Manuscript published
- 2015 **Testing Innovation: Bridging the Gaps to Sexually Transmitted and Blood Borne Infections (STBBI) Testing Among Youth at risk in Select Non-Urban Settings**  
Collaborator with group looking to provide innovative STBBI testing strategies incorporating HIV point of care testing (POCT) in non-urban settings in Atlantic Canada and the Prairies
- 2015 **Infective Complications after allogeneic Hematopoietic Stem Cell Transplants (HSCT) in Chronic Lymphocytic Leukemia (CLL) in comparison with Follicular Lymphoma (FL)**  
Co-investigator with Drs. D. Sytnik (PI), P. Lambert, K. Weber, K. Paulson, M. Seftel, J. Johnston and R. Kumar  
Presented at Canadian Bone and Marrow Transplant Group Conference (March 2016) and CCOLD (April 2016)
- 2015 **Early Pediatric Initiation – Canadian Child Cure Cohort Study (EPIC<sup>4</sup>)**  
Local PI with Dr. J. Embree  
Examine the timing of antiretroviral therapy initiation and its impact on human immunodeficiency virus (HIV) reservoir size in the context of vertically-acquired HIV infection.  
Canadian Institute of Health Research (CIHR) grant for \$1.95 million  
Study finalized, no Manitoba participants  
Manuscript published
- 2014 **Missed Opportunities for Diagnosis of HIV Epidemiological Study (MODES)**  
Co-investigator with M. Becker (PI), S. Shaw, Laurie Ireland, L. McClarty, C. Ens, N. Yu, J. Wylie, P. Van Caesele, Y. Keynan, Ken Kasper, and J. Blanchard  
Determining clinical and epidemiological risk factors associated with missed opportunities in patients ultimately diagnosed with HIV  
Gilead Grant for \$96,000  
Multiple provincial presentations to stakeholders
- 2012 **Discrepancies in Testing Practices for Sexually Transmitted and Blood-Borne Infections in Manitoba: A Retrospective Database Review**  
Primary investigator with co-investigators Kellee Hodge, Dr. Michael Isaac, Dr. Pierre Plourde, Craig Ross, Dr. Paul Van Caesele and Bohdanna Kinasevych.  
Data presented at Manitoba STBBI Meetings
- 2010 **Point of Care Testing in the Emergency Department**

Co-investigator with Drs. Marissa Becker, Ken Kasper, Natalie Bridger (PI), Paul Van Caesele, Wes Palatnick and Carla Pindera  
 Gilead Canada Grant for \$80,000.00  
 Presented at CAHR 2012, published in 2013

## Publications

### Peer-reviewed publications:

1. Lagace-Wiens P., **Bullard J.**, Cole R. and Van Caesele P. "Seasonality of Coronaviruses: Implications for COVID-19". Accepted in Canadian Communicable Disease Report (CCDR), in press.
2. Dust K., Hedley A., Nichol K., Stein D., Adam H., Karlowsky J.A., **Bullard J.**, Van Caesele P. and Alexander D. "Comparison of Commercial Assays and Laboratory Developed Tests for Detection of SARS-CoV-2". *J Virol Methods*. Sept 10, 2020. Doi: <https://doi.org/10.1016/j.jviromet.2020.113970>.
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7. Lopez AA., Dwilow R., **Bullard J.** and Mujawar Q. "A Case of Refractory Diphyllbothriasis in a Young Pediatric Patient". *Journal Pediatric Infectious Diseases Society* 2020; Jan 23:piaa001. doi: 10.1093/jpids/piaa001.
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9. Lau L., Wudel B., Lee E., Darraj M., Richert Q., Trajtman A., Bresler K., **Bullard J.**, Kasper K., Becker M., and Keynan, Y. "Evaluation of the Utility of Point-of-Care HIV Testing on a Canadian Internal Medicine Inpatient Unit". *Can J Infect Dis Med Microbiol* 2017. November; 1-6. PMID: 8495307.
10. Johnston J.B., Reimer J.N., Wylie J.L., **Bullard J.** "Observational study of the populations accessing rapid point-of-care HIV testing in Winnipeg, Manitoba, Canada, through a retrospective chart review of site records". *Sex Transm Infect*. 2017 Oct 7. pii: sextrans-2017-053195. doi: 10.1136/sextans-2017-053195. [Epub ahead of print]. PMID: 28988194
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12. Shaw S.Y., Ireland L., McClarty L.M., Loepky C., Yu N., Wylie J.L., **Bullard J.**, Van Caesele P., Keynan Y., Kasper K., Blanchard J.F., and Becker M.L. "Prior history of testing for syphilis, hepatitis B and hepatitis C among a population-based cohort of HIV-positive individuals and their HIV-negative controls". *AIDS Care*. 2016 Jun 23:1-6. PMID: 27339807
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- Rebbapragada A., Reyes R.C., and Mulvey M.R. “Interim Recommendations for the Reporting of Extensively Drug Resistant and Pan Drug Resistant Isolates of *Enterobacteriaceae*, *Pseudomonas aeruginosa*, *Acinetobacter* spp. and *Stenotrophomonas maltophilia*”. *Can Commun Dis Rep* 2016; 42-4:91-7.
14. Ross C., Shaw S., Marshall S., Stephen S., Bailey K., Cole R., Wylie J., **Bullard J.**, Van Caesele P., Reimer J., Plourde, P. “Impact of social media campaign targeting men who have sex with men during an outbreak of syphilis in Winnipeg, Canada”, *Can Comm Dis Rep*. 2016; 42-2:45-49.
  15. Foo C.P.Z., McDermid A., Grudeski E., Booth TF, **Bullard J.** “A 9 month old girl with respiratory failure and rhomboencephalitis”, *Can J Infect Dis Med Microbiol* 2015 Sept-Oct.; 241-2. PMID: 26600807
  16. **Bullard, J.**, Ahsanuddin A., Perry A., Lindsay L.R., Iranpour M., Dibernardo A., Van Caesele, P.G. “The first case of locally acquired tick-borne *Babesia microti* infection in Canada”. *Can J Infect Dis Med Microbiol*. 2014 Nov-Dec; 25(6): e87-e89. PMID 25587297
  17. Becker M.L., Thompson L., Pindera C., Bridger N., Lopez C., Keynan Y., **Bullard J.**, Van Caesele, P.G. “Feasibility and success of HIV point-of-care testing in an emergency department in an urban Canadian setting.” *Can J Infect Dis Med Microbiol*. 2013 Spring; 24(1): 27-31. PMID: 24421789
  18. Forbes J.C., Alimenti A.M., Singer J., Brophy J.C., Bitnun A., Samson L.M., Money D.M., Lee T.C., Lapoint N.D., Read S.E. “A national review of vertical HIV transmission”. *AIDS*. March 27, 2012, 26(6): 757-63. 28 Collaborators including **Bullard, J.** PMID: 22210635
  19. Fanella S.T., Pinto M.A., Bridger N.A., **Bullard, J.**, Coombs J.M., Crockett M.E., Olekson K.L., Poliquin P.G., Van Caesele P.G., Embree J.E. “Pandemic (H1N1) 2009 influenza in hospitalized children in Manitoba: nosocomial transmission and lessons learned from the first wave.” *Infection Control and Hospital Epidemiology*. 2011 May; 32(5): 435-43. PMID: 21515973

#### Other publications:

1. **Bullard, J.**, Embil J.M. “Nitpicking the Details about Lice”. *Canadian Journal of CME*. April 2008, 20(4).

## Poster and Oral Presentations

### National Presentations:

#### Poster Presentations

1. Kassim, S., **Bullard J.**, McGeer A. “Epidemiology of Viral Respiratory Infections and Preventative Measures in High Acuity Units in Manitoba [VIRIAC-MB]”. Annual Association of Medical Microbiology and Infectious Diseases (AMMI). Ottawa, ON. April 2019. *Presented by S. Kassim*.
2. Wudel B., Darraj M., Lau L., Trajtman A., Richert Q., Lee E., Bresler K., Keynan Y. **Bullard J.** “Feasibility and Acceptance of HIV Point-of-Care Testing on an Internal Medicine Inpatient Unit”. 25<sup>th</sup> Annual Canadian Conference on HIV/AIDS Research (CAHR). April, 2017. *Presented by B. Wudel*.
3. Sytnik D., Lambert P., Weber K., Paulson K., Seftel M., **Bullard J.**, Johnston J., Kumar R. “Infective Complications after Allogeneic Hematopoietic Stem Cell Transplants in Chronic Lymphocytic Leukemia in Comparison with Follicular Lymphoma”. Canadian Bone and Marrow Transplant Group Conference. Vancouver, BC. April, 2016. *Presented by D. Sytnik*.
4. Sytnik D., Lambert P., Weber K., Paulson K., Seftel M., **Bullard J.**, Johnston J., Kumar R. “Infective Complications after Allogeneic Hematopoietic Stem Cell Transplants in Chronic Lymphocytic Leukemia in Comparison with Follicular Lymphoma”. Canadian Conference on Lymphoproliferative Disorders (CCOLD). Lake Louise, Alberta. March, 2016. *Presented by D. Sytnik*.
5. Walkty A., Karlowsky J., **Bullard J.** “Time to Reporting of Positive Blood Cultures for Pediatric Patients Assessed at a Children’s Hospital Emergency Department”. Annual Association of Medical Microbiology and Infectious Diseases (AMMI). Vancouver, BC. March, 2016. *Presented by A. Walkty*.

6. Johnston J., Wylie J., Reimer J., **Bullard J.** “Descriptive Epidemiology of HIV Point-of-Care Testing (POCT) in Manitoba from 2011 to 2014”. Annual Association of Medical Microbiology and Infectious Diseases (AMMI). Vancouver, BC. March, 2016. *Presented by J. Johnston.*
7. Shaw, S., Becker M., Ireland L., Ens C., McClarty L., Yu B., Keynan Y., **Bullard J.**, Wylie J., Van Caesele P., Kasper K. “A population-based examination of bacterial sexually transmitted infections testing and history prior to HIV diagnosis among HIV cases and HIV-negative controls: the Missed Opportunity for Diagnoses Epidemiological Study (MODES)”. 23<sup>rd</sup> Annual Canadian Conference on HIV/AIDS Research (CAHR). April, 2015. *Presented by S. Shaw.*
8. Rank C., Bangura H., Krajden M., Zahariadis G., **Bullard J.**, Halverson J., Kim J., Archibald C.P., Sandstrom P., Brooks J. “Subtypes and transmitted drug resistance among recent HIV infections in four Canadian provinces, 2000-2008.” 21<sup>st</sup> Annual Canadian Conference on HIV/AIDS Research (CAHR). April, 2012. *Presented by C. Rank.*
9. Ramdahin S., Fowke K.R., Wayne S., **Bullard J.**, Plummer F., Embree J. “Design of Novel, Sensitive and Specific HIV Nested Primers for Polymerase Chain Reaction of Lymphocyte DNA.” Annual Canadian Conference on HIV/AIDS Research (CAHR). April, 2002. *Presented by S. Ramadahin.*
10. Xiao-Juan M., **Bullard J.**, Ramdahin S., Fowke K.R. “Development of an African Clade-Optimized Quantitative Assay for HIV RNA Viral Load Determinations.” Annual Canadian Conference on HIV/AIDS Research (CAHR). June, 2001. *Presented by M. Xiao-Juan.*

#### Oral Presentations

1. Chapman S., **Bullard J.**, Kassim S., Edagiz S., Van Caesele P. Embree J. “Evaluation of Adherence to Clinical Guidelines for the Prevention of Mother to Child Transmission of Hepatitis B and C in Manitoba, Canada”. Annual Association of Medical Microbiology and Infectious Diseases (AMMI). Vancouver, BC. May 2018. *Presented by P. Van Caesele.*
2. **Bullard J.**, Dust K., Van Caesele P.G. “Morbilliform rash associated with coronavirus detection during an outbreak of measles in Manitoba.” Annual Association of Medical Microbiology and Infectious Diseases (AMMI) Meeting. Vancouver, BC. April, 2016. *Presented by J. Bullard.*
3. Becker M., Thompson L., Bridger N., Pindera C., Keynan Y., **Bullard J.**, Van Caesele P.G., Kasper K. “Point of Care HIV Testing in Tertiary Care Emergency Department in Winnipeg, Canada.” Oral presentation. 21<sup>st</sup> Annual Canadian Conference on HIV/AIDS Research (CAHR). April, 2012. *Presented by M. Becker.*
4. **Bullard J.**, Embree J. “The Pediatric HIV Experience in Manitoba, Canada 1989 to 2007.” Children’s Hospital Foundation Local Research Competition in the Fellow’s category. Winnipeg, MB. March, 2008. *Presented by J. Bullard.*

#### International Presentations:

#### Poster Presentations:

1. **Bullard J.**, Baxter M., Adam H., Hoban D., Zhanel G. “Antimicrobial Susceptibilities of Wound Isolates in Canada from 2007 to 2010: the CANWARD Surveillance Study.” IDSA Annual Meeting. Boston, MA. October, 2011. *Presented by J. Bullard.*
2. **Bullard J.**, Embree, J. “The Pediatric HIV Experience in Manitoba, Canada 1989 to 2007”. St. Jude PID Conference. Memphis, TN. February, 2009. *Presented by J. Bullard.*

#### Oral Presentations:

1. **Bullard J.**, Ramdahin S., Wayne S., Fowke K.R. “The Role of Dendritic Cells and DC\_SIGN in mediating resistance to HIV infection.” National Student Research Forum (NSRF). Galveston, TX. April, 2003. *Presented by J. Bullard.*



### Local Presentations:

#### Keynote Address:

1. "Syphilis Gone Wild". Keynote speaker. Canadian Society for Medical Laboratory Sciences (CSMLS). Winnipeg, MB. May 2019.
2. "Zika Virus – What's the Deal?". Keynote Speaker. *Manitoba Association of Asian Physicians (MAAP) Summer Symposium*. Hecla Island, MB. August, 2017.
3. "Diagnostic testing for STBBIs in 2012: What you should know about GC, syphilis and HIV POCT". Keynote speaker. *Winnipeg Regional Health Authority New and Emerging Issues in STBBIs*. Winnipeg, MB. March, 2012.

#### Grand Rounds Presentations:

1. "Confessions of a Hypomaniac Black Ukrainian during Wave 1.0 of the COVID-19 Pandemic". Invited Speaker. *Department of Pediatrics & Child Health*. Winnipeg, MB. November 2020.
2. "COVID Update #6". Invited speaker at the Department of Anesthesiology Grand Rounds, University of Manitoba, Winnipeg, MB. April 2020
3. "Chlamydia, Gonorrhea and Syphilis, Oh My! Sexually Transmitted Infections in Manitoba Adolescents 2017". Invited co-speaker *Pediatric Grand Rounds, University of Manitoba*, Winnipeg, MB. May, 2017.
4. "Help Us Help You: A Review of Microbiology Testing that Every Pediatrician Can Use". Invited speaker. *Pediatric Grand Rounds, University of Manitoba*. Winnipeg, MB. October, 2013.
5. "A review of the new Women's Hospital HIV Guidelines: reducing HIV mother-to-child transmission in HIV-positive mothers". Guest presenter. *Pediatric Grand Rounds*. Winnipeg, MB. March, 2011.
6. "What's Really Going On at Winnipeg Children's Hospital: A Glimpse into the Microbial World of CK5 and the Units". Recruitment presentation. *University of Manitoba Recruitment Presentation at Pediatric Grand Rounds*. Winnipeg, MB. May, 2010.

#### Symposium Presentations:

1. "Positive or Not? Laboratory Testing for COVID-19". Invited Speaker. Bug Day 2020. Winnipeg, MB. October 2020.
2. "How Do I Interpret the Results of Lumbar Puncture and Treat Meningitis". Invited Speaker. 15-Minute Consultations for Common Ailments. Winnipeg, MB. March 2020.
3. "How can I avoid rash decisions in childhood viral exanthema?". Invited speaker. Manitoba College of Family Medicine Annual Scientific Assembly. Winnipeg, MB. April 2019.
4. "Update on STBBI Diagnostics and Screening Testing 2015". Invited speaker. *Healthy Sexuality & Harm Reduction Sex and STI/gma Matters*. Winnipeg, MB. May, 2015.
5. "Discrepancies in Testing Practices for Sexually Transmitted and Blood-Borne Infections in Manitoba: A Retrospective Database Review". Invited speaker. *HIV Program Research Day*. Winnipeg, MB. March, 2015.
6. "Ebola". Invited speaker. *Manitoba Congress for Medical Laboratory Services*. Winnipeg, MB. October, 2014.
7. "What can we Learn from Testing: An Examination of HIV and STBBI Testing Rates in Manitoba?" Invited speaker. *Canadian Association of Nurses in AIDS Care (CANAC) XXII Annual Conference*. Winnipeg, MB. April, 2014.
8. "Update on STBBI Diagnostic Testing". Invited Speaker. *Sex and Drug Matters Annual Winnipeg Regional Health Authority, Population and Public Health Conference*. Winnipeg, MB. March, 2014.

9. "STBBI Diagnostic Testing Update". Invited Speaker. *Sex Matters: From Precedents to Practice, a Conference on Preferential Populations and Sexually Transmitted and Blood Borne Infections*, Winnipeg Regional Health Authority Population and Public Health. Winnipeg, MB. March, 2013.
10. "Viruses!!" Invited Speaker. *Manitoba Congress for Medical Laboratory Services*. Winnipeg, MB. October, 2012.
11. "Prepare to be Boarded! The Waterborne Infectious Risks of Travel". Invited speaker. *Manitoba 10<sup>th</sup> Annual Travel Conference*. Winnipeg, MB. April, 2012.
12. "Viruses!!". Invited lecturer. *Manitoba Blood & Marrow Transplant Program 20<sup>th</sup> Anniversary Symposium*. Winnipeg, MB. November, 2011.
13. "A Case of HIV MTCT in Manitoba in 2010 and Review of Epidemiological and Clinical Characteristics of Maternal and Pediatric HIV in Manitoba, Canada from 1989 to 2010". Invited speaker. *Manitoba HIV Conference*. Winnipeg, MB. November, 2011.
14. "A Tale of 3 Viruses". Special seminar. *Recruitment presentation at Cadham Provincial Laboratory*. Winnipeg, MB. April, 2010.
15. "Weirdness in Kids". Invited speaker. *Diagnostic Services of Manitoba Grand Rounds*. Winnipeg, MB. May, 2009.  
"Listeria Hysteria". Invited Speaker. *Manitoba Society of Medical Laboratory Technologists Conference*. Winnipeg, MB. October, 2008.

#### Invited Lectures and Sessions:

1. "Panel Discussion: COVID-19 in Northern Manitoba". Invited panelist for Ongomiizwin – Health Services (Virtual) Annual Meeting. Manitoba. January 2021.
2. "Confessions of a Hypomaniac Black Ukrainian during Wave 1.0 of the COVID-19 Pandemic". Invited Speaker. *Department of Medical Microbiology & Infectious Diseases Seminar Series*. Winnipeg, MB. October 2020.
3. "Questions around COVID-19". Winnipeg Police Service Cadets special presentation. Invited speaker, August 2020.
4. "SARS-CoV-2: Just how infective is this virus?". University of Manitoba CPD: COVID-19 Clinical Updates Webinar. May 2020.
5. "Tick Diseases". Invited presenter. *University of Manitoba Department of Pediatrics Small Group Discussion*. Winnipeg, MB. May 2019.
6. Master of Ceremony (MC) for the *Department of Pediatrics & Child Health Retreat Annual Retreat*. Winnipeg, MB. March 2019.
7. "Syphilis Gone Wild". Invited Speaker. *Manitoba Pediatric Society (MPS)*. Winnipeg, MB. November 2019.
8. "HIV Testing in Manitoba: Data from HIV Testing Day 2018", Invited Speaker. *Collective Impact Network – Testing and Linkage WG Meeting*, Winnipeg, MB. October 2018.
9. Master of Ceremony (MC) for the *Department of Pediatrics & Child Health Retreat Annual Retreat*. Winnipeg, MB. March 2018.
10. "A Journey through HIV in Manitoba from Newborns to Bathhouses to Awkward Teenage Moments". Invited Speaker. *Department of Medical Microbiology & Infectious Diseases Seminar Series*. Winnipeg, MB. March 2018.
11. "Carbapenemase Producing Enterobacteriaceae (CPE)". Invited Speaker. *Annual Infection Practices & Control Education Day*. January 2018.
12. Master of Ceremony (MC) for the *Department of Pediatrics & Child Health Retreat and Appreciation Dinner*. Winnipeg, MB. May, 2017.
13. "Zika Virus: What's the deal?". Invited speaker. *Clinical & Research Nursing Network (CRNN)*. Winnipeg, MB. May, 2017.
14. "Syphilis is back!". Invited presenter. *University of Manitoba Department of Pediatrics Small Group Discussion*. Winnipeg, MB. January 2017.
15. Master of Ceremony (MC) for the *Department of Pediatrics & Child Health Retreat and Appreciation Dinner*. Winnipeg, MB. February, 2016.

16. “The Biting Truth about Lyme Disease”. Invited presenter. *University of Manitoba Department of Pediatrics Small Group Discussion*. Winnipeg, MB. December, 2015.
17. “HIV Prevention of Mother to Child Transmission and Point of Care Testing”. Invited speaker. *St. Boniface General Hospital Obstetrics/Gynecology High-Risk Rounds*. Winnipeg, MB. June, 2014.
18. “Important ID Topics in Pediatric Hem/Onc Patients”. Invited speaker. *Hem/Onc Nursing Educational Day, Health Sciences Centre*. Winnipeg, MB. November, 2013.
19. “CMV in Renal Solid Organ Transplants”. Invited Speaker. *Department of Pediatric Nephrology, University of Manitoba*. Winnipeg, MB. April, 2013.
20. “HIV: Transition from Adolescence to Adulthood”. Invited speaker. *Manitoba HIV Program Continuing Education Series*. Winnipeg, MB. February, 2013.
21. “Viruses!!” Invited Speaker. *Collaborative Adult and Pediatric BMT Education Day*. Winnipeg, MB. January, 2012.
22. “Antiretrovirals: What you need to know and how to use them”. Invited presenter. *University of Manitoba Department of Pediatrics Small Group Discussion*. Winnipeg, MB. November, 2011.
23. A Case of HIV MTCT in Manitoba in 2010 and Review of Epidemiological and Clinical Characteristics of Maternal and Pediatric HIV in Manitoba, Canada from 1989 to 2010”. Invited speaker. *Manitoba HIV Program’s CME Guest Lecture Series*. Winnipeg, MB. April, 2011.
24. “HIV Testing: An Update for 2010”. Invited presenter. *University of Manitoba Department of Pediatrics Small Group Discussion*. Winnipeg, MB. September, 2010.

### National Presentations:

#### Symposium Presenter:

1. “COVID-19: Pathophysiology of the Virus”. 2020 Canadian Association of Physician Assistants (CAPA) Annual Conference. October 2020.
2. “Ask Anything: COVID-19 for Rural Practitioners”. BC Rural Health Conference (RHC): Webinar Series/University of British Columbia (UBC) CPD. May 2020.  
<https://ubccpd.ca/courses/rhcwebinars>
3. “Clinical Presentation of COVID-19 Infections”. The College of Family Physicians of Canada (CFPC) Presentation. April 2020. <https://www.youtube.com/watch?v=cIU-3xUWUfA>
4. “Keeping Children Safe”. Coping during COVID-19: Canadian Medical Association (CMA) Joule COVID-19 Learning Series. April 2020. <https://joulecma.ca/joule-covid-19-learning-series>
5. “HIV-exposed infants in Manitoba: collaborative efforts to prevent infection”. Invited speaker. *Infant Feeding in HIV in Canada CIHR Planning Grant Meeting*. Toronto, ON. January, 2016.
6. “Viral Therapy and Monitoring in the Solid Organ and Bone Marrow Transplant Patient”. Invited speaker. *Pediatric Grand Rounds, Memorial University*. St. John’s, NFLD. June, 2013.
7. “What We Should Know About Pneumococcal Disease in Kids”. Invited speaker. *Canadian Respiratory Conference*. Niagara Falls, ON. May, 2011.

### International Presentations:

#### Invited Lectures and Sessions:

1. “COVID-19 Seminar Series: Pediatric Cases, Laboratory Diagnostics and Critical Care”. Pacific Island Health Officers’ Association (PIHOA), webinar. June, 2020. <https://www.pihoa.org/covid-19-clinical-training-course-materials/>

## Media and Podcasts

### Local Media/Podcasts:

1. “Ottawa, Manitoba on same pandemic page for return to school”. Interview with Maggie Macintosh, Winnipeg Free Press. August 2020. <https://www.winnipegfreepress.com/special/coronavirus/ottawa-manitoba-on-same-pandemic-page-for-return-to-school-572070392.html>
2. “Local research suggests COVID-19 not infectious after eight days”. Interview with Michelle Gerwing, CTV News Winnipeg. May 2020. <https://winnipeg.ctvnews.ca/local-research-suggests-covid-19-not-infectious-after-eight-days-1.4955543>.
3. “Pediatric Inflammatory Diseases associated with COVID-19”. Interview with Richard Cloutier, Global News 680 CJOB. May 2020. <https://omny.fm/shows/news-on-cjob/dr-jared-bullard#description>.
4. “Simple precautions can keep enterovirus away”. Winnipeg Free Press, Health Column. September 2014.

### National Media/Podcasts:

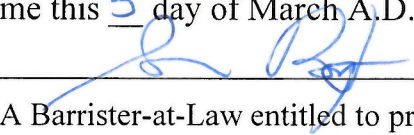
1. “When is a case of COVID still COVID? Critics suggest the gold-standard of testing could be too sensitive”. Interview with Sharon Kirkey, National Post. October 2020. <https://nationalpost.com/news/canada/when-is-a-case-of-covid-still-covid-critics-suggest-the-gold-standard-of-testing-could-be-too-sensitive>
2. “COVID-19 not very infectious 8 days after symptoms occur, Winnipeg study suggests”. Interview with Bartley Kives, CBC News. May 2020. <https://www.cbc.ca/news/canada/manitoba/covid19-infectious-period-1.5583722>.
3. “Local research suggests COVID-19 not infectious after eight days”. Interview with Angela Kokott, Global News 770 CHQR, Calgary AB. May 2020. <https://omny.fm/shows/afternoons-with-rob-breakenridge/interview-with-dr-bullard>.
4. “Update: Testing for COVID-19 in Canada”: A Public Health Podcast. April 2020. <https://nccid.ca/podcast-2019-ncov/#subMenuSection0>.
5. “Testing for 2019-nCoV”. Infectious Questions: A Public Health Podcast. February 2020. <https://nccid.ca/podcast-2019-ncov/>
6. “Congenital Syphilis Risks and Prevention”. National Collaborating Centre for Infectious Diseases (NCCID) podcast, January 2019. <https://nccid.ca/webcast/congenital-syphilis-risks-and-prevention-jared-bullard/>

### International Media/Podcasts:

1. “FactCheck: No, a claim by an Irish doctor that PCR tests have a 97% false positive rate is not true”. Interview with Anthony King, TheJournal.ie. December 2020. <https://www.thejournal.ie/factcheck-pcr-tests-irish-video-5304097-Dec2020/>
2. “Factcheck: Nee, ‘Oxford-studie’ zegt niet dat covidtest 70% valspositieven oplevert”. Interview with Brecht Castel, Knack. September 2020. <https://www.knack.be/nieuws/factchecker/factcheck-nee-oxford-studie-zegt-niet-dat-covidtest-70-valspositieven-oplevert/article-longread-1647383.html>
3. “Minnesota’s broad COVID-19 testing under microscope”. Interview with Jeremy Olson, Star Tribune. September 2020. <https://www.startribune.com/broad-covid-19-testing-under-microscope/572396572/>
4. “Behind the Paper: Predicting infectious SARS-CoV-2 from diagnostic samples”. Invited contribution to Nature Research Microbiology Community. June 2020. [https://naturemicrobiologycommunity.nature.com/users/411193-jared-bullard/posts/predicting-infectious-sars-cov-2-from-diagnostic-samples?utm\\_source=digest\\_mailer&utm\\_medium=email&utm\\_campaign=daily\\_digest](https://naturemicrobiologycommunity.nature.com/users/411193-jared-bullard/posts/predicting-infectious-sars-cov-2-from-diagnostic-samples?utm_source=digest_mailer&utm_medium=email&utm_campaign=daily_digest)

5. “Winnipeg research suggests virus not very infectious eight days after onset”. Radio Canada International. May 2020. <https://www.rcinet.ca/en/2020/05/27/winnipeg-research-suggests-virus-not-very-infectious-eight-days-after-onset/>.

This is Exhibit " B " referred to  
in the Affidavit of Jared Manley  
Peter Bullard Affirmed before  
me this 5<sup>th</sup> day of March A.D. 2021

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

# **Paul Van Caesele, MD FRCPC**

Professor

Department of Medical Microbiology & Infectious Diseases

Department of Pediatrics and Child Health

Max Rady College of Medicine, Rady Faculty of Health Sciences

## **CURRICULUM VITAE**



**University  
of Manitoba**

**December 2020**



# CURRICULUM VITAE of Paul Van Caesele MD FRCPC

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# Paul Van Caesele, MD FRCPC

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## IDENTIFICATION

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**Business Address:** Cadham Provincial Laboratory,  
750 William Avenue, Box 8450,  
Winnipeg, Manitoba  
R3C 3Y1

Tel: (204) 945-6456  
Fax: (204) 786-4770  
Email: [paul.vancaesele@gov.mb.ca](mailto:paul.vancaesele@gov.mb.ca)

**Faculty Address:** C/O J.C. Wilt Medical Microbiology Laboratories  
Basic Sciences Building  
543-730 William Avenue  
Winnipeg, Manitoba  
R3E 0W2

**Citizenship:** Canada  
**Security clearance:** Secret (2003)

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## EDUCATION AND TRAINING

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### DEGREES AND CERTIFICATIONS

1995 to 2000	<b>Medical Microbiology Specialty (FRCPC)</b> University of Manitoba, Faculty of Medicine
1991 to 1995	<b>Doctor of Medicine (MD)</b> University of Manitoba, Faculty of Medicine
1988 to 1991	<b>Bachelor of Sciences (BSc. Gen)</b> University of Manitoba, Faculty of Science Major in Chemistry/Microbiology, Dean's Honour List, 1989 to 1991

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### PROFESSIONAL EXAMINATIONS

Medical Council of Canada Part I – 1995  
Medical Council of Canada Part II – 1997  
Medical Microbiology (FRCPC) – June 2000

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## **SPECIAL SKILLS AND CONTINUING EDUCATION**

Summer Field Epidemiology Training Program Certificate, 1998  
E. coli O157:H7 Workshop, LCDC, Winnipeg, Manitoba, 1998  
Teaching Improvement Project Systems Certificate (T.I.P.S.), 1998-99  
Workplace Hazardous Materials Information System, 1997 to present  
Manitoba Emergency Management Course, 2000  
Transport of Dangerous Goods Certified, 2001 to present  
Emergency Response Assistance Plan Certified, 2001 to present  
College of American Pathologists Inspector Self-Study Course, 2004, 2009;  
Team Leader Training, 2007, 2015  
Private Pilot License/ Aeronautical Radiotelephone Operator License, 1990 (current)  
University of Manitoba Animal User Certificate, 2005  
Prenatal Screening Course, Rhode Island, 2005  
Training for Tri-Council Policy Statement: Ethical Conduct for Research involving Humans, 2007  
National Institutes of Health Certificate in Protecting Human Research Participants, 2008  
Teaching and Evaluation Professionalism, 2008  
Faculty Development for Teachers of International Medical Graduates, 2008  
CMPA Delegation and Supervision of Medical Trainees, 2014  
Governing for Quality and Patient Safety, Canadian Healthcare Association, 2014  
Manitoba Government Training Workshops and Online Courses (M=Mandatory)  
Introduction to Office Access (I and II), 2002  
Personal Health Information Act (M), 2014, 2016, 2017, 2019  
Effective Communication Strategies for Difficult Conversations, 2014  
Powerful Listening, 2015  
Values and Ethics in the Manitoba Government, 2015 (M)  
Respectful Workplace and Harassment Prevention, 2016 (M), 2018 (M)  
Introduction to Manitoba's Comptrollership Framework, 2016 (M)  
Information Security Awareness, 2016 (M)  
The Accessibility for Manitobans Act, 2016 (M)  
Inclusion and Diversity in the Workplace, 2016 (M)  
Lean Online Series, 2018  
Algonquin College: Fundamentals of OCAP, 2016  
Accessible Customer Service, August 2017 (University of Manitoba mandatory online course)  
Tri-Council TCPS 2: CORE Ethical Conduct for Research, 2021  
University of Manitoba PHIA and FIPPA for Researchers, 2021

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## **AWARDS & HONOURS**

1988 – Euclid Medal for Excellence in Mathematics  
1990 – UFCW Local 832 Scholarship Award  
1994 – Earl S. Bryngelson Award in Family Medicine  
2000 – Canadian Society for Circumpolar Health Travel Award  
2007 – (Nomination) Manitoba Service Excellence Award (West Nile Virus Team)  
2010 – Best Overall Poster Presentation, Epidemiology & Public Health, 26<sup>th</sup> International Papillomavirus Conference  
2011 – Lancet Paper of the Year, 2010 (March) JAMA Article  
2013 – GTEC Award for Excellence in Collaboration (as partner to eHealth)

### **Student Awards**

2017 – Canadian Student Health Research Symposium, Student Dean of Medicine Award of Excellence, Poster 29, Dr. Davinder Singh (MSc. Thesis supervised)  
2019 – Dept. of Pediatrics & PGME, Child Health Research Days Resident Award, Gold Award, Dr. Bhreagh Phipps (resident project supervised)  
2019 – Manitoba Student Health Research Poster Competition, Community Health Sciences Bold Idea Student Award, Lexy Anderson (MSc. Thesis advised)

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## WORK EXPERIENCE & ADMINISTRATION

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### ACADEMIC POSITIONS AND APPOINTMENTS

**University of Manitoba, Rady Faculty of Health Sciences, Max Rady College of Medicine**

**Professor (Nil-Salary) – Dept. of Medical Microbiology & Infectious Diseases, 2017-present**

Assistant Professor (Nil-Salary) – Medical Microbiology, 2000-2007

Associate Professor (Nil-Salary) – Medical Microbiology & Infectious Diseases, 2007-2017

Program Director, Medical Microbiology Fellowship Training Program, 2006-2010

Cross Appointment – Dept. of Pediatrics and Child Health, 2005-present

Associate Member – Manitoba Institute for Child Health, 2005-2013 (lapsed)

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### EMPLOYMENT, WORK AND CONTRACT EXPERIENCE

#### Current

**Medical Director – Cadham Provincial Laboratory (CPL), July 2000-present**

**Responsibilities:** Medical and administrative leadership of the Manitoba provincial public health laboratory. CPL consists of seven administrative sections with four distinct lab sections of excellence: Newborn Screening and Public Health Chemistry, Virus Detection, Public Health Bacteriology, and Serology & Parasitology. The 120+ professional and technological staff working there are engaged in laboratory-based screening programs, outbreak and emerging disease response, disease surveillance, consultation, research and education activities. The annual budget in 2019/20 was approximately \$20 Million.

**Context:** A public health laboratory is a key component of the local, national and international public health infrastructure, and must stay abreast of and contribute to broad direction in all three spheres.

**Accreditation:** When best practices are employed, the quality and safety of a medical laboratory are assured through external accreditation, preferably that of peers. CPL has maintained full accreditation with the following agencies throughout my tenure:

- College of American Pathologists
- Manitoba Quality Assurance Program (MANQAP)

#### Prior

Acting Medical Advisor – MB Communicable Diseases Control Branch, 2008-2010

Director – Percy E. Moore and Norway House Hospital Laboratories, July 2000- 2012

Medical Consultant – Manitoba Worker's Compensation Board, 2009

Director – St. Amant Centre Laboratory, August 2000-April 2001

Director – Mt. Carmel Clinic Laboratory, August 2000-April 2001

Medical Consultant – THiiNC Health Incorporated, *Operational Review of the Ontario Public Health Laboratory System*, Jul-Sep 2005

Program Director – University of Manitoba Medical Microbiology Training Program, 2006-2010

Transit Field Researcher – City of Winnipeg, Dept. of Transportation, 1991-1995

Research Assistant – Dept. of Geology, University of Manitoba, 1989-1990

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## COMMITTEES AND OTHER SERVICE

### **Cadham Provincial Laboratory (CPL) and/or Manitoba Department of Health**

Chair – CPL, Laboratory Management Committee, 2000 to present  
Chair – Manitoba Perinatal Screening Committee, 2000 to present  
    Chair – Cystic Fibrosis Working Group, 2009-2011  
    Member – Metabolic Working Group, 2017 to present  
    Chair – SCID/PID Screening Implementation Working Group, 2020-2021  
Chair – CPL Quality Assurance Committee, 2002 to present  
Chair – MACID Sub-committee on HIV testing, 2000-2002  
Chair – HIV Antibody Testing Planning and Implementation Group, 2003 to 2010  
Chair – Pandemic Influenza Laboratory Planning Committee, 2009-2010  
    Member – Manitoba Health (MH) Pandemic Clinical Care Group, 2009-2010  
    Member – MH Pandemic Surveillance and Planning Group, 2009-2010  
    Member – MH Pandemic Scientific Advisory Committee, 2009-2010  
    Member – H1N1 Strategic Advisory Group, 2009-2010  
Chair – CPL Laboratory Information Management System Steering Committee, 2006-2010  
Member/Chair – CPL Policy & Procedure Committee, 2002 to present  
Co-chair – Manitoba Maternal Serum Screening Committee, 2000 to present  
Lead – Manitoba ERAP Team and Biohazard Response Team, 2000 to present  
    MB ERAP Provincial Territorial Response Coordinator (PTRC), 2009 to present  
Member – Manitoba Public Health Laboratory Committee (PHLC), 2000 to present  
    Acting Chair – PHLC, 2009 to 2011  
    Secretary – PHLC, 2000 to 2011  
Member – Public Health Branch Management Committee, 2000-2007, 2011-2019  
Member – Manitoba Advisory Committee on Infectious Diseases, 2000-2007  
Member – Manitoba Blood Advisory Committee, 2005-2015  
Member – Manitoba Public Health Protocol Steering Committee, 2006-2009  
Member – Manitoba Provincial Vaccine Advisory Committee, 2013 to present  
Member – West Nile Virus Advisory and Scientific Advisory Committees, 2004 to present  
Member – MACID Advisory Sub-committee on Tuberculosis, 2001 to 2006  
Member – Manitoba Tuberculosis Steering Committee, 2012 to present  
Member – F/P/T Pandemic Influenza Working Group, 2000-2009  
Member – Manitoba HPV Advisory Committee, 2007-2012  
    Member – Provincial HPV Integrated Committee, 2012-2014  
Member (Mgmt.) – Manitoba Health Workplace Safety & Health Committee, 2008-2010  
Member – Manitoba Health Extended Management Committee, 2012 to present  
Member – Information Communication and Technology (ICT) Internal Working Group, 2014-2015  
Member – Infoway Pan Canadian CD Surveillance Solution Set Project Mgmt Committee, 2006-2007  
Member – MB Panorama Public Health Advisory Group, 2013 to present  
    Member – Collaborative Laboratory Expert Review Group, 2013  
    Member – CD Investigations Working Group, 2014 to present  
Member – MB Provincial Syphilis Outbreak Response Team, 2015-2016  
Member – Provincial STBBI Outbreak Management Steering Committee, 2016 to present  
Member – Intergovernmental Newborn Screening Working Group, 2014 to present  
Member – Universal Newborn Hearing Screening Working Group, 2014-2017  
Member – Manitoba Quality and Patient Safety Council, 2016-2019  
Member – Healthcare Associated Infection (HAI) Indicator Working Group, 2017-2019  
Member – MHSAL Business Process Coordination Group, 2018 to present  
Member – CPL eHealth\_hub Project Steering Committee, 2018-2019  
Member – STBBI Special Advisory Committee, 2019  
    Chair, Testing Subcommittee, 2019  
Member – WRHA STBBI Outbreak Response Team (SORT), 2019 to present  
Member – Department Integration Network, 2019 to present

- Member – STBBI PUSH Committee, 2020 to present
- Member – Provincial Respiratory Virus Steering Committee, 2020 to present
  - Member – Respiratory Virus Public Health Working Group, 2020 to present
  - Member – Respiratory Virus Public Health Operations Group, 2020 to present
- Member – Manitoba Health COVID-19 Incident Command Structure:
  - Member – Unified Public Health Operations, 2020 to present
  - Member – Long Term Care Asymptomatic Staff Testing Working Group, 2020 to present
  - Member – Winnipeg Urban Indigenous Rapid Test Site Working Group, 2020 to present

### **Legislative and/or Regulatory Consultation**

- Member – Manitoba Health Standing Committee on Diagnostic Services, 2002 to present
- Member – MB College of Physicians – Subcommittee on Laboratory Medicine, 2000-2005
- Councillor – Medical Laboratory Technologists Transitional Council, 2003-2007
- Member – National Notifiable Disease Expert Advisory Committee, 2004-2007
- Member – MB College of Physicians – Laboratory Accreditation Standards Committee, 2006-2008
- Guest – The Commons Standing Committee on Health, March 2009 (by teleconference)
- Member – MB *Human Pathogens and Toxins Act* Consultation Steering Committee, 2010-2013
- Member – Pharmacy Act and Regulations Implementation Working Group, 2012-2013
- Member – Universal Newborn Hearing Screening Implementation Group, 2015-2017
- Member – Manitoba Public Health Protocol Advisory Committee, 2015 to present
- Member – RN Ordering Pilot Working Group, 2019 to present

### **Diagnostic Laboratory Systems (not public health)**

- Director – Diagnostic Services of Manitoba Board of Directors, 2011 to 2018
  - Member – Patient Safety and Quality Committee of DSM Board, 2011 to 2018
  - Chair - Patient Safety and Quality Committee of DSM Board, 2014 to 2018
  - Member – Executive Committee of the Board, 2014 to 2018
- Interim Chair – Quality and Patient Safety Interim Committee of the Interim Board, Shared Health Manitoba, 2018 to present
- Laboratory Inspection Team Leader – College of American Pathologists, 2004 to present
  - Trinity Health – St. Joseph’s Laboratory (Minot, ND), 2004
  - Minot AFB 5<sup>th</sup> Medical Group (ACC) SGSAL (North Dakota), 2007
  - Luther Midlefort Mayo Health System (Wisconsin, as Molecular Pathology specialist), 2009
  - Oklahoma State Public Health Laboratory, 2012
  - Kentucky Cabinet for Health and Family Services Public Health Laboratory, 2014
- Member – Clinical Microbiology Proficiency Testing (CMPT) Clinical Bacteriology Advisory Committee, 2003-2007
- Member – Manitoba Health Community Laboratories Policy Advisory Committee, 2011 to present
- Member – MHLS Point of Care Testing (POCT) Advisory Committee, 2014
- Member – WRHA/DSM Provincial Point of Care Testing Advisory Committee, 2016 to present
- Member – WRHA Prenatal Diagnosis Discipline Committee, 2012 to present

### **National & Other**

- Associate Member – Canadian Public Health Laboratory Network (CPHLN), 2000 to present
  - Co-Chair Elect – CPHLN, 2007 to 2009, 2016-2018
  - Co-Chair – CPHLN, 2009-2011, 2018 to present
  - Past-Chair – CPHLN, 2011-2013
  - Co-Chair & Member – CPHLN Subcommittee on Bioterrorism, 2002-2007
  - Co-Chair & Member – CPHLN Laboratory Preparedness and Emergency Response Issue Group, 2007 to present
  - Member – Laboratory Directors’ Council, 2001 to present
  - Member – CPHLN Subcommittee on Laboratory Standards, 2003-2008

Member – Pandemic Influenza Laboratory Planning Network, 2005 to present  
 Member – Listeria Task Group, 2008-2009  
 Member – Biorepository Working Group, 2015-2017  
 Member – Zika Virus Working Group, 2016-2017  
 Member – Respiratory Virus Infection (ReVI) Working Group, 2017 to present  
 Member – Whole Genome Sequencing (WGS) Steering Committee, 2017 to present  
 Member – Lyme Disease Diagnostics Working Group, 2019 to present  
 Member – Spartan and COVID-19 POC Testing Working Group, 2020 to present  
 Member – CPHLN CanCOGen Steering Committee, 2020 to present  
 Member – Pan-Canadian Public Health Network (PHN) Communicable and Infectious Diseases Steering Committee, 2018-2020  
 Member – Expert Advisory Group on Rubella in Canada, 2001  
 Member – Special Pathogens Advisory Committee (CSCHAH), 2016 to present  
 Active Member – Association of Medical Microbiology and Infectious Diseases Canada (AMMI)  
     Member – Human Health Resources Working Group of AMMI, 2011-2014  
     Member/AMMI representative – Canadian Alliance of Laboratory Medicine, 2016 to present  
     Member – Point of Care Testing Working Group, 2018 to present  
 Member – Red River College Medical Laboratory Science Advisory Committee, 2007-2009  
 Member – iEHR Project Steering Committee, 2011-2013  
 Member – Manitoba Electronic Health Record (EHR) Business Advisory Committee, 2010 to present  
 Member – Health Sciences Centre Infection Control Committee, 1996-1999  
 Member – St. Boniface General Hospital MRSA Outbreak Control Committee, 1998  
 Member – Foodborne Illness Outbreak Response Protocol (FIORP) Team, 2007 to present  
 Member – Canadian Food Laboratory Forum, 2012 to present  
 Member – International Lyme Symposium Organizing Committee, 2010-2012  
 Member – Manitoba Centre for Health Policy Project Advisory Group, “Systematic Investigation of Manitoba’s Provincial Lab Data for Population Health & Health Services Research” 2011-12  
 Member – Planning Committee of Annual Manitoba Travel Health Conference, 2015-2018  
 Member – COVID-19 Federal/Provincial/Territorial Logistics Advisory Committee, 2020  
 Member – Canadian COVID-19 Immune Task Force (CITF) Leadership Group, 2020 to present

## **Reviewerships and Examination Boards**

Examiner – Medical Council of Canada, 1997-98  
 Examiner – Royal College of Physicians and Surgeons of Canada (RCPSC) Examination Board/Committee for Medical Microbiology (EBMM), 2005 to present  
     Chair – RCPSC EBMM, 2010-2015  
     Past-Chair – RCPSC EBMM, 2015-2018  
     Executive Sub-Committee of EBMM, 2013-2016  
 Member – RCPSC Specialty Committee in Medical Microbiology, 2008-2010, 2016-present, *ex officio* 2010-2016  
 Member – RCPSC – Kuwait Institute of Medical Specialization (KIMS) Clinical Microbiology Examination Board, 2017 to present  
 Member – RCPSC Examination Committee, 2016-2018  
 Academic Promotions External Reviewer  
     Dalhousie University, Dept. of Pathology, 2008, 2018  
     Memorial University of Newfoundland, Faculty of Medicine, 2016  
     McGill University, 2019  
 Manuscript Review for Peer-Reviewed Periodicals  
     *Anaerobe*, 2002-03;  
     *Canadian J. of Emergency Medicine*, 2005;  
     *Canadian Journal of Infectious Diseases & Medical Microbiology*, 2001, 2003, 2015;  
     *Canadian Medical Association Journal*, 2008;  
     *Clinical Infectious Diseases*, 2001-2002, 2005;  
     *Journal of the Association of Medical Microbiology and Infectious Diseases Canada*, 2017;  
     *Viral Immunology* 2012  
 Manuscript Editor, Professional non-peer Review

*Pharmacist's Letter Canada*, 2020

External Reviewer – National Laboratory Reference Services, 2005 to present

### **University of Manitoba**

Voting Member – Department of Medical Microbiology Council, 1999 to present

Member – Department of Medical Microbiology Headship Review Committee, 1998

Member – Infectious Diseases Core Curriculum Sub-Committee, 1998

Member – Faculty of Medicine Undergraduate Laboratory Medicine Training Committee, 2001-2005

Member – PGME Program Directors Committee, 2007-2009

Member – Section of Pediatric Infectious Diseases Committee, 2007 to present

Member – ID/MM Academic Half Day Committee, 2009-2010

Member - Dept. of Pediatrics & Child Health, Pediatric Infectious Diseases Search Committee, 2010

Member – Section of Infectious Diseases, Antimicrobial Stewardship Committee, 2011

University of Manitoba Training Committees:

Member – Adult Infectious Diseases Training Program Committee, 1996-2010

Member – Pediatric Infectious Diseases Training Committee, 2006 to present

Member – Clinical Microbiology Training Committee, 2009-2010

Member – Medical Microbiology Training Committee, 1998 to present

Chair – Medical Microbiology Training Committee, 2006 to 2010

Member – Anatomic Pathology/General Pathology Residency Committee, 2007-2008

Member – Community Medicine Training Committee, 2007-2008, 2019 to present

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## CLINICAL & PROFESSIONAL SERVICE

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### PROFESSIONAL LICENSURE

Province of Manitoba, Medical Microbiology Specialist, July 2000 – present  
Territory of Nunavut, Medical Microbiology Specialist, July 2000-2001 (lapsed)

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### CLINICAL APPOINTMENTS

Medical Staff, Pediatric Infectious Diseases – Winnipeg Regional Health Authority, 2000-present  
Admit/Treat/Consult/Discharge Privileges  
Member – St. Amant Centre Medical Staff, 2001 to present  
Associate Director and Travel Health Specialist – WRHA Travel Health and Tropical Medicine Clinic, 2001 to present

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### PROFESSIONAL MEMBERSHIPS

Canadian Infectious Diseases Society, since 1997; & AMMI Canada, since 2005  
Professional Association of Residents and Interns of Manitoba, 1995-2000  
Canadian Association for Clinical Microbiology and Infectious Diseases, since 1999  
Royal College of Physicians and Surgeons of Canada, since 2000  
American Society for Microbiology, since 1997  
College of Physicians and Surgeons of Manitoba, registered since 1995  
Canadian Owners and Pilots Association, 1993-2006  
Manitoba Medical Association/Doctors Manitoba, since 2000  
Canadian Medical Association, since 2015  
Association of Public Health Laboratories, since 2001  
American Society of Tropical Medicine and Hygiene, since 2005  
Clinical Laboratory Standards Institute (CLSI), Active Member (CPL) since 2002

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### CONFERENCES & MEETINGS

American Society for Microbiology General Meeting: Miami 1997, Atlanta 1998, Orlando 2001  
ICAAC: Toronto 2000, San Diego 2002  
Conjoint Meeting on Infectious Diseases (AMMI-CACMID): Edmonton 1999, Halifax 2002, Montreal 2003, 2011, Vancouver 2018.  
Canadian Public Health Laboratory Network Semi-Annual or Annual Meeting, 2001 to present  
International Congress on Circumpolar Health (ICCH): Harstad, Norway, 2000  
Association of Public Health Laboratories (APHL/CSTE): Portland 2001  
NOWECOMM 2004. Workshop on molecular diagnostics. Vancouver 2004  
CHICA (Manitoba) Annual Conference: Winnipeg 2005, 2008, 2010  
Manitoba Annual Travel Health Conference: Winnipeg 2001, 2002, 2005-2014, 2016, 2017, 2018  
PulseNet Canada Annual Meeting, Winnipeg 2007, 2010, 2013  
North American Laboratory Summit for Influenza: Toronto 2008, Vancouver 2010 (Moderator)  
Severe H1N1 Disease: Preventing Cases, Reducing Mortality, 2009 (Moderator)  
Canadian Public Health Association Centenary Annual Conference, Winnipeg 2009  
Network of Networks, Toronto 2011  
Canadian Institute for Public Health Inspectors Annual Meeting and Conference, Winnipeg, 2013.  
Annual Meeting of Canadian Association of HIV Clinical Laboratory Specialists (CAHCLS), 2013-present

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## REVIEWERSHIPS

Academic Promotions External Reviewer

Dalhousie University, Dept. of Pathology, 2008, 2018

Memorial University of Newfoundland, Faculty of Medicine, 2016

McGill University, 2019

Manuscript Review for Peer-Reviewed Periodicals

*Canadian Journal of Infectious Diseases & Medical Microbiology*, 2001, 2003, 2015;

*Journal of the Association of Medical Microbiology and Infectious Diseases Canada*, 2017;

*Anaerobe*, 2002-03;

*Clinical Infectious Diseases*, 2001-2002, 2005;

*Viral Immunology* 2012;

*Canadian Medical Association Journal*, 2008;

*Canadian J. of Emergency Medicine*, 2005;

External Reviewer – National Laboratory Reference Services, 2005 to present

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## NEWSLETTER CONTRIBUTIONS

1. Mighty Microbes, an Infection Control Newsletter for Manitoba Infection Control Practitioners

September 2000 – Phippen D, Van Caesele P. Parainfluenza Virus

March 2001 – Phippen D, Van Caesele P. RSV Update

June 2001 – Phippen D, Van Caesele P. Cryptosporidium update

September 2001 – Phippen D, Van Caesele P. Scabies update

March 2002 – Phippen D, Van Caesele P. ESBLs

September 2002 – Phippen D, Van Caesele P. Hepatitis A Virus update

December 2002 – Phippen D, Van Caesele P. Small round enteric viruses

March 2003 – Phippen D, Van Caesele P. Human metapneumovirus

October 2004 – Van Caesele P. Tularemia

March 2005 – Van Caesele P. CA-MRSA.

December 2005 – Thompson G, Van Caesele P. Avian influenza

April 2006 – Thompson G, Van Caesele P. Mycoplasma pneumonia

September 2006 – Thompson G, Van Caesele P. E. coli O157:H7

June 2006 – Thompson G, Van Caesele P. Mumps

June 2010 – Kadkhoda K, Van Caesele P. Measles.

2. Cadham Provincial Laboratory – Public Health in Action, 2001-2005 (2 articles)

3. Communicable Disease Control Newsletter (2 articles)

4. Just Us – An HIV positive community Newsletter, 2001 (1 article)

5. Manitoba Health Physician's Newsletter, 2002- (3 articles)

6. College of Physicians and Surgeons of Manitoba Newsletter, 2001 (1 article)

7. Clinical Microbiology Proficiency Testing (CMPT) Critiques Newsletter, contributor to a number of critiques, 2003-2007

Numerous work-related pamphlets, Fact Sheets, Protocols, Procedures, Policies and white-papers.

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## CAREER PLANNING

Manitoba High School Career Fair (Medical Microbiology and laboratory medicine), January 2003

Medical Microbiology as a Career, University of Manitoba Faculty of Medicine Career Evening,

Feb 2007 & April 2008

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## TEACHING

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Except where indicated, all teaching is under the University of Manitoba, Rady Faculty of Health Sciences.

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### UNDERGRADUATE: DIDACTIC OR TUTORIAL

#### i. Laboratory Medicine (Mini-Hospital)

1997-2000	In training: over 80 hours of Lab Medicine tutorials
2000-2001	50 hours
2001-2002	50 hours
2002-2003	37 hours
2003-2004	10 hours
2004-2005	3 hours
2005-2006	14 hours

#### ii. Med I, Block 3, LM007, Serology (Lecture)

Annually from 2006-2016 (1 hour each year)

#### iii. Tutorials

1997-2000	In training: over 42 hours of ID/Microbiology tutorials			
2005	WRH 232	Perinatal Infections	Nov 14	2 hours
	-----	Pediatric ID	Nov 21	1 hour
2006	RS071	Pneumonia 3	May 4	1 hour
	SF120	Tuberculosis	Oct 26	1 hour
	SF143	Prevention & Control	Nov 2	1 hour
2007	NE090	CNS Infections	Mar 8	1 hour
	SF120	Tuberculosis	Oct 31	1 hour
	SF143	Prevention & Control	Nov 7	1 hour
2008	LM007	Serology	Feb 13	2 hours
2015	WRH232	Perinatal Infections	Nov 23	2 hours
2016	WRH234	Perinatal Infections	Nov 29	2 hours
2017	RS232	Upper Respiratory Infections	May 15	2 hours
	RS235	Lower Respiratory Infections	May 23	2 hours
	WRH2	Perinatal Infections	Nov 28	2 hours
2018	RS232	Upper Respiratory Infections	May 14	2 hours
2019	EVAL8	Evaluating Treatment	Oct 30	1 hour
	WRH2	Perinatal Infections	Nov 28	2 hours
2020	WRH2	Perinatal Infections	Nov 24	2 hours

#### iv. Medical Microbiology and Infectious Diseases HYGN 1280

2018	Skin and Soft Tissue Infection	2 hours
2019-2021	Skin and Soft Tissue Infection II	1 hour

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## POSTGRADUATE: DIDACTIC OR TUTORIAL

### i. Clinical Bacteriology, 97.704/ MMIC 7040 (Course Leader 2000-2012)

1999-2000	Meningococcus & Moraxella, 2 hours (Lecturer only)
2000-2001	52 hours
2001-2002	52 hours
2002-2003	50 hours
2003-2004	50 hours
2004-2005	50 hours
2007-2008	22 hours
2009-2010	16 hours
2011-2012	14 hours (last year as Course Leader)

**Note:** The above only reflects direct teaching hours and does not include the considerable effort expended in overseeing and administering the course, including guidance of lecturers, developing, invigilating and marking exams and assignments, & other administrative duties.

### ii. Clinical Virology, 97.713 / MMIC 7210 (Lecturer)

2003-2004	Respiratory Viruses, 2 hours; Pox/Papilloma/Papovaviruses	1 hour
2005-2006	Respiratory Viruses, 2 hours; Pox/Papilloma/Papovaviruses	1 hour
2016, 2018	Influenza, Parainfluenza and Metapneumovirus	2 hours
	RSV, Rhinovirus and Coronaviruses	1 hour
	Gastroenteritis Viruses	1 hour

### iii. Clinical Parasitology, 97.714 / MMIC 7140 (Lecturer)

2002-2003	Tissue Protozoa	2 hours
2008	Tissue Protozoa	2 hours
	Nematodes	3 hours
2010	Tissue Protozoa	2 hours
	Nematodes	3 hours
2012	Tissue Protozoa	2 hours
	Nematodes	3 hours
2015, 2017	Tissue Protozoa	2 hours
2019, 2021	Tissue Protozoa 1 and 3	3 hours
	Laboratory, Protozoa	3 hours
	Intestinal Nematodes	2 hours

### iv. The Ecology of Infectious Diseases MMIC 7220

2007	Preparing for Pandemic Influenza	1 hour
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### v. Half Day Sessions

2005	Pediatrics	Malaria & Malnutrition	Dec 14	2 hours
2013	ID/MM	Viral Diagnostics	Jan 9	2 hours

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## STUDENT SUPERVISION

### Supervision of Graduate Students

#### a. As University of Manitoba Medical Microbiology Training Program Director (2006-2010)

- Don Vinh MD, 2006\*
- Philippe Lagace-Wiens MD, 2006-2008
- Ahmed Haleis MD, 2006-2009

- Andrew Walkty MD, 2006-2009\*\*
- Oscar Larios MD, 2006-2009\*\*
- Majid Al-Shamrani MD, 2005-2006\*
- Jared Bullard MD, 2007-2010\*\*
- Safa Edagiz MD, 2010

\*Left the program

\*\*In combination with Infectious Diseases Training Program

**b. As Site Director for Cadham Provincial Laboratory (CPL) for clinical training programs (2000-2010):**

- Ken Von Kuster MD (General Pathology), Feb-Mar 2001
- Sarah Forgie, MD (Pediatric ID, May-Jun 2001
- Shannon MacDonald MD (Community Medicine), Aug 2001
- Marilyn Kirkpatrick MD (General Pathology-Hematopathology), Nov 2001-Jan 2002
- Frank Bovell MD (ID), Jan-Mar 2002
- Lisa Richards MD (Community Medicine), Jul-Aug 2002
- Nora Alfattoh MD (Pediatric ID), Nov-Dec 2002
- Marissa Becker MD (ID), Feb & Nov 2003
- Samira Mubareka MD (ID & Medical Microbiology), Mar-Apr 2003
- Michael Routledge MD (Community Medicine), May-Jun 2003
- Evelyn Lo MD (ID), Oct-Nov 2003
- William Libich MD (Community Medicine), Nov 2003
- Graham Tipples PhD (Clinical Microbiology), Jan-Feb 2004
- Cathy Smith MD (ID), Apr-Jun 2004
- Don Vinh MD (ID), May-Jun 2005
- Denise Koh MD (Community Medicine), Jul-Aug 2006
- Ghanem Al-Hujailan MD (ID), Sep-Nov 2006
- Camelia Stefanovici MD (General Pathology), Jun 2007
- Mario Calvo MD (Otorhinolaryngology), Sep-Oct 2007
- Sergio Fanella MD, (Pediatric Infectious Diseases), Oct 2007
- Ahmed Al-Suwaidi MD (Pediatric ID), Nov-Dec 2007
- Oscar Larios MD (ID & Medical Microbiology), Nov 2007-Jan 2008
- Andrew Walkty MD (ID & Medical Microbiology), Jan-Feb 2008
- Ahmed Haleis MD (Medical Microbiology), Mar 2008
- Stu Skinner MD (ID), May-Jun 2008
- Nataliya Skuridina MD (Community Medicine), May-Jun 2008
- Richard Rusk MD (Community Medicine), July-Aug 2008
- Karen Robinson MD (Community Medicine), Dec 2008-Jan 2009
- Kamran Kadkhoda PhD (Clinical Microbiology), Jan-Feb 2009
- Yoav Keynan MD (ID), May 2009
- Jared Bullard MD (ID & Medical Microbiology), Jul-Sep 2009
- Majid Al-Shamrani MD (ID), Aug-Sep 2009
- Nathalie Bridger MD (Pediatric Infectious Diseases), Nov-Dec 2009
- Salah Mahmud MD PhD (Community Medicine), Jan 2010
- Jonathon Gabor MD (ID), Mar 2010
- Terry Wuerz MD (ID), April 2010
- Brent Roussin MD (Community Medicine), May, Jul-Aug 2010
- Sandra Allison MD (Community Medicine), July 2010

**Note:** after this point the role of Site Director was turned over to another specialist physician and I provided only 1-2 hours of direct didactic contact per resident, or covered in the Site Director's absence.

**c. Postgraduate Student Research Supervision:**

Structured research project supervision as part of accredited residency programs:

- Drs. Safa Edagiz and Sameer Kassim (Medical Microbiology). *Mother to child transmission of hepatitis B and C in Manitoba*. 2015-2016. Co-supervisor with Drs. Joanne Embree and Jared Bullard.

- Dr. Bhreagh Kennedy (Pediatrics). *The effect of varicella vaccination on the incidence of herpes zoster in Manitoba*. 2017-2020. Co-supervisor with Dr. Guillaume Poliquin.
- Dr. Rachel Dwillow (Pediatric Tuberculosis). *A participatory mixed-methods evaluation of Manitoba's tuberculosis program*. 2017. Scholarship Oversight Committee member for American Board of Pediatrics Scholarly Activity Work Product.

**d. As Pediatric Infectious Diseases Consultant at Winnipeg Children's Hospital (2000-present):**

In this position I have supervised post-graduate and undergraduate medical trainees on an almost routine basis. The list is quite long, and includes local and external trainees from the following fields of training (not an exclusive list):

- Pediatrics
- Pediatric Infectious Diseases
- Adult Infectious Diseases
- Medical Microbiology
- Clinical Microbiology
- Obstetrics and Gynaecology
- General Surgery
- Undergraduate Medical Trainees

**e. As Travel Medicine Specialist at WRHA Travel Health and Tropical Medicine Clinic, (2001- present):**

In this position I have supervised post-graduate and undergraduate medical trainees on a steady but infrequent basis.

### **Student Thesis Advisory Committee(s)**

- a. Arwa Faizo, MSc. (Dept of Medical Microbiology, University of Manitoba) *Prenatal screening of potential infectious diseases in Manitoba*. 2014
- b. Kerry Dust, PhD. (Dept. of Medical Microbiology & Infectious Diseases, University of Manitoba). *Significance of HPV E6 PDZ binding domain on transformation of primary human neonatal keratinocytes*. Ex officio. 2019.
- c. Dr. Davinder Singh, MSc. (Dept. of Community Health Sciences, University of Manitoba). *The effect of timing of oseltamivir prophylaxis in controlling influenza A H3N2 and influenza B outbreaks in long term care facilities in Manitoba, Canada, 2014-2015: A retrospective cohort study*. 2019
- d. Dr. George Okoli, PhD. (College of Pharmacy, University of Manitoba) *Individual and provider factors associated with differential seasonal influenza vaccine uptake in Manitoba*. 2019.
- e. Alexandra Anderson, MSc. (in progress, Dept. Of Community Health Sciences, University of Manitoba) *Achieving health equity for individuals living with HIV in Manitoba: Identifying potential cancer disparities using population-based data*. Since 2018.
- f. Saba Shaikh, MSc. (in progress, Dept. of Medical Microbiology & Infectious Diseases, University of Manitoba) *Expression of Mumps Virus Fusion and Hemagglutinin protein glycoproteins to achieve stable cell line for Jeryl Lynn vaccine strain and Gentotype G*. Since 2020.

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### **OTHER TEACHING**

- a. Victoria General Hospital Central Services Technology Certification Course (Lecturer), 1998
  - Anatomy and Physiology (2 hours)
  - Microbiology I (2 hours)
  - Microbiology II (2 hours)
- b. Health Sciences Centre Respiratory Technology Training Course (Lecturer), 1999

- Gram Positive Bacteria (1 hour)
  - Gram Negative Bacteria (1 hour)
- c. Bayer Canada Preceptorship Program, May 1999
- Infections in the Neutropenic Host (2 hours)
- d. University of Manitoba Faculty of Nursing Practicum Seminars (Surgery) 2001-2002
- Surgical Site Infections (2 hours annually)
  - Infection Control (2 hours annually)
- e. Manitoba Health Infection Control Practitioner Refresher Course, 2000-2004
- Infection and Immunity (2 hours annually)
  - Virulence and Antibiotics (2 hours annually)
- f. Federal Hospital Continuing Medical Education Series, 2000-2007
- Meningitis (2000)
  - Scabies (2001)
  - The Bugs of Summer (2002)
  - Indoor Moulds and Human Health (2003)
  - Sexually Transmitted Diseases (2004, 2007)
- g. As Medical Director of Cadham Provincial Laboratory (CPL), annually oversee, orient and approve delegated supervision of the following trainees at CPL:
- Government of Manitoba STEP students
  - University of Manitoba Faculty of Science Co-Op Students
  - Red River College Medical Laboratory Technology Trainees
  - Neeginan College Medical Laboratory Assistant Trainees
  - Robertson College Medical Laboratory Assistant Trainees
  - Novice Infection Prevention and Control Practitioner (Practicum)

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## INVITED PRESENTATIONS

1. Scabies. Gimli Medical Staff. Gimli, Manitoba. May 2001.
2. Bioterrorism. Manitoba Society of Clinical Chemists Annual Meeting. Winnipeg, November, 2002.
3. Meningitis. Central Regional Health Authority Infection and Prevention Control Day, Oct 2002.
4. West Nile Virus: After the Fever: Diagnosis, Treatment & Prevention. Brandon Public Health Day. Brandon, Manitoba. October 2003.
5. Acanthamoeba keratitis. University of Manitoba Department of Ophthalmology Grand Rounds, Winnipeg, Manitoba, December 2003.
6. Unravel the Mystery of Microbiology Reports. Canadian Society of Hospital Pharmacists. Winnipeg, MB. May 15, 2005.
7. What's the Bug? Interpreting Microbiology Reports. 2005 National Education Conference, CHICA Canada, Winnipeg, Manitoba, 2005.
8. Marine toxins and envenomation. Manitoba 5<sup>th</sup> Annual Travel Health Conference, Winnipeg, Manitoba, April 2006.

9. Laboratory waste and its management. CSMLS/MSMLT 2006 National Congress, Winnipeg, Manitoba, May 2006.
10. What's happening out there: Global shifts in disease. Manitoba 6<sup>th</sup> Annual Travel Conference, Winnipeg, Manitoba, April 2008.
11. Specimen Collection: Microbiology Laboratory Rules and Etiquette. CHICA Manitoba Annual Meeting, Winnipeg, Manitoba, June 2008.
12. Battling the enemy within: HPV vaccine and detection. MSMLT Annual Congress, Winnipeg, Manitoba, October 2008.
13. HPV: Detection and surveillance, the view from the lab. International Centre for Infectious Diseases (ICID), Winnipeg, Manitoba. November 2008.
14. Seafood Poisoning: What's in your sushi? Manitoba 7<sup>th</sup> Annual Travel Health Conference, Winnipeg, Manitoba, April 2009.
15. Travel Clinics as GeoSentinel sites. Manitoba 7<sup>th</sup> Annual Travel Health Conference, Winnipeg, Manitoba, April 2009.
16. Diagnosing Influenza A H1N1. Internal Medicine Grand Rounds, Faculty of Medicine, University of Manitoba, Winnipeg, Manitoba. June 23, 2009.
17. Diagnosis: Lessons learned – current recommendations vs. clinical reality. Severe H1N1 Disease: Preventing cases, Reducing Mortality Conference, Winnipeg, Manitoba, September 2 & 3, 2009.
18. What you should know about Infection Control. Manitoba Para-Optometric Association Annual Conference, Winnipeg, Manitoba. June 2010.
19. Role of a Public Health Laboratory during Pandemic. CHICA Manitoba Infection Prevention and Control Conference, Winnipeg, MB. June 18, 2010.
20. An Update on Newborn Screening in Manitoba: Past, Present and Future. Pediatric Grand Rounds, Faculty of Medicine, University of Manitoba, Winnipeg, Manitoba, February 24, 2011.
21. Cadham Can Do: So What Does Cadham Provincial Laboratory Do? Manitoba Health Employee Growth Day, Winnipeg, MB. October 18, 2011.
22. Lyme Diagnostics: Challenges Controversies and Needs. International Lyme Disease Symposium. Winnipeg, Manitoba. March 19, 2012.
23. Newborn screening for cystic fibrosis: the child who tastes like salt. MCMLS Annual Congress, Winnipeg, Manitoba, October 2012.
24. Triage for travel-related diseases. WRHA Triage Update 2012, Winnipeg, MB, October 2012.
25. Microbiology testing and the eye: Proper specimen collection, microbiology laboratory use & etiquette. Manitoba Optometrist Association Annual Meeting. April 2013.
26. Diagnostic Virology: A primer on the art and science for IPC. WRHA Infection Prevention and Control Annual Education Day, Winnipeg, Manitoba, January 2016.
27. The Travelling Germophobe. Manitoba 15<sup>th</sup> Annual Travel Health Conference, Winnipeg, Manitoba, April 2018.



**28.** The COVID-19 Pandemic: Looking Back to Move Forward. Bug Day 2020, Winnipeg, Manitoba, October 20, 2020.

**29.** COVID-19, A Primer. Manitoba Chapter - Risk and Insurance Management Society Annual Meeting, 2020, Winnipeg Manitoba, October 27, 2020.

**30.** Leaving no child behind: Best practices for promoting equitable, ethical and community oriented expansion of newborn screening in Canada (presenter & panel member). 12<sup>th</sup> Canadian Science Policy Conference, virtual. November 17, 2020.

### **Department of Medical Microbiology & Infectious Diseases Research Seminars**

**1.** What's New at CPL? March 20, 2002

**2.** Looking for Pearls; A dive into the data. March 9, 2016

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## RESEARCH INTERESTS

My persisting research interests focus on collaborative team approaches to methodical inquiry in laboratory screening programs, diagnostic and public health virology, sexually-transmitted infections, and enteric and respiratory disease. All have the common denominator of leveraging the expertise and information held by public health labs to answer policy and applied science questions.

Public health laboratory practice is largely about building systems, responses and capacity. As emerging and re-emerging disease arises, and as outbreaks or wider scale epidemics occur, countless questions and opportunities to inquire emerge. As a public health practitioner, it is a best practice to sift through the available information as it is produced to generate better understandings of the epidemiology of and response to disease. These requirements cannot be part of a thoroughly planned research agenda, as the outbreaks and their behaviours are not amenable to such prediction.

As an academic in a leadership position situated in Government, it has become my role to steer and connect other public health, basic science and clinical researchers together, and to continue to advocate for the role and interest of Government in research and education. This advocacy extends into Government(s), academia and community, and includes finding resources and supporting facilities for conduct of research.

1. From: BiochemPharma Amount: \$5,000 Date: 2001  
To: Manitoba Health (principle investigator for funding, co-investigator for study)  
For: Relationship between the size of naïve T cell repertoire and the development of immune response to influenza vaccine among the elderly
2. From: CRTI Amount: \$1,200,000 Date: 2002-2003  
To: Canadian Public Health Laboratory Forum (co-participant) & National Microbiology Lab  
For: National real-time network for identification of bioterrorist agents
3. From: CIHR Amount: \$655,833 Date: 2003-2006  
To: SAFER study group (co-investigator)  
For: Second and first trimester evaluation of risk of fetal trisomies
4. From: MMSF Amount: \$30,000 Date: 2005-2006  
To: P Van Caeseele, M Dawood  
For: Development of monoclonal antibodies against vaccinia virus
5. From: HSC Research Foundation Amount: \$35,000 Date: 2006  
To: E Rubinstein, E Bow, P Hazelton, C Bernstein, H Singh, G Hammond, P Van Caeseele  
For: Diarrheal syndromes in lymphoma patients

6. From: CIHR Amount: \$93,594 Date: 2007  
To: D Skowronski, L Roos, G DeSerres, G Hammond, B Law, Y Li, C Metge, P Van Caesele  
For: Influenza vaccine effectiveness against serious outcomes
  7. From: MICH Amount: \$40,000 Date: 2007  
To: E Rubinstein, J Wylie, P Van Caesele, P Hazelton, S Fanella  
For: Acute infectious diarrhea in pediatric cases
  8. From: NIH Amount: \$3,623,676 USD Date: 2008-2011
  9. From: CIHR Amount: \$500,000 Date: 2008-2011  
To: M. Loeb and the Hutterite Influenza Team (includes P Van Caesele)  
For: A randomized trial of influenza vaccination in Hutterite children
  10. From: CIHR Amount: \$105,304 Date: 2007-2009  
To: C Beaudoin, J Wylie, M Dawood, T Larsen, M Sloane, P Van Caesele, M Wood  
For: Epidemiology of STI and BBP in an inmate population
  11. From: CIHR Amount: \$8,440 Date: 2007-2013  
To: J Wylie, A Jolly, C Beaudoin, M Dawood, P Van Caesele  
For: Determining risk space in Canada's vulnerable populations
  12. From: Gilead Sciences Canada Amount: \$ 80,000 Date: 2010-2011  
To: M Becker, K Kasper, C Pindera, N Bridger, P Van Caesele, J Bullard, L Thompson  
For: Point of Care Testing in the Emergency Department
  13. From: Children's Hosp. Foundation Amount: \$157,175 Date: 2011-2012  
To: H Pasterkamp, C Rockman-Greenberg, P Van Caesele  
For: Newborn Screening for Cystic Fibrosis in Manitoba
  14. From: PHAC Amount: \$94,000 Date: 2011-2012  
To: P Van Caesele, S Mahmud  
For: Sentinel Network for Influenza Surveillance
  15. From: MMSF Amount: \$15,000 Date: 2020  
To: K. Pylypjuk, P Van Caesele, B. Chodirker, et al  
For: Amongst Pregnant Women in Manitoba, are false-positive Maternal Serum Screening results associated with adverse pregnancy outcomes? A 15-Year Cohort Study
  16. From: CIHR Amount: \$825,367 Date: 2020-2021  
To: D. Money, et al (P Van Caesele as key collaborator)  
For: CANCOVID-Preg: Canadian Surveillance of COVID-19 in Pregnancy: Epidemiology and Maternal and Fetal Outcomes.
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## PUBLICATIONS

### Books

1. **Van Caesele P.** Infectious Diseases and Medical Microbiology Fellows' Handbook, 1<sup>st</sup> Ed., Privately Published, Winnipeg, 1999.

## Peer Reviewed Publications

1. Cooper CL, **Van Caesele P**, Canvin J, Nicolle LE. Chronic prosthetic device infection with *Francisella tularensis*. *Clinical Infectious Diseases* 1999; 29: 1589-91.
2. **Van Caesele P**, Alfa MJ, Harding GKM. Assessment of the FAN anaerobic bottle for culture of continuous ambulatory peritoneal dialysis fluid using the BacT/Alert System. *Diagnostic Microbiology and Infectious Disease* 2000; 36: 85-90.
3. **Van Caesele P**, Macaulay A, Orr P, Aoki F, Martin B. Rapid pharmacotherapeutic intervention for an influenza A outbreak in the Canadian Arctic: lessons from the Sanikiluaq experience. *International Journal of Circumpolar Health* 2001; 60: 640-648.
4. Alfa MJ, Robson D, McFarlane N, Davi M, Bernard K, **Van Caesele P**, Harding GKM. *Clostridium neonatale*: a new *Clostridium* species associated with an outbreak of necrotising enterocolitis in a neonatal intensive care unit. *Clinical Infectious Diseases* 2002;35:S101-S105.
5. Boyd D, **Van Caesele P**, Wylie J, Giercke S, Cabral T, Hizon R, Mulvey M. Molecular characterization of the vanE gene region from a vancomycin resistant *Enterococcus faecalis* isolated in Canada. *Antimicrobial Agents and Chemotherapy* 2002; 46: 1977-1979.
6. Bastien N, Ward D, **Van Caesele P**, Brandt K, Lee S, McNabb G, Li, Y. Human metapneumovirus infection in the Canadian population. *Journal of Clinical Microbiology* 2003, 41; 4642-4646.
7. Tsang RSW, Lau AKH, Sill ML, Halperin SA, **Van Caesele P**, Jamieson F, Martin IE. Polymorphisms of the fimbriae *fim3* gene of *Bordetella pertussis* strains isolated in Canada. *Journal of Clinical Microbiology*. 2004; 42: 5364-5367.
8. Nicolle LE, Gutkin A, Smart G, Dawood M, Drebot M, **Van Caesele P**, Giulivi A, Minuk GY. Serological studies of West Nile virus in a liver transplant population. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2004;15: 271-274.
9. Bastien N, Anderson K, Hart L, **Van Caesele P**, Brandt K, Milley D, Hatchette T, Weiss EC, Li Y. Human coronavirus NL63 infection in Canada. *Journal of Infectious Diseases*. 2005; 191: 503-506.
10. Tracz D, Boyd D, Bryden L, Hizon R, Giercke S, **Van Caesele P**, Mulvey M. Increase in |\*bital\*|ampC|\*eital\*| promoter strength due to mutations and deletion of the attenuator in a clinical isolate of cefoxitin resistant |\*bital\*| *Escherichia coli* |\*eital\*| as determined by RT-PCR. 2005. *Journal Antimicrobics and Chemotherapy*. 2005; 55: 768-72.
11. Mubareka S, Alfa M, Harding GK, Booton G, Ekins M, **Van Caesele P**. *Acanthamoeba* keratitis in a soft contact lens wearer molecularly linked to well water. *The Canadian Journal of Infectious Diseases and Medical Microbiology*. 2006; 17: 120-122.
12. Lagace-Wiens P, Koschik C, **Van Caesele P**. *Dientamoeba fragilis* – an emerging intestinal parasite. *Canadian Medical Association Journal*. 2006; 175: 468-469.
13. Sandhu A, Gross M, Wylie J, **Van Caesele P**, Plourde P. *Pseudomonas aeruginosa* necrotizing chondritis complicating high helical ear piercing case report. *Canadian Journal of Public Health*. 2007 (Jan-Feb); 98: 74-77.
14. Yusuf S, Piedmonte G, Auais A, Demmler G, Krishnan S, **Van Caesele P**, Singleton R, Broor S, Parveen S, Avendano L, Parra J, Chavez-Bueno S, Murgia De Sierra T, Simoes E, Shaha S, Welliver R. The relationship of meteorological conditions to the epidemic activity of respiratory syncytial virus. *Epidemiology and Infection*. 2007(October) ; 135(7): 1077-90.

15. Hatchette TF, Bastien N, Berry J, Booth TF, Chernesky M, Couillard M, Drews S, Ebsworth A, Fearon M, Fonseca K, Fox J, Gagnon JN, Guercio S, Horsman G, Jorowski C, Kuschak T, Li Y, Majury A, Petric M, Ratnam S, Smeija M, **Van Caesele P**, and the **Pandemic Influenza Laboratory Preparedness Network**. The limitations of point of care testing for pandemic influenza: what clinicians and public health professionals need to know. *Canadian Journal of Public Health*. 2009 (May-June); 100(3): 204-7.
16. Loeb M, Russell ML, Moss L, Fonseca K, Fox J, Earn DJ, Aoki F, Horsman G, **Van Caesele P**, Chokani K, Vooght M, Babiuk L, Webby R, Walter SD. Effect of influenza vaccination of children on infection rates in Hutterite communities: a randomized trial. *Journal of the American Medical Association (JAMA)*. 2010 (March); 303(10):943-50.
17. MacRae AR, Chodirker BN, Davies GA, Palomaki GE, Knight GJ, Minett J, Kavsak PA, Toi A, Chitayat D, **Van Caesele PG**. Second and first trimester estimation of risk for Down syndrome; implementation and performance in the SAFER study. *Prenatal Diagnosis*. 2010 (May); 30 (5): 459-66.
18. Martin IE, Lefebvre B, Sawatzky P, Hoang L, **Van Caesele P**, Horsman G, Ang L, Bourgault AM, Ng LK. Identification of prolyliminopeptidase-negative *Neisseria gonorrhoeae* strains in Canada. *Sexually Transmitted Diseases*. 2010(July); 38(1): 40-42.
19. Mahmud S, Becker M, Keynan Y, Elliott L, Thompson L, Fowke K, Avery L, **Van Caesele P**, Harlos S, Blanchard J, Dawood M. Estimated cumulative incidence of pandemic (H1N1) influenza among pregnant women during the first wave of the 2009 pandemic. *Canadian Medical Association Journal*. 2010 (Oct 5);182(14):1522-4.
20. Tyrell GGJ, Lovgren M, St Jean T, Hoang L, Patrick DM, Horsman G, **Van Caesele P**, Sieswerda LE, McGeer A, Laurence RA, Bourgault AM, Low DE. Epidemic of Group A *Streptococcus* M/emm59 causing invasive disease in Canada. *Clinical Infectious Diseases* 2010 Dec 1; 51 (11): 1290-7.
21. Fanella ST, Pinto MA, Bridger NA, Bullard JM, Coombs JM, Crockett ME, Olekson KL, Poliquin PG, **Van Caesele PG**, Embree JE. Pandemic (H1N1) 2009 influenza in hospitalized children in Manitoba: nosocomial transmission and lessons learned from the first wave. *Infection Control and Hospital Epidemiology*. 2011 May; 32(5); 435-43.
22. Hottes TS, Skowronski DM, Hiebert B, Janjua NZ, Roos LL, **Van Caesele P**, Law BJ, DeSerres G. Influenza vaccine effectiveness in the elderly based on administrative databases: change in immunization habit as a marker for bias. *PLoS One*. 2011; 6(7):e22618.Epub 2011 Jul 26.
23. Mahmud S, Hammond G, Elliott L, Hilderman T, Kurbis C, Caetano P, **Van Caesele P**, Kettner J, Dawood M. Effectiveness of the pandemic H1N1 influenza vaccine against laboratory-confirmed H1N1 infections: population-based case-control study. *Vaccine*. 2011 Oct 19; 29(45): 7075-81. Epub 2011 Aug 30.
24. Walkty A, **Van Caesele P**, Hilderman T, Buchan S, Weiss E, Sloane M, Fatoye B. Mumps in prison: description of an outbreak in Manitoba, Canada. *Canadian Journal of Public Health*. 2011 Sep-Oct; 102(5): 341-4.
25. Alharbi S, **Van Caesele P**, Consunji-Araneta R, Zoubeydi T, Fanella S, Souid AK, Alsuwaidi AR. Epidemiology of severe pediatric adenovirus lower respiratory tract infections in Manitoba Canada 1991-2005. *BMC Infectious Diseases*. 2012 Mar 13;12:55.
26. Tyrrell G, Lovgren M, Ibrahim Q, Garg S, Chui L, Boone T, Mangan C, Patrick D, Hoang L, Horsman G, **Van Caesele P**, Marrie T. Epidemic of invasive pneumococcal disease, Western Canada, 2005-2009. *Emerging Infectious Diseases*. 2012 May; 18(5): 733-40.

27. Mahmud S, **Van Caesele P**, Hammond G, Kurbis C, Hilderman T, Elliott L. No association between 2008-09 influenza vaccine and Influenza A(H1N1) pdm09 virus infection, Manitoba, Canada, 2009. *Emerging Infectious Diseases*. 2012 May; 18(5): 801-10.
28. Kruk T, Ratnam R, Preiksatis J, Lau A, Hatchette T, Horsman G, **Van Caesele P**, Timmons B, Tipples G. Results of a continuous monitoring of the performance of Rubella Virus IgG and Hepatitis B Virus surface antibody assays using trueness controls in a multicentre trial. *Clinical Vaccine and Immunology*. 2012 October; 19 (10): 1624-32.
29. Kim TH, Russell M, Fonseca K, Aoki F, Horsman G, **Van Caesele P**, Chokani K, Voight M, Babiuk L, Moss L, Webby R, Earn D, Singh P, Howse C, Loeb M. Characteristics of respiratory viral infections during influenza season in Canadian Hutterite communities. *Influenza and Other Respiratory Viruses*. 2012 (Oct 19); epub.
30. Thompson LH, Mahmud S, Keynan Y, Blanchard J, Slater J, Dawood M, Fowke K, **Van Caesele P**, Becker M. Serological survey of the novel influenza A H1N1 in inner city Winnipeg Manitoba, 2009. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2012 (Summer); 23(2); 65-70.
31. Skowronski DM, Janjua N, De Serres G, Dickinson J, Winter A-L, Mahmud S, Sabaiduc S, Gubbay J, Charest H, Petric M, Fonseca K, **Van Caesele P**, Kwindt T, Krajden M, Eshaghi A, Li Y. Interim estimates of influenza vaccine effectiveness in 2012/13 from Canada's Sentinel Surveillance System Network, January 2013. *Eurosurveillance*. 2013 (January 31); 18 (5): pii=20394.
32. Wylie J, **Van Caesele P**, Gilmour M, Sitter D, Guttek C, Giercke S. Evaluation of a new chromogenic agar medium for detection of Shiga Toxin-producing *Escherichia coli* (STEC) and relative prevalence of O157 and non-O157 STEC, Manitoba, Canada. *Journal of Clinical Microbiology*. 2013 (Feb); 51 (2); 466-471.
33. Becker M, Thompson LH, Pindera C, Bridger N, Lopez C, Keynan Y, Bullard J, **Van Caesele P**, Kasper K. Feasibility and success of HIV point-of-care testing in an emergency department in an urban Canadian setting. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2013 (Spring); 24(1); 27-31.
34. DeRiviere L, Stopera S, **Van Caesele P**, Lotocki R. Comparative models of cervical cancer screening in Manitoba. *Health Care Quarterly*. 2013; 16 (1): 77-85.
35. Clark CG, Kruczkiewicz P, Guan C, McCorrister SJ, Chong P, Wylie J, **Van Caesele P**, Tabor HA, Snarr P, Gilmour M, Taboada EN, Westmacott G. Evaluation of MALDI-TOF mass spectroscopy methods for determination of *Escherichia coli* pathotypes. *Journal of Microbiological Methods*. 2013 Sep; 94(3): 180-91. Doi: 10.106/j.mimet.2013.06.020. Epub 2013 Jun 28.
36. Martin I, Sawatzky P, Liu G, Allen V, Lefebvre B, Hoang L, Lovgren M, Haldane D, **Van Caesele P**, Horsman G, Garceau R, Ratnam S, Wong T, Gilmour M. Antimicrobial susceptibilities and distribution of sequence types of *Neisseria gonorrhoeae* isolates in Canada: 2010. *Canadian Journal of Medical Microbiology*. 2013 Oct; 59(10): 671-8. Doi: 10.1139/cjm-2013-0367. Epub 2013 Aug 27.
37. Jilkina O, Thompson JR, Kwan L, **Van Caesele P**, Rockman-Greenberg C, Schroeder M. Retrospective TREC testing of newborns with Severe Combined Immunodeficiency and other primary immunodeficiency diseases. *Molecular Genetics and Metabolism Reports*. 2014; 1: 324-333.
38. Skowronski D, Janjua NZ, Sabaiduc S, De Serres G, Winter AL, Gubbay JB, Dickinson J, Fonseca K, Charest H, Bastien N, Li Y, Kwindt T, Mahmud S, **Van Caesele P**, Krajden M, Petric M. Influenza A/Subtype and B/Lineage Effectiveness Estimates for the 2011-2012 Trivalent Vaccine:

Cross-Season and Cross-Lineage Protection with unchanged vaccine. *Journal of Infectious Diseases*. 2014 Apr 1.

39. Skowronski D, Chambers C, Sabaiduc S, De Serres G, Dickinson J, Winter A, Fonseca K, Gubbay J, Charest H, Petric M, Krajden M, Mahmud S, **Van Caesele P**, Kwindt T, Eshaghi A, Bastien N, Li Y. Interim estimates of 2013/14 vaccine effectiveness against influenza A(H1N1)pdm09 from Canada's surveillance network, January 2014. *Euro Surveillance*. 2014 Feb 6; 19(5). Pii: 20690. Erratum in : *Euro Surveillance*. 2014; 19(6): 20698.

40. Mataseje LF, Boyd DA, Delport J, Honag L, Imperial M, Lefebvre B, Kuhn M, **Van Caesele P**, Willey BM, Mulvey MR. *Serratia marcescens* harbouring SME-type class A carbapenemases in Canada and the presence of blaSME on a novel island, SmarGI1-1. *Journal of Antimicrobials and Chemotherapy*. 2014 Jul; 69(7): 1825-9.

41. Skowronski D, Janjua N, De Serres G, Sabaiduc S, Eshaghi A, Dickinson J, Fonseca K, Winter A, Gubbay J, Krajden M, Petric M, Charest H, Bastien N, Kwindt T, Mahmud S, **Van Caesele P**, Li Y. Low 2012-13 influenza vaccine effectiveness associated with mutation in the egg-adapted H3N2 vaccine strain not antigenic drift in circulating viruses. *PLoS One*. 2014 Mar 25; 9(3): e92153.

42. Schillberg E, Isaac M, Deng X, Peirano G, Wylie J, **Van Caesele P**, Pillai D, Sinnock H, Mahmud S. Outbreak of invasive *Streptococcus pneumoniae* serotype 12F among a marginalized inner-city population in Winnipeg, Canada, 2009-2011. *Clinical Infectious Diseases*. 2014 Sep 1; 59(5): 651-7.

43. Bullard J, Ahsanuddin A, Perry A, Lindsay R, Iranpour M, Dibernardo A, **Van Caesele P**. The first case of locally acquired tick-borne *Babesia microti* infection in Canada. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2014 Nov-Dec; 25(6): 87-89.

44. Hinds A, Bozat-Emre S, **Van Caesele P**, Mahmud S. Comparison of the epidemiology of laboratory-confirmed influenza A and influenza B cases in Manitoba, Canada. *BMC Public Health*. 2015 Jan 30; 15(1): 35.

45. Skowronski DM, Chambers C, Sabaiduc S, DeSerres G, Winter AL, Dickinson JA, Gubbay J, Fonseca K, Charest H, Krajden M, Petric M, Mahmud S, **Van Caesele P**, Bastien N, Eshaghi A, Li Y. Integrated sentinel surveillance linking genetic, antigenic and epidemiologic monitoring of influenza vaccine-virus relatedness and effectiveness during the 2013-14 influenza season. *Journal of Infectious Diseases*. 2015 Sep 1; 212(5): 726-39.

46. Wylie JL, **Van Caesele P**. Interpretation of laboratory detection trends for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*: Manitoba, Canada, 2000-2012. *Sexually Transmitted Infections*. 2016 Feb; 92(1): 55-57.

47. Teatero S, Athey TB, **Van Caesele P**, Horsman G, Alexander DC, Melano RG, Li A, Flores A, Shelburne S, McGeer A, Demczuk W, Martin I, Fittipaldi N. Emergence of serotype IV Group B *Streptococcus* adult invasive disease in Manitoba and Saskatchewan, Canada, is driven by clonal sequence type 459 strains. *Journal of Clinical Microbiology*. 2015 Sep ; 53(9): 2919-26.

48. Sawatzky P, Liu G, Dillon J, Allen V, Lefebvre B, Hoang L, Tyrrell G, **Van Caesele P**, Levett P, Martin I. Quality assurance for antimicrobial susceptibility testing of *Neisseria gonorrhoeae* in Canada, 2003 to 2012. *Journal of Clinical Microbiology*. 2015 Nov; 53(11): 3649-9.

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## Published Abstracts, Presentations & Posters

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## REGISTERED ISOLATES OR SEQUENCES

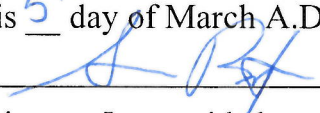
### Sequences

1. GenBank – AF473567. Human calicivirus NLV/Steinbach/EG/2001/CA RNA-dependent RNA polymerase (pol) gene (orf1), partial cds.
2. GenBank – AF430807. Enterococcus faecalis strain N00-410 vancomycin-resistance vanE gene cluster, partial sequence.

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End

This is Exhibit “ C ” referred to  
in the Affidavit of Jared Manley  
Peter Bullard Affirmed before  
me this 5<sup>th</sup> day of March A.D. 2021

  
\_\_\_\_\_  
A Barrister-at-Law entitled to practice  
in and for the Province of Manitoba

**Principles and practice of molecular testing for Severe Acute Respiratory Syndrome  
Coronavirus 2 (SARS-CoV-2) during the Coronavirus Disease 2019 (COVID-19) pandemic in  
Manitoba, Canada**

**Jared Bullard MD FRCPC\* and Paul Van Caeseele MD FRCPC\*\***

**February 24, 2021**

\*Associate Professor and Section Head, Pediatric Infectious Diseases, Departments of Pediatrics  
& Child Health and Medical Microbiology, University of Manitoba; Associate Medical Director,  
Cadham Provincial Laboratory.

\*\*Professor, Departments of Medical Microbiology & Infectious Diseases, and Pediatrics &  
Child Health, University of Manitoba; Medical Director, Cadham Provincial Laboratory; Co-Chair,  
Canadian Public Health Laboratory Network.

## **Overview of SARS-CoV-2 molecular testing in Manitoba**

### **What is SARS-CoV-2?**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the virus causing coronavirus disease 2019 (COVID-19). As a member of the coronavirus family, it has certain characteristics including use of RNA (instead of DNA) to encode and produce its various components. Viral detection from clinical samples targets these genes in almost all circumstances. Examples of some specific genes of SARS-CoV-2 include envelope (E), spike (S) and nucleocapsid (N) genes that are found on the outer surface of SARS-CoV-2. These same proteins are targeted by the human immune system to eliminate the virus or produce an immune response to vaccine.

### **What is the diagnostic process used on a sample from a suspect case to detect SARS-CoV-2?**

Samples from people are taken from the back of the nose, throat and occasionally from deeper sites such as the trachea or lungs. Usually these people have disease that is compatible with COVID-19 (fever, headache, cough, muscles aches) or they have been recently exposed to someone with confirmed or suspected COVID-19. Specimens such as swabs from any of the various anatomic sites are placed in viral transport medium (VTM) to ensure that the specimen (the viral RNA and viral particles) retain their integrity. All specimens are labelled and have a laboratory requisition that link the patient, the sample and the ordering practitioner. This ensures that the final result is on the correct person, and goes to the correct practitioner who can then respond to the result accordingly.



Laboratory specimens are received at Cadham Provincial Laboratory (CPL) (specimens are also received at DynaCare Laboratories and at Shared Health Microbiology) by staff throughout the day and directed into appropriate SARS-CoV-2/COVID-19 testing streams dependent on the priority that a result is required. Staff confirm that specimens and requisitions match prior to further testing. Once directed into the laboratory testing stream, medical laboratory technologists (MLTs) further process the specimen in preparation for testing.

All definitive testing for COVID-19 in Manitoba is performed using molecular techniques, which is another way of saying that genetic elements of the virus are sought. Reverse transcription polymerase chain reaction (RT-PCR) is one very common example of a molecular technique. Once molecular testing is completed, a result is reported back to the ordering practitioner. Results can be either negative (no SARS-CoV-2 detected in the submitted sample) or positive (SARS-CoV-2 detected in the submitted sample). In rare cases a specimen is unsuitable and is deemed incapable of being tested (cancelled) or does not provide a result if tested (invalid). If positive, the result will also be shared with public health so that appropriate case contact and investigation can occur to limit the spread of COVID-19 in the community.

#### **What is PCR and how is it used in the diagnosis of COVID-19?**

SARS-CoV-2 testing of respiratory samples is conducted on several different platforms (instruments capable of performing molecular testing) at CPL and other laboratories in Manitoba. The premise of almost all molecular techniques is to amplify an initial small amount of genetic target (genes unique to SARS-CoV-2) in a sample a predetermined number of times.

If sufficient genetic material is present in a sample to be detected, that sample is considered positive for the SARS-CoV-2 virus. If no target genetic material is detected after all amplification cycles are complete, then the sample is considered negative for SARS-CoV-2. The chemistry, genetic targets and rounds of amplification differ from platform to platform. Health Canada authorizes commercial platforms and accredited laboratories such as CPL must follow Health Canada authorized instructions from the manufacturer. In addition, reference laboratories regularly develop in-house methods of molecular detection known as laboratory developed tests (LDTs). Development of LDTs must have detailed experimental proof of performance and maintain strict adherence to documented test procedures to ensure testing accuracy. CPL is part of the Canadian Public Health Laboratory Network (CPHLN). This national group of experts regularly discuss methods of detection of SARS-CoV-2 and employ very similar techniques across their LDTs. Their collective experience and expertise is essential to maintain quality diagnostic performance that meets national standards. CPL currently utilizes an internationally recognized protocol for the molecular detection of SARS-CoV-2 in respiratory specimens<sup>1</sup>.

The most common method of molecular amplification used to detect SARS-CoV-2 in samples is RT-PCR. Like other molecular techniques, RT-PCR first takes SARS-CoV-2 RNA found in respiratory samples and converts it to DNA. A targeted portion of the DNA is subsequently doubled for typically 40 cycles. Commercial platforms may use a different number of amplification cycles. The current SARS-CoV-2 RT-PCR methodology at CPL uses a total of 40 cycles of amplification. The cycle in which detection of SARS-CoV-2 genetic material first becomes evident is called the cycle threshold (Ct). The Ct value is a semi-quantitative (an imprecise but approximate) measure of how much genetic material is present in the initial

sample. If more cycles are required (higher Ct) to detect SARS-CoV-2, then less viral RNA was present to start. In comparison, samples with more RNA will typically, but not always, require fewer cycles (with a lower Ct) to detect the virus. There can be differences in Ct values for many reasons including between a sample tested on different platforms, between two different anatomic samples from the same individual, or samples from the same individual obtained at different times. A study performed at CPL demonstrated that the various platforms used for testing of samples for SARS-CoV-2 have very similar, but not identical, Ct values<sup>2</sup>. This is important as samples tested for SARS-Cov-2 on any RT-PCR platform at CPL will have consistent Ct results within an acceptably narrow range.

#### **Why is culture not used for the diagnosis of SARS-CoV-2?**

Like other viruses, cell culture can be used to detect SARS-CoV-2. A cell culture is when a sample with suspected SARS-CoV-2 is put into a test tube of media with a layer of cells that can be infected with this virus. Over time, usually 3 to 5 days, infected cells will change in appearance indicating they have been infected with SARS-CoV-2. Cell culture has certain advantages over molecular detection. The primary advantage is that cell culture is better able to determine if viruses are still viable, that is, if the virus in a sample can enter a cell, reproduce itself and then release viral progeny to infect more cells. Molecular methods such as RT-PCR do not distinguish between virus that is viable (can cause infection in cell culture) or non-viable virus. Cell culture has important limitations. It can take several days before a cell culture can be called positive whereas molecular tests take hours. This is important in conducting a timely public health response. Specialized laboratory facilities are required to safely handle and

propagate live infectious virus. These facilities are called containment level 3 (CL3) and are relatively limited compared to the containment level 2 (CL2) space needed for molecular work. The only operational CL3 laboratory space in Manitoba at this time is at the National Microbiology Laboratory, and most jurisdictions are highly limited in the amount of CL3 lab space that they have access to. The number of samples that can be processed by cell culture is significantly less than what can be processed by molecular methods and automated platforms. Finally, the diagnostic accuracy of cell culture is not as robust as molecular methods; SARS-CoV-2 is less likely to grow successfully in cell culture than have genetic material detected (i.e. more samples would appear as false negatives by cell culture). This is very commonly due to delayed or non-standard transport conditions, improper collection technique, or simply technical limitations of the method. As an example, some common viruses will only grow 50-90% of the time where PCR methods more reliably do not fail. For those reasons, cell culture is not routinely performed on specimens in the diagnosis of COVID-19 and RT-PCR is the current gold standard for accurately detecting the presence of SARS-CoV-2.

#### **What is the diagnostic accuracy of SARS-CoV-2 RT-PCR?**

Any diagnostic test is in part defined by what are called performance characteristics. Performance characteristics describe different ways in which a test is accurate, and can be broken down into sensitivity and specificity, among others. Sensitivity is the proportion of people with COVID that the test will call positive. Poor sensitivity results in false negatives. Specificity is the proportion of people who do not have COVID that the test will call negative. Poor specificity results in false positives. The sensitivity of SARS-CoV-2 RT-PCR is estimated to

be greater than 95% (5 times out of 100, the test will be negative when the person truly has COVID-19 and usually occurs if testing is performed late in the incubation period before symptoms develop). It has a specificity of greater than 99.9% (less than 1 in 1000 will have a false positive result). These performance characteristics are typical of RT-PCR tests for other respiratory viruses.

### **Can SARS-CoV-2 RT-PCR Ct values be used to determine if someone is infectious?**

There have been some studies that evaluated samples from people with COVID-19 to determine the relationship between SARS-CoV-2 RT-PCR Ct values, symptom duration and cell culture positivity<sup>3, 4</sup>. In our study of 90 samples, which was the first published study of its kind, we found that samples taken from people with COVID-19 at day 8-10 of illness (from symptom onset) had a reduced risk of successfully growing SARS-CoV-2 in cell culture. The implication is that people beyond day 8-10 of illness with COVID-19 may be at lower risk for being infectious, simply because it becomes difficult to demonstrate viable virus at that point. Notably, the study did not conclude that persons were not infectious after 8-10 days, but rather that further study of larger size would be required<sup>4</sup>. This is important as the average duration that SARS-CoV-2 is detectable by RT-PCR is 17 days, though can range up to as long as 3 months<sup>5</sup>. Many viruses are shed for prolonged periods and are generally considered less or perhaps non-infectious within 1-2 weeks of symptom onset.

It is important to note that the cell culture model of infectivity is the best laboratory-based system to reproduce infectiousness in humans but it remains a surrogate. Numerous factors including the host immune response, pre-existing medical conditions and treatments,

amount of and strain of virus and the interplay between the host and SARS-CoV-2 must be considered in assessing whether an individual is infectious.

In our study referred to above, samples with a Ct value of 25 or greater did not grow SARS-CoV-2 in cell culture. Further unpublished work in Manitoba has confirmed that a Ct value of under 24 has the highest probability of growing SARS-CoV-2 in cell culture. Other studies have found infectious virus at Ct values between 30 - 40<sup>6</sup>. An excellent study evaluating 3790 positive samples (using similar chemistry to that utilized in Manitoba) for SARS-CoV-2 in cell culture demonstrated that at a Ct of 25 had up to 70% culture positivity with a culture positivity drop to 20% at a Ct of 30 and a further reduction to <3% at Ct 35<sup>7</sup>. The implication of these studies is that higher Ct values are associated with a lower likelihood of growing SARS-CoV-2 in cell culture, but this cannot rule that the person was or was not infectious at the time of sample collection. Finding the laboratory correlates of those infectious endpoints has been of intense interest to practitioners, but studies have yet to yield a reliably dichotomous endpoint – some small probability of transmissibility may still remain beyond even conservatively set Ct endpoints. No single SARS-CoV-2 RT-PCR Ct value in isolation can be used to determine infectiousness of a case and must be interpreted in the overall clinical context<sup>8,9</sup>.

### **What is the role of the SARS-CoV-2 RT-PCR testing in public health?**

Public health will use the positive SARS-CoV-2 test and diagnosis of COVID-19 both to direct the individual case to isolate and also to perform contact tracing to determine if other individuals are at risk of developing COVID-19. Those contacts considered at high risk will be instructed to remain in quarantine for 14 days (the incubation period of SARS-CoV-2, or the

longest time from exposure to developing disease). It is essential that cases be found before they become symptomatic, which is when they are most infectious, to minimize forward community transmission. Testing information is collected by Manitoba Health to monitor COVID-19 disease activity in the population (determine the overall burden of disease in Manitoba), take appropriate public health measures and direct resources accordingly.

The Ct value is not reported by the laboratory and not doing so is supported by national and international practice and guidelines<sup>8</sup>. In consultation with an experienced public health virologist (CPL physicians), other physicians and healthcare workers may request the Ct value on a given sample. Infection control practitioners in acute care or long term care facilities may utilize this information to perform a risk assessment to remove cases with COVID-19 from isolation and reduce unnecessary PPE usage. Medical officers of health (MOHs) may also consult with CPL physicians and use Ct values to assist in determining if an individual with COVID-19 is more likely to have remote SARS-CoV-2 infection or a more recent infection. This distinction is important as contact tracing can be more precisely directed, and identifying an acute infection is essential to minimize risk of community spread. The risk to an institution of an individual with a remote infection is also significantly less than an acute infection.

In December 2020, 5825 Manitoba SARS-CoV-2 positive results were analyzed and categorized by Ct value. Almost 60% had a Ct value less than 25 (~35% <20 and ~23% 20-25) and of the remaining samples, 18% had Ct 25-30, 18% had Ct 30-36 and 7% had Ct 36-40. The large majority (~68%) of these patients would be considered as higher level risk of infectiousness, just based on Ct value alone. The remaining smaller percent with high Ct values

would require in depth investigation to make a judgement call on their relative degree of infectiousness.

It is essential to state that high Ct values can be found in two distinct, yet equally important scenarios. First, a high Ct may be found in those who have just developed symptoms of COVID-19, usually within the first 24 hours<sup>4</sup>. These individuals have less virus at this early stage but will go on to have significantly more virus in the next few days. As they produce more virus, they will become increasingly infectious with significant risk of community transmission, and if re-tested we would expect to see a dramatic drop in the Ct value from their specimens. The second scenario is in those with infection that is resolving. They will have been infectious earlier in their disease. Public health must still investigate their contacts to determine if these contacts have developed COVID-19, even though the person with the high Ct test is less likely to be infectious at the point that the sample was taken. It is challenging to know where in their disease trajectory an individual with a high Ct is, thus it remains essential to identify them as a case, at a minimum to identify and investigate contacts in order to minimize secondary SARS-CoV-2 spread.

A Ct value of 25 or greater representing a false positive is a common misconception amongst the lay-public and even some healthcare professionals. As explained above, it is inaccurate to state that a COVID-19 case with a SARS-CoV-2 RT-PCR Ct value of over 25 is not infectious (based on cell culture data) and is even more inaccurate to suggest that the positive test represents a false positive. If the individual tests positive, they have the SARS-CoV-2 pathogen detectable and have been diagnosed with COVID-19. The term “functional false positive” is not recognized in the conventional medical literature. Concluding that a particular



220 individual is not infectious based on population level probability is flawed logic and should be  
221 avoided. In public health and population studies this phenomenon is called “ecological fallacy”  
222 – population level rules cannot reliably be applied at the individual level. In any event, the  
223 individual with a positive COVID-19 RT-PCR test is a true positive case ~99.9% of the time and,  
224 even if no longer infectious, may have recently transmitted the virus to close contacts or the  
225 individual may yet become infectious (if at the start of disease).

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