

**Annual Report**  
**Division of Infectious Diseases**  
**Department of Medicine - Jewish General Hospital**  
**January 1 - December 31, 2017**

**SUMMARY**

Introduction:

**Clinical activities:**

	2015	2016	2017
Number of visits outpatients	20 932	20 924	23 194 (+11%)

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Total number of clinical acts	30 726	33 665	33 041	34 682	36 953

**1. Research and publications:**

Dr. Longtin continued being funded as a Clinical Research Scholar (Junior 2) by the Fonds Québécois de Recherche en Santé. He also continued collaborative work in infectious disease prevention, particularly *C. difficile* and on rapid molecular detection of hospital acquired multi-resistant organisms with funding from the Fonds de partenariat pour un Québec innovant et en santé (PI Michel Bergeron). He is also involved in multiple Quebec committees on infection control and prevention.

Dr. Greenaway was awarded funding as a co-investigator and member of The National CIHR Hepatitis C Network on a CIHR Team Grant (PI Naglaa Shoukry). She continues to be very active on several national level committees on tuberculosis and migrant travellers diseases.

Dr. Zaharatos continued work in the realm of infectious disease vaccine and adjuvant discovery. He also took the responsibility after the tragic loss of Dr. Mark Wainberg to enhance the collaboration of the HIV basic research team at the LDI with the ID division

Dr. Brukner (and co-investigators Longtin, Oughton and Dascal) continued work on molecular methods to quantify bacterial load and *C. difficile* in stool with ongoing funding from a CIHR Proof-of-Principle Grant.

Dr. Weiss transferred his research funds from Maisonneuve-Rosemont and has restarted to involve of the division members in clinical research trials.

Most notable publications include the following:

--**Greenaway C**, Azoulay L, Allard R, Cox J, Tran VA, Abou Chakra CN, Steele R, Klein M. A population-based study of Chronic Hepatitis C in Immigrants and Non-Immigrants in Quebec, Canada. BMC Infectious Diseases 2017; 17(1):140

--Xiao Y, Paquet-Bolduc B, Garenc C, Gervais P, Trottier S, Roussy JF, Longtin J, Loo VG, **Longtin Y**. Impact of Isolating Clostridium difficile Carriers on the Burden of Isolation Precautions : A Time Series Analysis. Clinical Infect Dis 2017. In Press

The research activities and priorities of the Division of Clinical Microbiology include:

- Emerging infections and drug resistant organisms (e.g. MRSA, VRE, CRO), especially C. difficile infection (Drs. Weiss, Longtin, Teltscher and Dascal)
- Novel approaches for infection prevention and control in hospitals (Dr. Longtin)
- Development of novel molecular diagnostic assays (Drs. Oughton, Brukner and Dascal)
- HIV immune response and vaccinology/vaccine development science (Dr. Zaharatos)
- Vaccine-preventable diseases and new vaccine evaluation (e.g. C. difficile) (Drs. Weiss and Oughton)
- Novel antibiotics and immune system modifiers for the treatment of infectious diseases (Dr. Weiss)
- Management and prevention of Tuberculosis (Dr. Greenaway)
- Refugee and immigrant health (Dr. Greenaway)

## **2. Teaching and learning (undergraduate and graduate):**

Members of the division were lecturers for both the undergraduate and graduate McGill community. All division members were actively involved in bed-side teaching and supervision of medical residents and particularly Infectious Diseases/Medical Microbiology residents. Dr. Oughton is the McGill University Medical Microbiology and (adult) Infectious Diseases Residency Training Program Director. Dr. Greenaway supervised a Masters student. Dr. Weiss organized the first annual symposium for family physicians in infectious diseases at the JGH and there were over 110 people in attendance, which was considered a success for a first edition.

## **3. Involvement in the community:**

Members of the division had extensive involvement in the larger medical and scientific community. Activities included continuing medical education, journal editorial board participation, and numerous committee memberships. Important committee memberships included those for bodies such as the Royal College of Physicians (Drs. Zaharatos & Oughton), Quebec Provincial Surveillance Program on Healthcare-Associated Infections (Dr. Longtin and Weiss), Canadian Nosocomial Infection Surveillance Program (Dr. Longtin and Weiss), International Society of Travel Medicine (Dr. Greenaway), Committee to Advise on Tropical Medicine and Travel [advisory committee to the Public Health Agency of Canada] (Dr.

Greenaway), and the Comité du programme provincial de diagnostic de laboratoire de l'infection à VIH (Dr. Zaharatos). Dr. Weiss is the president of the Quebec association of medical microbiology and infectious diseases (AMMIQ) and has been involved in numerous strategic committees at the FMSQ and ministry levels including the INESSS guidelines.

Dr. Weiss has been solicited many times by Quebec media (French and English) to talk about infectious diseases challenges at the societal level.

#### **4. Partnerships:**

Along with colleagues across Canada, Dr. Greenaway began work as a co-investigator of the National CIHR Hepatitis C Network, led by colleagues at the CHUM. She also has ongoing research collaborations with colleagues at the MUHC. Dr. Longtin has ongoing research collaborations with colleagues at the MUHC and Université de Laval. Dr. Zaharatos and Weiss initiated some contacts with the chronic viral illness group at the MUHC under the direction of Dr. Marina Klein to bolster the HIV-hepatitis axis at the JGH.

#### **5. Milestones:**

Dr. Karl Weiss was appointed division chief in April 2017.

#### **6. New hires, promotions, and retirements**

Dr. Andre Dascal was officially appointed Medical Director of the new OPTILAB MUHC Cluster in January 2017 and Dr. Zaharatos was appointed Chief of the Division of Microbiology for the McGill Optilab cluster.

#### **7. Honours, awards, and prizes:**

Dr. Longtin:

2017-06-18    Excellence in Research Award, McGill University Infectious Diseases/ Medical Microbiology department

2017-06-07    Philippe Deschênes, Yves Longtin. Best Abstract Oral Presentation “Evaluation of the World Health Organization (WHO) recommended technique and of a modified hand washing technique against C. difficile”. Laval University Internal Medicine Research Day.

2017-06-03    One of the most influential paper of the year in infection prevention and control, attributed for the article “Effect of Detecting and Isolating Clostridium difficile Carriers on the Incidence of C. difficile Infections: A Quasi-Experimental Controlled Study”. 2017 ASM meeting; New Orleans, LA.

2017-06-01    Best Poster Award for Abstract “Patient involvement in hand hygiene auditing”.

**8. Fundraising:** None

**SECTION I - DIVISION STATUS UPDATE**

**1. Mission and objectives of the Division**

While the mid-20th Century celebrated the conquest of infectious diseases thanks to new vaccines and antibiotics, the story of the late 20th Century and early 21st Century has unfolded with a disquieting series of emerging and re-emerging infectious disease threats. For much of the North American population, the words tuberculosis, HIV, Hepatitis C, SARS, MERS, Ebola and Zika remain abstract concepts. Yet, the combination of increasing globalization, international travel and a strained public health system threatens to bring these entities to everyone's doorstep. Common illnesses such as pneumonia, meningitis, and blood stream or urinary tract infections are ever present and thus represent a daily threat to our local community. Hospitalized patients and the elderly are at risk for panoply of different infectious disease complications. Moreover, many serious medical conditions like diabetes and kidney disease predispose patients to acquiring life-threatening infectious diseases. Those with weakened immune systems, including patients on cancer treatment or those on immune suppressing drugs for inflammatory bowel disease (e.g. Crohn's disease) or rheumatologic disease (e.g. rheumatoid arthritis) are especially vulnerable. Burgeoning antibiotic resistance and a paucity of new antibiotics threatens to make these conditions near impossible to treat.

The mission of the Division of Infectious Diseases at the JGH is to prevent, diagnose and treat transmissible illnesses, educate physicians and other health care professionals and advance the knowledge of our specialty through high caliber research. The accomplishment of these is based upon compassionate patient-centered care and a dedication to protect the health and welfare of the community at large. It should be noted that members of the Division have a dual role in both Infectious Diseases (in the Department of Medicine) and Medical Microbiology (within Diagnostic Medicine as of April 2017 within the centralized biomedical laboratory OptiLab-MUHC Cluster). Importantly, our Division is also responsible for directing two essential institutional programs: Infection Prevention and Control and Antibiotic Stewardship. By tackling acquired infections (including drug-resistant organisms) as well as minimizing inappropriate anti-infective use, these two programs are critical for the well-being of patients at the JGH and our affiliated institutions.

The JGH Infectious Diseases and Medical Microbiology team accomplishes its mission via the following structured elements:

- High quality in-patient and out-patient clinical care
- Direction and supervision of the Medical Microbiology Laboratories to achieve high quality, timely and cost effective detection of infectious agents and pioneer new methods

in diagnostic bacteriology

- Direction and supervision of the Infection Prevention and Control Program
- Direction and supervision the Antibiotic Stewardship Program
- Educational responsibilities in McGill University's Faculty of Medicine through teaching students, residents, fellows, nurses and other healthcare personnel in affiliated fields
- Advancing knowledge by performing peer reviewed funded research (CIHR, FRSQ, DoD USA)
- Community outreach and education through frequent appearances on the media regarding infectious disease topics of interest
- Education of health-care professionals in Quebec and Canada through conferences, lectures and new information media (web-based education)

The division of infectious diseases at the Jewish General Hospital underwent some major changes in 2017.

## **Objectives**

1. The JGH division started the process of moving to pavilion G2 in May 2019 with the creation of the Infectious Diseases Center of Excellence. The foundation of the JGH has been approached and is now heavily involved in supporting this initiative.
2. Being at the crossroad of reorganizing the structure of the laboratory world through the Optilab project, the ID division kept strengthening the microbiology laboratory locally with the full certification of a biosafety level 3 laboratory available for handling and manipulating mycobacteria including tuberculosis. There are only 3 laboratories of this kind in Quebec (CHUM, MUHC and JGH).
3. The JGH is the busiest ID division in Quebec by far with a volume almost equal to the CHUM and MUHC combined. It was essential to ask the MSSS for additional PEMs which were obtained through some arduous negotiations in 2018. Ideally, two additional recruits should strengthen our group in 2019 and 2020.
4. Dr. Weiss has been appointed as the Division Chief in April 2017 and reorganized the future of the division along the lines mentioned in the previous bullet points.

## **2. A nominative list of academic staff, their academic rank**

Full-time (GFT) physician members:

- Dr. Andre Dascal, Associate Professor
- Dr. Christina Greenaway, Associate Professor
- Dr. Yves Longtin, Associate Professor
- Dr. Matthew Oughton, Assistant Professor
- Dr. Joseph Portnoy, Associate Professor
- Dr. Marty Teltscher, Assistant Professor
- Dr. Karl Weiss, Professor, chief of the division
- Dr. Gerasimos J. Zaharatos, Assistant Professor (Associate Chief)

Part-time physician members (associate members that have full-time positions elsewhere but who contribute their time and expertise on a part-time basis to the JGH Unit):

- Dr. David Portnoy (Montreal General Hospital, MUHC)
- Dr. Maria Arrietta (Lakeshore General Hospital)
- Dr. Mark Miller (Adjunct Professor, McGill University and Medical Director BioMérieux)

Diagnostic Molecular Microbiology Laboratory:

- Ivan Brukner PhD, Assistant Professor

Infection Prevention and Control Service:

- Dr. Yves Longtin

Antibiotic Stewardship:

- Dr. Marty Teltscher
- Stephanie Lam, PharmD
- Ryan Kerzner, MSc
- Renaud Ray, PharmD
- Dr. Karl Weiss

## **SECTION II - GRANTS, PUBLICATIONS, AND SERVICE OUTSIDE OF MCGILL**

### **1. Grants and awards received**

#### **Research Funding Information**

Dr. Longtin

2017-2021	Clinical Research Scholar Award (Junior 2), \$151,000 (Bourse chercheur-clinicien – Junior 2) Fonds de Recherche Santé Québec « Une approche globale et intégrative pour mieux comprendre et prévenir les infections associées au <i>C. difficile</i> »
2017-2019	Co-applicant. CIHR Operating Grant. Antimicrobial Resistance : Point of Care Diagnostics in Human Health. CAD \$149,989. Evaluation of Ultrasensitive Toxin Detection and Molecular Assays for the Diagnosis of Clostridium difficile Infection and Asymptomatic Colonization. Principal applicant: Dr. Vivian Loo

Dr. Greenaway

- 2013-2017 Canadian Institutes of Health Research (CIHR)  
Interim Federal Health Program (IFH)  
“Accessibility and costs of healthcare for refugee claimants following changes to the Interim Federal Health Program”  
Role: Co-PI \$766,176
- 2013-2017 Canadian Institutes of Health Research (CIHR)  
“The Childhood Varicella Vaccination Program: Will it Protect or Harm the Immigrant Population?”  
PI: Greenaway C  
Co-Investigators: Bartlett-Esquilant G, Boivin JF, Brisson M, Platt R, Quach-Thanh C, Schwartzman K  
Role: PI \$275,523
- 2015-2020 Canadian Institutes of Health Research (CIHR)  
“The Canadian Hepatitis C Network (CanHepC)?”  
PI: Shoukry N  
Role: Co-Investigator \$4,500,000
- 2015-2018 European Centre for Disease Prevention and Control  
“Evidence-based guidance on screening for infectious diseases among migrants to the EU/EEA”  
PI: Pottie K  
Role: Co-Investigator \$580,000
- 2017-2019 Canadian Institutes of Health Research (CIHR)  
“Improving the Health of Immigrant and Refugee Women and Children through Immunization”  
PI: Jardine J, Haworth-Brockman MJ, Hilderman T, Sartison E, Wilson K, Boudier FE, Canning S, Driedger SM, Gray L, Heywood AE, Hui C, Rath BA, Turner N  
Role: Co-Investigator \$200,000
- 2017-2020 Canadian Institutes of Health Research (CIHR)  
“From Patient to Policy: Using data to drive TB elimination in Canada's foreign born population”  
PI: Johnston JC (NPI), Brode SK, Greenaway C; Janjua NZ, Schwartzman K  
Role: Co-PI \$1,208,699

## **2. Scholarly works published in the 2017 calendar year:**

--Rousseau C, Oulhote Y, Ruiz-Casares M, Cleveland J, **Greenaway C**. Encouraging understanding or increasing prejudices: A cross-sectional survey of institutional influence on

health personnel attitudes about refugee claimants' access to health care. PlosONE 2017; 12(2):e0170910

--**Greenaway C**, Azoulay L, Allard R, Cox J, Tran VA, Abou Chakra CN, Steele R, Klein M. A population-based study of Chronic Hepatitis C in Immigrants and Non-Immigrants in Quebec, Canada. BMC Infectious Diseases 2017; 17(1):140

--Cheng M, Abou Chakra N, Yansouni C, Cnossen S, Shrier I, Menzies D, **Greenaway C**. Risk of Active Tuberculosis in Patients with Cancer: A Systematic Review and Meta-Analysis. Clinical Infectious Diseases 2017; 64 (5):635-644

--Pottie K, Mayhew A, Morton R, **Greenaway C**, Akl E, Rahman P, Zenner D, Pareek M, Tugwell P, Welch V, Meerpohl J, Alonso-Coello P, Hui C, Biggs B, Requena A, Agbata E, Noori T, Schünemann HJ. Prevention and assessment of infectious diseases among children and adult migrants arriving to the European Union/European Economic Association: A protocol for a suite of systematic reviews for public health and health systems. BMJ Open. 2017;7(9) <http://dx.doi.org/10.1136/bmjopen-2016-014608>

--**Greenaway C**, Gushulak B. Pandemics, Migration and Global Health Security. In Bourbeau P, ed. Handbook on Migration and Security. Cheltenham, UK: Edward Elgar Publishing, [2017]; 488 pages

--Glisovic S, Eintracht S, **Longtin Y**, **Oughton M**, **Brukner I**. Rectal swab screening assays of public health importance in molecular diagnostics: Sample adequacy control. J Infect Public Health. 2017 Aug 8. pii: S1876-0341(17)30183-1

--Xiao Y, Paquet-Bolduc B, Garenc C, Gervais P, Trottier S, Roussy JF, Longtin J, Loo VG, **Longtin Y**. Impact of Isolating Clostridium difficile Carriers on the Burden of Isolation Precautions : A Time Series Analysis. Clinical Infect Dis 2017. In Press

--Kong L, **Longtin Y**. Left-Middle-Lobe Pneumonia. N Engl J Med. 2017 Aug 10;377(6):e8

--Bogaty C, Levesque S, Garen C, Frenette C, Bolduc D, Galarneau LA, Lalancette C, Loo VG, Tremblay C, Trudeau M, Vachon J, Dionne M, Villeneuve J, Longtin J, **Longtin Y**, Quebec Clostridium difficile Infection Surveillance Program. Trends in the use of laboratory tests for the diagnosis of C. difficile infection and association with incidence rates in Quebec, Canada, 2010-2014. Am J Infect Control. 2017 Sep 1;45(9):964-968

--Deschênes P, Chano F, Dionne LL, Pittet D, **Longtin Y**. Efficacy of the World Health Organization-Recommended Hand Washing Technique and of a Modified Washing Technique to Remove Clostridium difficile from Hands. Am J Infect Control. 2017 Aug 1;45(8):844-848

--**Longtin Y**, Sheridan S, McGuckin M. Patient Participation and Empowerment. In: Hand Hygiene: A Handbook for Medical Professionals, First Edition. Edited by Didier Pittet, John



Boyce and Benedetta Allegranzi. 2017 John Wiley & Sons, Inc. Published 2017 by John Wiley & Sons, Inc

--Sattar SA, **Longtin Y**. Handborne Spread of Noroviruses and Its Interruption. In: Hand Hygiene: A Handbook for Medical Professionals, First Edition. Edited by Didier Pittet, John Boyce and Benedetta Allegranzi. 2017 John Wiley & Sons, Inc. Published 2017 by John Wiley & Sons, Inc

**3. Academic and community engagement service outside of McGill by individual members of the unit:**

These are listed above under Involvement in the Community.

**SECTION III - CONFIDENTIAL INFORMATION**

**1. Consulting activities:** None reported

Respectfully submitted by:

Karl Weiss, MD, MSc, FRCPC  
Chief, Division of Infectious Diseases and Diagnostic Microbiology