

McGill Division of Adult Infectious Diseases
Annual Report of Highlights
2016



2016 Infectious Diseases Annual Report of Highlights

Most Prestigious Honours and Awards

1. Dr Marcel Behr received a CIHR Foundation Award and was elected to the Canadian Academy of Health Sciences.
2. Dr Cedric Yansouni was awarded an FRQS Junior I Chercheur-Clinicien Career Award and received the Dr. Donald A. Henderson Prize for Outstanding Global Health Research from the McGill University Global Health Program.
3. Dr Don Vinh received the Young Investigator of the Year Award from the Canadian Association of Medical Microbiology and Infectious Diseases.
4. Dr Martin Olivier received the Robert Arnold Wardle Award from the Canadian Society of Zoology in recognition of outstanding research in the field of Parasitism, Immunity and Environment.
5. Dr Klein received the Department of Medicine Staff Research Award.

Major Successes in Basic Research and Clinical Research

Researchers in the Division continued their track record of success in attracting new peer -reviewed funding including a CIHR Foundation award (Behr); CIHR operating grants (Vinh, Lee); a US Dept of Defence grant (Sheppard); operating funding from FRQS (Yansouni, Sebastiani, Costiniuk), the Arostegui JR. Steinberg Fund for Interdisciplinary Global Health Research (Yansouni) and the NIH (Klein).

Members also continued their tradition of publishing innovative and significant research at multiple levels. Fundamental science investigators continued to shed light on the pathogenesis of mycobacterial (Behr and Reed, *J Bact*), fungal (Sheppard; *Mbio*, *Science Advances*), parasitic (Olivier, *Cellular Immunology and Scientific Reports*) and viral infections (Ward, *J Leuk Biol*). Notable among these was the report of *Cryptosporidium hominis* as an emerging pathogen in the Arctic, published in *PLoS Neglected Tropical Diseases* by Dr Cedric Yansouni, and the description of a novel inherited immunodeficiency in the Quebec population conferring susceptibility to CNS fungal infection published by Dr Don Vinh in the *Journal of Allergy and Clinical Immunology*. In clinical studies, Dr Behr reported on the effects of multiple exposures and the risk of progression to active tuberculosis. Our infection control group reported on the utility of rapid diagnostics for viral respiratory infections in reducing antibiotic prescriptions (Frenette and Semret, *Amer J Infect Control*) and their experiences with implementation of antimicrobial stewardship programs (Frenette, *Inf Cont Hosp Epid* and *Am J Infect Control*). Dr Vivian Loo and Yves Longtin highlighted the importance of identifying *C. difficile* carriage at the time of hospital admission (*JAMA Internal Med*). Pivotal clinical studies from members of the CVIS group reported on bridging clinical trial results to real life therapy for HIV/HCV coinfection (Klein, *Clin Infect Dis*), the natural history of neurocognitive decline in HIV infection (Brouillette, *PLoS One*); methods to diagnose non-alcoholic fatty liver disease in HIV infection (Sebastiani, *AIDS*) and patient engagement in clinical trial design (Lebouché, *The Patient*). In collaboration with other Canadian leaders in HIV care Dr Jose Cox coauthored an AMMI-Canada Position statement on early use of antiretroviral therapy in HIV infection.

In collaboration with Medicago Dr Ward has continued his progress in delivering plant-made influenza vaccines. Plant-made VLP influenza vaccine successfully negotiated its End of Phase 2 meeting with the FDA and was given a green light to enter Phase 3 studies in adults >18 years of age. Dr Sheppard successfully prosecuted a national phase patent for the use of recombinant glycoside hydrolase enzymes as antibiofilm therapeutics for fungi and bacteria. Physicians at the Tropical diseases Centre have initiated the first prospective surveillance project for nosocomial infections in a teaching hospital in Addis Ababa, Ethiopia (Semret, Yansouni).

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Major Achievements in Pedagogy

1. Expansion of McGill Summer Institute in Infectious Diseases & Global Health to include the Integration of Tropical Medicine Course (Libman, Yansouni) and Diagnostics for Tropical Diseases (Yansouni).
2. International Teaching Activities: Summer course in Molecular Mycology, Woods Hole, Massachusetts (Sheppard), Gorgas Course in Tropical Medicine, Lima, Peru (Ward), IDSA/ASTMH Tropical Medicine Update Course and International Short Course in Clinical Tropical Medicine, Vellore, India (Libman); and the Neurology Clinical Update Course, Port O'Prince, Haiti (Bourgault).
3. During 2016, two PGY6 residents passed their examinations in Medical Microbiology and both are now working as specialists in Quebec. In addition, four PGY5 residents passed their Royal College examinations in Infectious Diseases and continued their training in medical microbiology. Our program welcomed one new PGY4 resident into our dual training program. and one of our PGY5 residents was accepted by Stanford University for further training in a clinical microbiology fellowship program. During 2016 our 8 residents published nine articles in peer-reviewed journals, one textbook chapter and gave fourteen presentations at national and international conferences.
4. Welcomed our first fellow in Tropical and Parasitic Diseases.

Involvement in the Community

1. Members participated as lead authors in national and international clinical care guideline development: *ESCMID Guidelines for the management of Invasive Aspergillosis* (Sheppard) and *CATMAT Zika virus guidelines* (Libman) and *Canadian Guidelines for strongyloidiasis* (Libman).
2. Dr. Brian Ward was appointed to the CIHR Institutional Advisory Board for Prevention and Public Health
3. Dr. Marina Klein was Chair and Co-Organizer of the 3rd International HIV/Viral Hepatitis Co-Infection Meeting (AIDS 2016 Satellite Meeting) in Durban, South Africa and the 5th Canadian Symposium on HCV in Montreal.
4. Dr Jean-Pierre Routy was appointed to the CIHR HIV/AIDS Research Advisory Committee (CHARAC), a national committee providing leadership on scientific funding for HIV/AIDS
5. Dr Charles Frenette was appointed the chair of CNISP: the Canadian Nosocomial Infection Surveillance Program
6. Dr Cedric Yansouni was appointed as a member of the Comité scientifique permanent des analyses de biologie médicale; Institut National d'Excellence en Santé et en Services Sociaux (INESSS), Québec.
7. Dr Don Vinh served as organizer, moderator and presenter at the meeting of the Association des Patients Immunodéficients du Québec during World Primary Immunodeficiency Week.
8. Dr Lebouche is leading Le Projet Engagement Patient, a study designed to increase engagement of persons living with AIDS in the design and conduct of clinical studies
9. Other activities include participation in the Royal College of Physicians (Zaharatos & Oughton), Comité des Infections Nosocomiales du Québec (Dr. Longtin), International Society of Travel Medicine (Greenaway), Committee to Advise on Tropical Medicine and Travel [advisory committee to the Public Health Agency of Canada] (Greenaway), and the Comité du programme provincial de diagnostic de laboratoire de l'infection à VIH (Zaharatos), Provincial Medical Microbiology Quality Assurance Committee; Association des Médecins Microbiologistes-Infectiologues du Québec (Yansouni), AMMI Canada Grants and Awards Committee (Vinh Chair, Sheppard, Vice Chair).

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Novel Clinical Initiatives

1. Development of a standardized management for *Staphylococcus aureus* bacteremia
2. Infection control initiatives and achievements:
 - Achieved an all time low in our rate of *C. difficile* below 7/10000 patient days. This has been achieved through the widespread application of our CSI program emphasizing Hand Hygiene (33,000 audits), cleaning and disinfection improvement program and appropriate usage of gloves and precautions.
 - Decreased our VRE infection at the RVH site by 90 percent with a significant impact on the budget pharmacy.
 - Reduced surgical site infections through a proactive antimicrobial prophylaxis stewardship program, individual reports to all surgeons with significant improvements in Hepatobiliary surgery (no infections in liver transplants in 2016 and only one in kidney transplant).
 - Implementation of infection control bundles to decrease VAP and CLABSI in our ICUs.
3. Laboratory innovations:
 - Implementing molecular diagnostics for syndromic stool analyses
 - Led efforts to integrate microbiology services across the MUHC grappe as part of OPTILAB