I HIGHLIGHTS

The Division of Infectious Diseases continues to be one of the busiest clinical services at the JGH, a reflection of the ongoing and important role of infectious diseases in our local, national, and international communities. Building on a strong tradition of clinical service, research, and teaching, the Division continues its activities in the following fields:

- Clostridium difficile-associated disease (CDAD)
- Refugee and immigrant health
- Vaccine-preventable diseases
- Tuberculosis
- Emerging infections and “super-bugs” (e.g. Clostridium difficile, MRSA, VRE, KPC)
- New vaccines (i.e. hepatitis B virus (HBV), Human Papillomavirus (HPV) and C. difficile)
- HIV vaccine delivery systems
- New antibiotics and anti-virals for the treatment of emergent infectious diseases

Members of the Division continue to perform ground-breaking research in the field of Clostridium difficile infections (CDI). This infection is responsible for widespread and highly-lethal outbreaks in Canada, the United States, and Western Europe. Studies have been completed and are ongoing in order to investigate better diagnostic tests, improved therapies, the ability of this pathogen to spread among patients, and the genetics of these bacteria. The CDI genetics research by Drs. Oughton and Dascal (in collaboration with Dr. Ken Dewar of the McGill University and Genome Quebec Innovation Centre) may provide the basis for a possible preventive vaccine. Dr. Miller continues to lead the Canadian group which performs annual surveillance for CDI, as part of a joint effort with the Public Health Agency of Canada. He is also co-leading (along with Dr. V. Loo of the MUHC) a study of household transmission of CDI. In addition, he has developed a CDI severity scale of patients afflicted with this infection, in order to improve selection of medications.

Large grants were received from both public and private sources for the continued studies into vaccine-preventable diseases in the Canadian foreign-born population of immigrants and refugees. Dr. Greenaway has continued these projects as part of a high-profile multidisciplinary team at McGill. She is part of a Canadian team writing guidelines for the maintenance of health and the control of infectious diseases in foreign-born populations. She is the lead author on several of these guidelines.

Dr. Zaharatos continues his research into effective delivery of HIV vaccines via “electroporation”, a method whereby application of a small electric charge to the skin can introduce the vaccine into the body easily and efficiently.

The division has maintained an extremely active and high-profile clinical research unit, with new studies related to infectious disease vaccines (HPV, HBV and C. difficile), overwhelming sepsis
(“SIRS”), prevention of tuberculosis with short-course treatments, and ultra-rapid diagnostic methods for “super-bugs” such as VRE, MRSA, and C. difficile.

Therapeutic studies of C. difficile-associated disease remain a high priority as well, including pivotal participation in the current trial of fidaxomicin as a novel and improved therapy for this infection.

The Division has spearheaded a “Multicultural Communication” project in order to increase the understanding of “Infectious Diseases” and “Infection Prevention & Control” among our ethnically and linguistically diverse patient population. Twenty patient information pamphlets have been translated into 20 diverse languages spoken by our clientele, as a means of encouraging their full participation in their healthcare. We hope that this idea “catches on” in other Divisions and Centres at the Hospital and throughout the country.

Dr. Portnoy continues to serve the Hospital in the capacity of Director of Professional Services. Dr. Miller has been the Chairman of the Infection Prevention and Control Committee at the JGH for the past 19 years.

All members serve as teachers/ examiners for medical students, and also serve on various Hospital committees. Residents and fellows are supervised all year round on the ID consultation service and in the ID outpatient clinic.

II EVALUATION OF THE PAST ACADEMIC YEAR

1. Teaching activities

   Dr. T.F. Brewer

   - Basis of Medicine Unit 1. “Introduction to Global Health” Lecturer for all first-year medical students, 20 hours of preparation; 1.0 hour lecture

   - Basis of Medicine Unit 7 (Infectious Diseases). “Public Health in an Interconnected World” Lecturer for all first-year medical students, 20 hours of preparation; 1.0 hour lecture

   - Physicianship. “Global Burden of Disease” Lecturer for all first-year medical students, 20 hours of preparation; 1.0 hour lecture

   - Basis of Medicine Unit 8. Small group tutor in the introduction of epidemiology and biostatistics course for second-year medical students. Six small group sessions of 2-3 hours each with 15 medical students. Two hours of preparation per session.

   - Department of Epidemiology, Biostatistics and Occupational Health departmental lecture series. “Epidemic Intelligence: The Role for a Non-Governmental Reporting System” Lecturer for 30-40 McGill University Faculty and Graduate Students 20 hours of preparation; 1.5 hour lecture
Department of Epidemiology, Biostatistics and Occupational Health departmental lecture series. “The Epidemiology of Tuberculosis” Lecturer for 10-20 McGill University Faculty and Graduate Students 20 hours of preparation; 1.0 hour lecture

-Tropical Diseases: A review of clinical and laboratory medicine Lecturer for McGill University Health Centre Continuing Medical Education Course 15 hours of preparation; 1.0 hour lecture

-Health Care Governance (LAWG 517). “Global Health in an Inequitable World” Lecturer for 30-35 law and political science students, 20 hours of preparation; 1.0 hour lecture

-What is Global Health (ANTH 302). “Introduction to Global Health” Lecturer to 40 undergraduate students, 10 hours preparation, 1 hour lecture

Geography 403. “Epidemiology of Tuberculosis and Influenza” Lecturer to 40 undergraduate students, 10 hours preparation, 1 hour lecture

Dr. Andre Dascal

-Unit 7 (Infectious Diseases) teaching - McGill University Faculty of Medicine

Dr. Mark Miller

-November 2009: Healthcare-associated infections and the legal system. McGill University Faculty of Law. (2 hours)

-Unit 7 (Infectious Diseases) teaching - McGill University Faculty of Medicine Topic: Medical mycology and antifungal therapies (2 hours)

-Topic: Infection Prevention and Control for Medical Students (2 hours) - McGill SIM Center: Ethics modules and OSCE exam (15 hours)

Dr. Christina Greenaway

-“Back to Basics” course (McGill University Faculty of Medicine): International Health and Tropical Medicine.

-Tropical Diseases: A review of clinical and laboratory medicine (McGill Centre for Tropical Diseases).

Dr. Matthew Oughton

-January-March 2009: Introduction to Internal Medicine (ICM-B) course

2. Research Activities

Comparison of Eritoran Tetrasodium and Placebo in Patient with Severe Sepsis” 2006-ongoing

-Miller M, Lipman M. “A Phase 2, Single-Blind, Randomized Study of Safety and Immunogenicity Following Vaccination with Single or Double Doses of HEPLISAVTM in Adults with End-Stage Renal Disease”.


-Miller M, Dascal A, Portnoy J, Zaharatos J, Greenaway C. “A Multi-National, Multi-Center, Double-Blind, Randomized, Parallel Group Study To Compare The Safety And Efficacy Of 200 Mg Par-101 Taken Q12h With 125 Mg Vancomycin Taken Q6h For Ten Days In Subjects With Clostridium Difficile-Associated Diarrhea protocol 101.1.c.003; phase 2b/3”. 2006-09


-Greenaway C (PI) and Schwartzman K. “Cost-Effectiveness Analysis to Determine the Optimal Strategy to Prevent Measles, Mumps, Rubella, Diphtheria and Tetanus in the Immigrant Population” Immigration et Métropole Project Funding Domaine 5 Justice, police et sécurité. 2008-09.


- Miller MA, Dascal A, Zaharatos G, Oughton M.: Open Label, Randomized Study of the Antiviral Activity, Safety and Tolerability of Intravenous Peramivir in Adult and Adolescent Hospitalized Subjects with Confirmed or Suspected Influenza Infection. 2009 – ongoing

- Miller MA: Observational Study of Nosocomial Clostridium difficile Toxin Antibody Concentrations, Incidence, and Recurrence. 2008 ongoing

3. **Clinical Activities**

The walk-in Infectious Diseases Clinic operates on a daily basis (Monday to Friday) in the mornings (08:30-11h00). The clinic is staffed on rotation by Infectious Diseases specialists (i.e. Dr. Jack Mendelson, Dr. Mark Miller, Dr. David Portnoy).

The Division also has a weekly Tuberculosis (TB) Clinic (Thursday afternoons) which handles patients with active tuberculosis as well as a screening for potential TB. The clinic is involved with the Public Health Department for TB contact-tracing in the Montreal area. This clinic is staffed by Dr. C. Greenaway, Dr. Mark Palayew, Dr. Karl Weiss, Dr. Mark Miller, Dr. Matthew Oughton, and Dr. David Portnoy.

There were 8,144 patient visits in both Infectious Diseases Clinic and Tuberculosis during the past year. Drs. Portnoy, Miller, Greenaway, and Dascal see patients in their clinical offices. There were 10,382 patients seen in these offices last year. There were over 6,000 inpatient consultations for the Infectious Diseases consult service at the JGH during the year.
4. **Academic Staff**

Full-time (GFT) members: Dr. Mark Miller (Chief), Dr. Andre Dascal, Dr. Christina Greenaway, Dr. Jack Mendelson, Dr. Matthew Oughton, Dr. Joseph Portnoy, Dr. G. Zaharatos  
Part-time (associate) members: Dr. Timothy Brewer Dr. David Portnoy Dr. Karl Weiss

5) **Consulting Activities: None reported**

6) **Honors, Awards and Prizes: None reported**

7) **Divisional Publications**


- Gardiner DF, Rosenberg T, Zaharatos J, Franco D, Ho DD. A CAN vaccine targeting the receptor-binding domain of Clostridium difficile toxin A. Vaccine, 2009 June 2;27 (27):3598-604.

- Gravel D, Gardam M, Taylor G, Miller M et al and the Canadian Nosocomial Infection Surveillance Program. Infection control practices related to Clostridium difficile infection in acute care hospitals in Canada. AJIC 2009;37(1) :9-14


- MT Oughton, V Loo, N Dendukuri, S Fenn, M Libman. Plain soap and water are superior to alcohol rub and antiseptic wipes for removal of Clostridium difficile by hand washing. Infection Control and Hospital Epidemiology, October 2009, 30(10):939-44.


Chapters:


Abstracts

- MT Oughton, A Dascal, D Laporta, H Charest, M Afilalo, MA Miller. Evidence of Viremia in Two Cases of Severe Pandemic Influenza A H1N1/09. Poster presentation #V-1074i at ICAAC 49th meeting, San Francisco, CA, Sept 2009


- Miller Mark. OPT-80 versus Vancomycin in Clostridium difficile infection: Results of a Randomized Clinical Trial. Presented at Digestive Disease Week Conference, Chicago, IL, 31 May-02 June, 2009.


### III OBJECTIVES AND PRIORITIES

The objectives of the Division of Infectious Diseases remain:

a) high-quality service to the outpatients and inpatients of the Hospital

b) continued research in the fields of new anti-infectives, novel vaccines, and cutting-edge diagnostic techniques

c) ongoing education in the vast field of Infectious Diseases for students, residents, fellows, nurses, other healthcare personnel, and affiliated fields
The priorities of the Division of Infectious Diseases continue to be the expansion of our clinical and basic science research platforms. Since this Division has been in the forefront of C. difficile research for the past 3 years, we have prioritized this as an important continuing endeavor. We hope to expand our group to include new members with expertise in the analysis, typing, and control of C. difficile, while we maintain a high profile in our other areas of expertise.

Respectfully submitted,

Mark Miller, MD
Chief, Division of Infectious Diseases