

SPECIAL
POINTS OF
INTEREST:

- A profile of the Public Health Agency of Canada's National Microbiology Laboratory
- Website & membership update
- Great resources available for your review

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A Note from the President

Dear CACMID members,

Fall is a time for calm reflections. Looking back at the last few months, your board has been busy working on a number of critical items for CACMID. Of course, we are all hard at work preparing for an outstanding meeting in Victoria, April 2nd – 5th, 2014 (more details on pg.7). We have also been diligently working on the essential task of revising our by-laws in order to comply with the Government of Canada's recently created Not-for-Profit Corporations Act (NFP Act). The new by-laws require membership approval

and will be presented to you prior to and for vote at the annual general meeting in Victoria. We hope as many of you as possible will attend this important meeting. The timing of this critical, mandatory by-law review is very complementary with all the planning we've completed as part of CACMID's strategic planning. We continue to fine-tune the details within each initiative and encourage any and all of you to consider championing an initiative or volunteering to be part of one of the teams.

This newsletter is full of

interesting discussion for the Canadian community and I hope you enjoy. The National Microbiology Laboratory has provided us with a fabulous overview of their laboratory structure and services.

We hope you find the newsletter interesting and informative. As always, we welcome any comments or suggestions about the newsletter and any of our ongoing initiatives.

Sincerely,

Heather Adam, PhD, FCCM, D (ABMM)

Call for Nominations: John G. FitzGerald – CACMID Award (Outstanding Microbiologist)

It's time to nominate your deserving colleagues for this prestigious award! The 2014 nominations for the John G. FitzGerald – CACMID Award (Outstanding Microbiologist) are now being accepted. The John G. FitzGerald-CACMID

award recognizes Canadian Microbiologists that have significantly advanced the field of medical microbiology through their contributions to clinical, academic, and/or educational pillars. Previous winners include Dr. J. Isaac-

Renton (2012) and Dr. D.E. Low (2013). Nomination forms are available on the CACMID website and will be accepted until January 31, 2014.

The CACMID website has been updated! Check out the new members-only section.

In Memoriam:
Dr. D.E. Low

CACMID Website Update

The selection of a new CACMID logo at the 2013 AGM lead us to a makeover of the CACMID website, which now includes the new logo and associated colour scheme!

At this same time, we implemented a 'Members Only' area

that currently includes historical financial records and meeting records. We also plan to continuously post materials related to our ongoing strategic planning initiatives. In the meantime, you can view the Strategic Plan here!

To login to this area, each active CACMID member has been given a user name and password – if you believe you are an active member but missing these details, please contact Matt Gilmour.

Membership Statistics

A component of the upcoming revision of the CACMID bylaws, as required by Corporations Canada under the new Not-for-Profit Associations Act, is a strict accounting of active membership. Not only is this good practice and required for due process in CACMID elections and other matters put to

vote, but these figures will otherwise serve as a baseline to determine the growth of the CACMID member base.

With the new strategic planning initiatives and the overhaul of the CACMID website, we hope that membership in CACMID is attractive to the Canadian

microbiology community, but also easy to obtain! On the website, we have implemented a convenient on-line payment system for membership dues and then a rapid assignment of a permanent CACMID membership number.

Active Members: 137
Sustaining Members: 8

Donald Edward Low May 2, 1945 – September 18, 2013

It is with great sadness that CACMID acknowledges the passing of Dr. Don Low. Don was a prolific Microbiologist and Infectious Disease physician having co-authored more than 400 manuscripts and 40 book chapters; however, his greatest impact may have been as the face of microbiology for the Canadian public. The clear manner in which Don explained infectious diseases resonated with Canadians. The public understood and trusted Don; the media sought his assistance to explain many infectious diseases, such as group A streptococcal infections, SARS, and influenza.

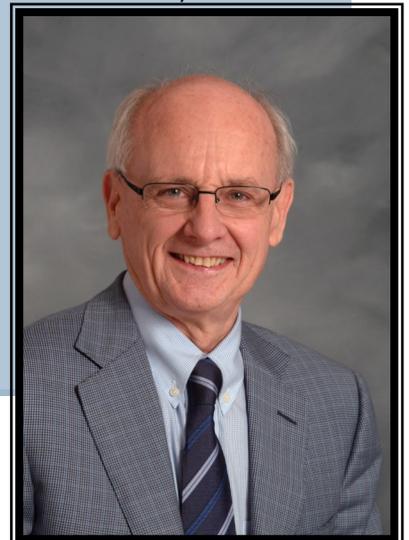
A retirement party was held on

September 4, 2013 in Toronto, Ontario and was well-attended with approximately 200 guests. Don's accomplishments, colourful history and incredible spirit were recognized in speeches from Drs. Tony Mazzulli, Daryl Hoban, Allan Ronald, Lionel Mandell, Allison McGeer, as well as Ms. Catherine Mulvale (Founder, Strategies for LIFE) and Ms. Pauline Lo (Technologist, Mt. Sinai Hospital / UHN). With unexpected strength, Don thanked his friends, colleagues, the students/residents/fellows that he mentored during nearly 30 years at Mt. Sinai Hospital and his family for his wonderful career, life experiences, and support during his recent illness.

Don's impact on the Canadian

community was immeasurable. He inspired generations of microbiologists and infectious diseases physicians across the country. His knowledge, guidance, and engaging smile will be dearly missed.

The "Donald E. Low Bursary" has been established at the Mount Sinai Hospital Foundation. For more information on the bursary, please see <https://mshfoundation.ca/drdonaldlow>



A Profile of The Public Health Agency of Canada's National Microbiology Laboratory:

Lab title & location:

The National Microbiology Laboratory (NML) is a federal program primarily located in the Canadian Science Centre for Human and Animal Health (CSCHAH) on Arlington Street in the west-central area of Winnipeg, Manitoba. The Canadian Food Inspection Agency's National Centre for Foreign Animal Disease is co-located in the facility which allows for efficiencies and cost savings as well as close collaboration on zoonotic diseases. While CSCHAH is the only facility in Canada that houses Containment Level 4 labs, most of the facility is made up of level 2 (61%) and level 3 (36%) space. The facility was purposely located close to Winnipeg's largest hospital (the Health Sciences Centre), the University of Manitoba Faculty of Medicine, and other life science industry.

NML is in the midst of expanding into a new facility located near CSCHAH called the JC Wilt Infectious Diseases Research Centre. In October 2013, the National HIV and Retrovirology Laboratories, currently centred in Ottawa, will be relocating to the refurbished former provincial laboratory along with other programs from CSCHAH such as the Applied Biosafety Program.

What population does your laboratory serve?

NML's primary clients are the provincial public health labs across Canada and through them all Canadians. At times, through projects or special requests, NML can provide services internationally

as well. Examples of this include the extensive testing done for Mexico during the H1N1 pandemic as well as the recent request from PAHO to serve as the MERS CoV regional testing hub for South America (16 countries). NML also performs international activities such as surveillance, reference testing, expert advice, and training through collaborating centre status such as: WHO Regional Reference Centre for Measles, Mumps, and Rubella; WHO National Influenza Centre for Canada; WHO Collaborating Centre for Preparedness and Response to Enteric Pathogens and their Antimicrobial Resistance; Coordinating laboratory for the WHO Global HIV drug resistance laboratory network; WHO Collaborating Centre for Emerging and Zoonotic Diseases Detection, Diagnostics, Reference and Research; and PAHO/WHO Polio Regional Reference Laboratory.

What principal and specialized services are offered by your laboratory?

NML undertakes five core activities in order to meet its mission to advance human health through laboratory leadership, scientific excellence, and public health innovation. These activities are diagnostic and reference services for viral, bacterial and prion infections; laboratory based surveillance; applied and discovery research; leadership and training; and emergency response. The diagnostic and reference services that NML provides for public health labs include testing for uncommon pathogens where it is more efficient to have the service

centralized or where level 4 containment is required. Staff also provide confirmatory testing for many pathogens such as Lyme disease and dengue fever. Another common activity is additional investigation into circulating pathogens such as sub-typing a percentage of influenza samples for resistance or MLVA testing for *E. coli*. In general, it is the type of highly specialized work that not all laboratories are resourced to undertake. Through this diagnostic and research work, NML contributes to more than 50 national disease surveillance systems such as CNISP, FluWatch and PulseNet.

When new pathogens emerge - such as MERS, H7N9 and H1N1 - NML leads the development of diagnostic tests for the country. Often this can involve identifying the agent causing the illness in the first place and then developing different types of diagnostics such as genetic and serology tests as well as ensuring their validation, providing proficiency panels and developing protocols. All of these are shared with the provincial labs across the country.

NML leads a number of national and international laboratory networks that enhance the standardization and quality of testing, augment training, and provide connections that can be relied on during outbreaks. These include the Canadian Public Health Laboratory Network, PulseNet Canada, the Global Health Security Action Group – Laboratory Network, and the Emerging and Dangerous Pathogens Laboratory Network.

The Public Health Agency of Canada's National Microbiology Laboratory Profile:

In NML's web-based Guide to Services, there are 19 lab units listed with 32 requisitions that represent a multitude of tests available to clients. In a normal year, without an unusually large outbreak or pandemic, the NML processes 60,000 samples on average with many requiring multiple tests and in-depth investigation. NML believes strongly in quality systems to ensure consistently accurate results; at this time, 60 tests from 16 lab units have been accredited to ISO 17025 while the National HIV and Retrovirology Lab has 19 tests accredited to ISO 15189. Other units within the facility are certified to ISO 9001 including some administrative areas and the biowaste treatment system.

How many people are on staff at your laboratory ?

Currently, there are approximately 400 people working at the National Microbiology Laboratory. This includes, PhDs, MDs, biologists, technologists, administrative support, IT, and maintenance and operations staff, amongst others. There are many students trained at NML, the numbers fluctuate at any given time but can be up to 100 annually.

Is your laboratory actively engaged in research? If so, what are the primary research interests of the group?

With extensive collaborations nationally and internationally

that leverage a considerable amount of research, NML contributes to the global body of scientific knowledge on an ongoing basis. Evidence of their active program for both applied and discovery research includes the fact that NML staff author or co-author more than 150 papers annually. The average citation per paper for those published between 2004 -2012 is 17 with an H index of 65.

NML's research interests are widely varied. They range from the development of vaccines for Ebola to investigating natural immunity to HIV in a cohort in Kenya to monitoring the progress of drug resistance in HAI to producing new diagnostic tools to the efficacy of different decontaminants in laboratory settings.

One of the areas where NML is renowned for their efforts is the aforementioned Ebola work. NML has developed several vaccines and treatments that show considerable promise in being effective against viral hemorrhagic fevers. In recent studies to be published this month in Science Translational Medicine, scientists have demonstrated the effectiveness of a treatment that can lead to survival even if initiated after Ebola is detectable in the bloodstream (72 hours post-inoculation). The treatment involves the combination of an existing broad-spectrum antiviral and

an antibody treatment that these same scientists developed.

Other interesting and unique research has included the reconstruction of the 1918 influenza pandemic virus so that the mechanisms that caused such virulent disease could be studied and the detection of biomarkers in cow urine that indicates the presence of bovine spongiform encephalopathy, creating the possibility of an ante-mortem test for CJD in humans.

Are there innovative initiatives that you would like to highlight?

NML has three "next-generation" sequencing platforms that allow NML scientists to quickly acquire detailed pathogen genetic blueprints. A major challenge that goes with revolutionary next-generation sequencing advancements is the capacity to rapidly analyze these vast data sets, and to best interpret the biologically relevant data. NML's Bioinformatics group has this elite capacity. Bioinformatics and high performance computing expertise has placed NML at the global forefront of "microbial detective" work and the newly emerging field of "genomic epidemiology" for public health.

NML currently serves as the pathogen sequencing nucleus for a federal consortium for

To highlight the laboratory activities of our members across the country, CACMID will publish a laboratory profile in each Newsletter. Please contact the CACMID President of Secretary if you wish to provide a profile for future editions of the Newsletter!

food and water safety (FWS), contributing several hundred bacterial pathogen genomes to an inaugural National Pathogen Genomes Database (NGsD) being developed by NML Bioinformatics. The U.S. Centers for Disease Control and Prevention (CDC) and provincial public health labs remain active beneficiaries and collaborators.

NML participates in the federal Genomics Research & Development Initiative (GRDI) for basic and applied research projects that build upon genomics capacity in government to deliver value-added outcomes for responding to national priorities. NML is now also playing a lead role in an inaugural, inter-departmental GRDI Pilot project focussing on food and water safety, entitled "Strengthening Food and Water Safety in Canada through an Integrated Federal Genomics Initiative." In addition to the aforementioned FWS Pilot deliverables, NML is also developing user-friendly analytical tools supporting public health - to store and search pathogen data and associated metadata for enhanced traceback analysis during public health events and to enhance the sensitivity, specificity and turnaround of pathogen typing and detection methods. The NML is contributing this technology to the international effort to develop a real-time interoperable global platform for tracking disease outbreaks using pathogen whole genome sequence data.

NML has developed mobile laboratory capacity that is unique in the world. There are two styles of lab that are used for different purposes. A "lab in a suitcase" is used by the Special Pathogens

Outbreak Response Team to respond to outbreaks of very serious infectious diseases in other parts of the world, often remote and without modern conveniences that we take for granted. Teams have been deployed to the Congo for Ebola outbreaks on several occasions. NML also has certified Containment Level 3 labs in a truck and a shipping container. These are most frequently used by the Microbiological Emergency Response Team for on-site bio-terrorism surveillance. Deployments have included the Vancouver Olympics and the G8/G20 summits in Ontario.

Last but not least, NML continues to develop the Canadian Network for Public Health Intelligence. This web-based reporting and alerting system supports data sharing and collaboration by integrating disparate data sources and facilitating intelligence generation and dissemination to enhance public health coordination and response activities for the direct benefit of local, regional, federal, provincial and territorial (FPT) stakeholders.

What makes your laboratory a great place to work?

There are many reasons why NML is a fantastic place to work, first and foremost though are the people. NML has attracted some of the best and the brightest to work both inside labs and in positions that support the labs. All are focused on NML's vision to be a world-class organization dedicated to the protection of Canadian and global public health. Our people are passionate about what they do and dedicated to their work. They generously share their knowledge and technical expertise on a regular basis. They are leaders and innovators.

NML's national mandate requires it to provide services that are unique in Canada. This means cutting edge infrastructure and technology must be maintained. The Canadian Science Centre for Human and Animal Health is renowned internationally as one of the top infectious disease laboratories around not only for the programs housed there but also for its design and containment features. It's the first known level 4 facility to house labs for both human and animal research. NML keeps its technology current with the latest equipment for developing technologies such as genomics and proteomics. When not commercially available, NML will develop its own technologies with examples including its bioinformatics systems, the Canadian Network for Public Health Intelligence and the mobile lab (lab in a suitcase).

NML is proud of its staff and facilities however it is also proud of its association with its many collaborators and partners, particularly the other public health labs in Canada. The networks and partnerships that have been developed have served us all very well particularly during outbreaks such as Listeria and H1N1. Public health labs in Canada are working together to provide an excellent service for Canadians and NML looks forward to continuing our joint efforts.

Check out some
great resources!

Laboratory and Educational Resources

1. A Guide to Utilization of the Microbiology Laboratory for Diagnosis of Infectious Diseases: 2013 Recommendations by the Infectious Diseases Society of America (IDSA) and the American Society for Microbiology (ASM). *Clinical Infectious Diseases*. 2013. 57(4):e22-e121.

<http://goo.gl/38RUOW>



2. Medical Microbiology Questions.

Looking for a microbiology brain teaser to quickly start your day? Medical Microbiology Questions is a great educational resource provided and edited by Dr. Carey-Ann Burnham and Dr. Christopher Doern.

Each Monday, Wednesday and Friday, subscribers to the listserv are emailed with a link to the 'daily' question that could pertain to one of many relevant aspects to Clinical Microbiology. Registered users also get to track their own progress through bank of past questions and their overall success rate.

Upon your first visit, make sure to change the course to 'Microbiology' and then proceed with a quick user registration.

<http://goo.gl/zvhDRd>



3. Matrix-Assisted Laser Desorption Ionization–Time of Flight Mass Spectrometry: a Fundamental Shift in the Routine Practice of Clinical Microbiology. *Clinical Microbiology Reviews*. 2013. 26:547-603.

<http://goo.gl/nB2zml>



2014 Annual Conference Update



Fall has arrived and once we all survive the Canadian winter, spring will return. Start your spring early by planning to attend the 2014 conference in Victoria, BC from April 2nd – 5th, 2014. The Central Planning and Scientific Planning Committees have been hard at work planning what will undoubtedly be another informative and engaging meeting.

The abstract submission deadline is January 6, 2014 and we anticipate the Preliminary Program will be available in January 2014. Although the program is not yet finalized, exciting topics are currently being planned, including plenaries on Antimicrobial Stewardship, Emerging Infections, the always popular “What’s Hot” sessions: Adult and Paediatric Infectious Diseases, Diagnostic

Microbiology and Infection Control, as well as State of the Art Clinical Lectures on MERS-CoV, a debate on screening for AROs, and the Microbiome: Pathogen Discovery and Novel Therapies.

The most current and complete details are always available on the website. Registration will be available through the website once it’s open for the year.



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CACMID operates under the following Mission Statement:

We advance the fields of clinical microbiology and infectious diseases in Canada through education, scholarship, advocacy and the promotion of best practices.