DEAR STUDENTS, PHO STAFF, AND PARTNERS.

Welcome to the seventh edition of the Student Voice newsletter.

This year, we were excited to host over 130 talented students and trainees from a wide breadth of disciplines, including laboratory technician students, medical residents, master of public health candidates and many more. From municipal alcohol policies to vaccine safety to impact assessment, we are excited to share all of the exciting things that our students have been up to this year.

The student program requires dedication and support from many areas at PHO. Many staff across the organization act as preceptors, supervisors and mentors to the students and it is this group of people who make the student learning experience so memorable. We also can’t forget to mention our CEO Peter Donnelly’s performance as a “dragon” for our Dragon’s Den-themed student event.

The bulk of our students who are on long-term placements are with us over the summer, and this year we had 19 masters students on board from May to August. We held many special events over the summer, including a resume workshop, monthly picnics, PHO in Motion: Student Projects (a chance for students to present their placement projects to PHO staff), and Summer Student Day (read on for more details).

In this issue, you’ll find summaries of this year’s student projects at PHO – written by the students who were at PHO for extended periods of time. As well, we will fill you in on our 2016 Summer Student Day (including pictures!)

Happy reading!

AMANDA HARVEY and DAN JOHNSON
IN THIS EDITION

1 | Summer Student Day 2016: Assessing impact – Dragon’s Den style

2 | Summer student day photos

7 | 2015 Student Projects: Abstract Overviews

18 | Contact and placement information
This year at Summer Student Day we explored the concept of impact assessment. Impact assessment seeks to move beyond measuring outputs to capture the broader effects of our work. For example, to assess impact we might set out to measure not just if public health professionals are using a PHO product, but also whether or not the product contributed to changes in a population’s health behaviour further downstream. Students listened to a guest speaker talk about how various public health professionals are measuring the impact of their products and programs, and then went to visit different organizations to further explore impact assessment in other contexts.

After lunch, the students separated into small groups to create a strategy to measure the impact of a case study example about PHO’s gonorrhea guidelines and pitched it to our very own PHO Dragon’s den! In the den (gently) grilling students about their strategies were CEO Peter Donnelly, Chief of Medical Microbiology Vanessa Allen, and Manager of Communicable Diseases Emily Karas. A lot of fun was had by all, and the students created some impressive pitches, which had the PHO Dragons saying, “I’m IN!”

“The students were all very passionate about their ‘pitches’ and they provided ideas that were very innovative and creative. It was really nice to see the students work together to discuss approaches to address the management of gonorrhea – which is an important initiative for public health.”

EMILY KARAS
MANAGER OF COMMUNICABLE DISEASES
SUMMER STUDENT DAY

Learning about impact assessment from the PHO experts
Students interviewing external organizations

PHO Dragons: Manager of Communicable Diseases Emily Karas, Chief of Medical Microbiology Vanessa Allen, CEO Peter Donnelly, and host/ Knowledge Exchange Specialist Elisabeth Marks.
Teams working hard on their pitches!
Presenting to the Dragons!
As you can see, the students weren’t the only ones having fun!
Applied Immunization Research

Applied immunization research is a cross-cutting PHO scientific initiative. The purpose of applied immunization research is to guide immunization programs, maximizing the synergies of interdisciplinary research in order to deliver innovative, relevant, responsive and impactful evidence that leads to improved health for all Ontarians.

RODGER CRAIG

Project titles:
1) The burden of respiratory syncytial virus infection in Ontario, 2003-2016
2) Asymptomatic infection and transmission of pertussis in households: A systematic review

Summary of projects:
1) Respiratory syncytial virus (RSV) is a common cause of respiratory tract infection across age groups. Using hospitalization, emergency room, and laboratory data, we performed descriptive analyses and utilized statistical modelling to characterize the burden of RSV infection in Ontario. The estimates generated in this study will be used to assess the potential impact of future RSV vaccines in Ontario.

2) Pertussis is preventable through vaccination. However, despite high vaccination uptake in many countries, pertussis incidence is on the rise. This resurgence is a complex phenomenon that has occurred ostensibly in countries adopting acellular vaccines in place of whole cell vaccines. New evidence suggests that acellular vaccines may elicit shorter periods of protection and a mismatched immune response that prevents severe disease but not infection, colonization and subsequent transmission. This review aimed to describe the extent of asymptomatic, mild, or atypical B. pertussis infection and transmission in households.

ELIZABETH KUNKEL

Project titles:
2) Asymptomatic infection and transmission of pertussis in households: A systematic review

Summary of projects:
1) Group A Streptococcus (GAS) is the cause of “strep throat” as well as severe, invasive infections. This study involved analysis of hospitalization, emergency room, and physician visit data to estimate the burden of GAS disease in Ontario. Additionally, the potential impact of a future GAS vaccine was assessed. The results will inform future vaccination policy.

2) Pertussis is preventable through vaccination. However, despite high vaccination uptake in many countries, pertussis incidence is on the rise. This resurgence is a complex phenomenon that has occurred ostensibly in countries adopting acellular vaccines in place of whole cell vaccines. New evidence suggests that acellular vaccines may elicit shorter periods of protection and a mismatched immune response that prevents severe disease but not infection, colonization and subsequent transmission. This review aimed to describe the extent of asymptomatic, mild, or atypical B. pertussis infection and transmission in households.
MEGAN BAXTER

Project title:
An Oxymoron of Long Term Care: Sheltering-In-Place During an Evacuation - A literature review of the best practices of evacuation and sheltering-in-place for long term care facilities

Summary of project:
Long term care facilities (LTCFs) are home to many ill and frail elderly residents. When an impending disaster is declared and a statement of action is made for citizens to either evacuate or shelter-in-place, the choices are not easy or binary in LTCFs. An evacuation often leads to some elderly deaths due to stress, falls and lack of consistent medical care, while sheltering-in-place can put everyone’s lives at risk.

My research at PHO focused on creating a literature review of the best practices for evacuation and sheltering-in-place for long term care facilities, and offering recommendations for the best course of action when a disaster strikes. I also focused on how to prepare to make decisions to limit the number of deaths and injuries.

University/College:
York University

Program:
Master of Disaster & Emergency Management

Supervisor at PHO:
Dr. Brian Schwartz

JANET HENG

Project title:
Evaluation of the standardized questionnaires for reportable enteric diseases

Summary of project:
When a cluster of cases or an outbreak is suspected, the Enteric, Zoonotic and Vector-borne Diseases team at PHO tries to identify common exposures among cases. They request questionnaires from public health units about cases of reportable enteric diseases.

Prior to the development of PHO’s standardized questionnaires, there was marked variability in the questionnaires used and in the data collected from public health units. This resulted in constraints in the analysis and interpretation of reported risk factors.

The evaluation of the standardized questionnaires utilized data from the integrated Public Health Information System (iPHIS) to determine their impact on risk factor completion rates. Results from this evaluation will inform ongoing quality improvement of current questionnaires, as well as the development of future standardized questionnaires at PHO.
ALEXANDRA (ALLIE) PIATKOWSKI

Project title:
Vaccine Safety in Ontario, 2015

Summary of project:
Public health surveillance of adverse events following immunization (AEFIs) is essential to monitor vaccine safety, provide information to health professionals and build confidence in immunization. While at PHO this summer, I conducted a descriptive analysis of AEFIs reported following vaccines administered in 2015 using SAS, in collaboration with the Immunization and Vaccine Preventable Diseases team.

We found that:
• there were 678 AEFIs reported for a reporting rate of 4.9 per 100,000 population
• females comprised 66.0% of reports, and female predominance was most notable in those 18- to 64-years old
• most AEFIs were mild (i.e. injection site reactions)
• the majority of AEFIs (73.9%) were completely resolved at the time of reporting.

Overall, we found a low reporting rate of AEFIs during 2015 and no unexpected safety issues. Under-reporting continues to be an issue in Ontario relative to other jurisdictions; however, the modest but increasing trend in AEFI reporting rate is encouraging.

MARIA QUADRI

Project title:
Advancing Performance Measurement for Public Health Emergency Preparedness in Canada

Summary of project:
The main research question of this CIHR grant project is to address the challenge faced by public health professionals in answering ‘Are we prepared?’ and ‘How do we measure it?’ The systematic review conducted in this role played a small but important part in helping answer this question. The goal of the systematic review was to identify and define a set of indicators to measure public health emergency preparedness performance in Canada. A rigorous methodology was applied to a library-assisted literature search to systematically screen relevant studies to be appraised for quality and analyzed for indicators.
SEEMA SHARMA

Project title:
Indoor Air Quality study in Ice Arenas

Summary of project:
Indoor ice arenas are popular in North America for skating and hockey. Resurfacing equipment is regularly used to maintain ice quality. Carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter 2.5 (PM2.5), total volatile organic compounds (TVOCs) and ultrafine particles (UFP) from equipment emissions are a public health concern.

Exposure guidelines exist for CO and NO2, however no exposure limits exist for UFP (diameter <100 nm). UFP have caused adverse effects on pulmonary, cardiac and vascular tissues in animal studies. Further, studies have shown significant exposure to TVOCs can cause irritation in eyes, nose and upper airways. This project aims to assess the air quality at 10 ice arenas for CO, NO2, TVOCs, PM2.5 and UFP.

The data collected can be used to formulate correlations between ultrafine generation and the fuel type used by resurfacers. The methodology and results can be used by the public health inspectors to audit ice arenas in future.

JELENA SAVIC

Project title:
Hospital Influenza Outbreak Analysis

Summary of project:
We conducted a descriptive analysis of influenza outbreaks in Ontario hospitals over four years to assess important characteristics of these outbreaks, including the:
- total number of outbreaks per season
- number of outbreaks per hospital
- duration and attack rates of outbreaks

We also evaluated the quality of the data retrieved from iPHIS, which resulted in a series of recommendations aimed at improving data quality in the future. Finally, we investigated whether healthcare worker immunization rates and vaccinate-or-mask policies were associated with the number of outbreaks, their duration and their attack rate. This analysis was conducted using multi-level regression, controlling for hospital-level factors (such as bed size and hospital type) and the season (which accounted for the circulating influenza strain and the degree to which the vaccine matched the circulating strain). This project is of particular interest to institutions considering implementing vaccinate-or-mask policies as patient protection measures during the influenza season.

Environmental and Occupational Health

Environmental and Occupational Health provides scientific and technical advice and support to our clients with respect to a variety of existing and emerging environmental health issues such as indoor air quality, outdoor air pollution, drinking and recreational water, food science and safety, environmentally transmitted infections, heat and cold related health impacts, radiation and community noise.
SAEHA SHIN

Project title:
Effects of exposure to air pollution on Parkinson’s disease in Ontario, 2001 to 2013: a population-based study

Summary of project:
Parkinson’s disease (PD) is a chronic, progressive neurodegenerative disorder that has a devastating impact on individuals as they lose their physical functioning. Epidemiological findings reported associations between air pollution and increased prevalence of PD, implicating a potential link between exposure to air pollutants and PD.

This project explored the association between exposure to ambient air pollution, particularly PM2.5, NO2, and O3, and the incidence of PD in Ontario from 2001 to 2013. A population-based cohort study was conducted by linking multiple health administrative databases. We applied state-of-the-art methods, such as satellite-based sensing approaches, to assess air pollution exposures. Results suggest the plausibility of an association between ambient air pollution and PD. As there is currently no cure for Parkinson’s disease and available treatments offer mainly symptomatic benefits, it is critical to identify and prevent risk factors, especially those that may affect millions of people worldwide.

JESSICA WONG

Project title:
Time Trends of the Incidence, Prevalence, and Mortality after Diagnosis of Parkinsonism

Summary of project:
Parkinsonism is characterized by movement abnormalities seen in Parkinson’s Disease, such as tremors and muscle stiffness. Understanding the burden of disease is important to guide decision-makers. The study I worked on examined the trends of incidence, prevalence, and mortality of parkinsonism in Ontario, Canada from 1996-2013. A validated approach involving administrative databases was used to identify cases of parkinsonism.

It is unclear whether the number of newly-diagnosed cases (incidence) and deaths (mortality) of parkinsonism is changing over time, as previous studies found conflicting trends. Results from the study suggest that the number of existing cases (prevalence) was significantly increasing over 18 years for young-onset (20-39 years) and late-onset (≥40 years) parkinsonism.

We also learned that incidence was significantly decreasing for late-onset, but not for young-onset parkinsonism. For mortality, there was a large, significant decrease for young-onset, and a small but significant decrease for late-onset.

Ultimately, tailored public health strategies may be needed to address differing trends between young-onset and late-onset parkinsonism.
SAAMIYAH ALI-MOHAMMED

Project title:
Feasibility of Administering the ASA24 among School-Aged Children in Ontario

Summary of project:
The Automated Self-Administered 24-hour dietary recall system (ASA24) is a freely available web-based tool used to collect high-quality dietary intake data. My project aimed to assess the feasibility of administering the tool to children in grades 5-8 at home and in schools.

Using the tool, we asked children to report the foods and beverages consumed throughout the previous day. Children also completed surveys to provide demographic information and feedback on the ASA24. We evaluated children’s eating behaviours, reporting quality, and completion rates by gender, age, BMI, and socioeconomic status.

This research will be a unique contribution to the field of nutritional epidemiology, as it is the first study to assess the feasibility of administering the ASA24 to school-aged children in Canada. The results of this study will influence the methodology used to collect large-sample dietary intake data from school-aged children, and evaluate school- and community-based healthy eating interventions.

EMILY BRAY

Project title:
Health Promotion Capacity Building (HPCB) Evaluation Dashboard

Summary of project:
Health Promotion Capacity Building (HPCB) consultants deliver training events and provide consultations to public health units on health promotion competencies. This project involved the creation of a dashboard for the HPCB team, as a data visualization tool to graphically display performance measurement indicators related to HPCB services. The dashboard is dynamic - updating with the addition of new data to give a real-time picture of evaluation results.

This tool will save considerable time when presenting evaluation results internally and will allow the team to quickly respond to requests for information from stakeholders. In addition, it will give managers an at-a-glance view of team performance and serve as a monitoring system to gauge progress towards team deliverables. The dashboard was designed to have cross-department applicability and is stored in Microsoft Excel. It was created using pivot tables, pivot table charts and an array of formulas and functions.
FATIMA KAMAL

Project title:
Process Implementation Evaluation of the Healthy Kids Community Challenge (HKCC)

Summary of project:

In response to rising rates of childhood obesity and overweight, the Ministry of Health and Long-term Care (MOHLTC) developed the Healthy Kids Community Challenge (HKCC), which aims to reduce the prevalence and prevent childhood overweight and obesity. The MOHLTC has funded 45 Ontario communities to develop and implement community-based activities that promote healthy behaviours.

PHO has been requested by MOHLTC to conduct a provincial-level HKCC evaluation, one stream of which is a process implementation evaluation. An important component of the process implementation evaluation is the analysis of the Theme-Based Action Plan (TBAP) for the first theme “Run. Jump. Play. Every Day!” This project examines the behaviour change intervention functions and techniques used in interventions proposed by HKCC communities for this theme. The behaviour change wheel by Michie, van Stralen, and West and the refined taxonomy of behaviour change techniques by Abraham & Michie were used to guide the data analysis. This analysis will serve as a baseline data for HKCC implementation over the 3-year program period.

ADAM LADAK

Project title:
Piloting a Protocol for Measuring (Potential) Exposure to the Healthy Kids Community Challenge (HKCC)

Summary of project:

The Healthy Kids Community Challenge (HKCC) is an initiative developed by the Ministry of Health and Long-Term Care (MOHLTC) that aims to improve health behaviours among children aged 0-12 years in 45 communities across Ontario. Every nine months, a new social marketing theme is launched in relation to physical activity, screen time reduction or healthy eating.

Part of PHO’s evaluation of the HKCC involves understanding the communities’ exposure to the initiative, and specifically its first theme – “Run. Jump. Play. Every Day.” The primary objective of the project was to develop and implement a media analysis protocol to identify and categorize media messages from online platforms (such as GoogleNews and Twitter). The media analysis revealed variation in the number, source and content of messages over a seven month period, and between HKCC communities. Recognizing the use of social marketing strategies within the HKCC and public health campaigns, this project has prospective application for evaluation of future themes and providing feedback to HKCC communities and MOHLTC.
SAFIA MOHAMED

Project title: Developing knowledge products related to Alcohol Policy

Summary of project:

A municipal alcohol policy (MAP) outlines the safe and appropriate use of alcohol on municipally-owned or managed property. However, not every municipality has a municipal alcohol policy. One project, The Municipal Alcohol Policy - Geographical Information System (MAP-GIS) is being developed to provide opportunities for stakeholders to visually observe the current status of MAPs across communities. This interactive GIS map allows individuals to see which municipalities in Ontario have municipal alcohol policies implemented, and can encourage other municipalities who do not have alcohol policies implemented to do so.

In addition, an evidence brief was developed to determine the effectiveness of screening brief intervention and referral (SBIR) at reducing alcohol consumption and alcohol-related harms. Findings from this evidence brief will inform policy makers, hospital administrators and health promoters on the effectiveness of SBIR within certain populations and will lead to further implementation of SBIR where appropriate.

University/College: Queen’s University
Program: Master of Public Health
Supervisor at PHO: Jason LeMar & Ben Rempel

SANDYA MENON

Project title: Examining the Healthy Weight Behaviours and BMI Status of Students in Ontario

Summary of project:

Childhood and adolescent overweight and obesity are significant public health concerns, due to the resulting negative health outcomes that can develop and persist into adulthood. Across the literature, healthy weight behaviours such as adequate physical activity, sedentary behaviour, dietary habits, and sleep duration have repeatedly been identified as key modifiable behavioral determinants of weight status in children and youth.

By conducting a secondary analysis of data collected from the 2015 Ontario Student Drug Use and Health Survey (OSDUHS), this project aimed to examine the differences in healthy weight behaviours and BMI status of Ontario students in grades 7-12, in addition to exploring the prevalence of Ontario students meeting the national recommendations for these behaviours. Findings from this project highlighted notable differences in these behaviours among students, based on student weight status and socio-demographic factors. These results have potential implications toward provincial-level policies and programs targeting obesity reduction among Ontario students.

University/College: McMaster University
Program: Master of Public Health
Supervisor at PHO: Sujitha Ratnasingham & Anne Philipneri
Infection Prevention and Control Department

Infection Prevention and Control (IPAC) refers to those evidence-based practices and procedures that, when applied consistently in health care settings, can prevent or reduce the risk of transmission of microorganisms to health care providers, other clients/patients/residents and visitors.

DANIELLE KASPERAVICIUS

Project title:
Social Network Analysis of the Infection Prevention and Control Department (IPAC)

Summary of project:
Social network analysis is a tool for understanding complex relationships between individuals. The purpose of this project was to better outline staff relationships that exist within PHO’s Infection Prevention and Control department by mapping and analyzing staff members’ informal and formal collaboration networks. Informal collaboration is when individuals unofficially brainstorm ideas or seek advice from one another. Formal collaboration is when individuals work together on assigned projects. Results of this social network analysis indicate that the odds of a staff member having an informal or formal collaborative relationship with another colleague are significantly higher if they both work in the same work location and work on the same departmental sub-unit. Further, the odds of two colleagues having an informal or formal collaborative relationship are significantly higher if their years of work experience differ. The results of this project may be used as baseline data for evaluating future departmental strategic initiatives.

University/College: McMaster University
Program: Masters of Public Health
Supervisor at PHO: Omar Sharif

MATHEW NAGENDRAN

Project title:
Estimating the Burden of Healthcare-Associated Infections in Ontario

Summary of project:
Healthcare-associated infections (HAIs) are considered the most common adverse event that threatens patient safety worldwide. Reliable estimates of infection burden on the provincial level, however, are hindered by a scarcity of complete or standardized data. To date, the best estimates for HAI burden have only been reported nationally and are based on American study data from 1985. In order to inform the prioritization of provincial infection prevention and control policies, there is a clear need for more current, provincially representative data.

The aim of this project is to develop a proposal to estimate the burden of HAIs in Ontario using available data sources. A literature review of HAI burden of illness studies will be conducted to inform the study design. The proposal will define the criteria for HAI inclusion, review available HAI data sources, and provide methodology for estimating the annual number of HAI cases and deaths in Ontario.

University/College: Queen’s University
Program: Master of Public Health
Supervisors at PHO: Camille Achonu
ALISHA HARKNESS

Project title:
Supporting and Strengthening Collaboration within the Locally-Driven Collaborative Projects Program

Summary of project:
The Locally Driven Collaborative Projects (LDCP) program brings public health units together to develop and run research projects on issues of shared interest related to the Ontario Public Health Standards. Being part of an LDCP provides the opportunity for public health units to work collaboratively and build partnerships with other public health units, students, academics, and organizations that are doing related work.

The project I worked on aims to understand how PHO can better support LDCP teams to work collaboratively. Using an online survey and telephone interviews, we learned how LDCP team members currently work collaboratively, how PHO could better support them, and the most effective ways to share information and resources about collaboration. Findings from this research will inform the design of future LDCP programming, with the goal to support and strengthen collaboration within LDCP teams.

Knowledge Services

The Knowledge Services (KS) Division provides a range of specialized services to advance public health knowledge and practice, and leads the development and delivery of professional development, communications, knowledge generation, exchange and dissemination of supports and resources, and data and information. KS consists of two departments: Knowledge Exchange and Communications, and Informatics.

University/College: University of Toronto
Program: Masters of Public Health
Supervisor at PHO: Tiffany Bartlett & Rebecca Mador

Poster Fair: Students present their placement work.
ALVIN JANES

Project title:
Influenza surveillance for resistance to neuraminidase inhibitors

Summary of project:
My project is testing cultured influenza isolates from across the province for drug resistance. There are three antivirals used to combat influenza infection: Oseltamivir, Zanamivir, and Peramivir. The IC50 (concentration of drug required to inhibit 50% of a process) of each drug is determined, and resistant isolates are identified. Resistant isolates are retested for confirmation, and then are sequenced to identify mutations that give rise to the resistant phenotype.

University/College: University of Guelph
Program: Biomedical Sciences
Supervisor at PHO: Jonathan Gubbay & Rachel Higgins

TESSA LATCHMORE

Project title:
Tools for Water Security in Indigenous Communities

Summary of project:
The main goal of the Tools for Water Security in Indigenous Communities (TWIIST) study is to work with Indigenous communities to promote access and community-based stewardship to secure sources of water in a holistic manner, balancing cultural identity, environmental integrity, resilience to global environmental change and sustainable growth. The objective is to design a series of tools that seek to understand Indigenous knowledge, attitudes and perceptions and practices around water as well as social capital and ultimately provide these resources to each of the communities involved in the study. My research included:

1. Highlighting documented perspectives, attitudes and traditional knowledge with respect to water in Indigenous communities
2. Identifying existing Indigenous-specific local water security tools and metrics
3. Providing recommendations to enhance the inclusion of Indigenous values and Indigenous knowledge in typically Western science-based approaches to water security.

University/College: Queen's University
Program: Master of Public Health
Supervisors at PHO: Dr. Anna Majury
LAUREN SOBOT

Project title:
Examining for the Presence of Multiple Gonococcal Strains in a Single Patient

Summary of project:
Gonorrhea is a sexually transmitted infection caused by the bacterium Neisseria gonorrhoeae, which has developed antibiotic resistance to the point where officials are concerned about untreatable infection in the near future. When gonorrhea is diagnosed, only one strain is examined, but in reality, the patient may be infected with multiple strains. This study investigates whether it is possible for a patient to be infected with multiple strains of gonorrhea at the same time.

To conduct this project, a number of gonorrhea colonies are isolated from a patient specimen. Typing is done by PCR and sequencing of two target genes. The sequencing is analyzed and compared to a database, and the sequence types of a patient's isolates are compared to see if multiple strains are present. Antibiotic plates with varying concentrations are inoculated with the isolates to observe differences in sensitivity among isolates from the same patient. By examining the presence of multiple gonococcal strains within a patient, more accurate epidemiological information about the chain of transmission of the infection can be provided to help curb its spread.

RAHGAVI POOPALARAJAH

Project title:
Evaluation of MALDI-TOF MS-based identification of Nocardia species compared to DNA sequence-based identification

Summary of project:
MALDI-ToF Mass Spectrometry (MS) is a rapid, inexpensive method for identifying microorganisms; it generates molecular/protein profiles of microorganisms which are compared to databases of reference spectra for microorganism identification. We evaluated the Bruker MALDI Biotyper for the identification of Nocardia species. Using a bead-beating based extraction method for sample preparation, 243 clinical isolates were evaluated. Discrepancies between identification methods were analyzed using DNA sequencing. Preliminary results indicated that 84% of isolates were confidently identified to genus level by MALDI-ToF MS compared to the reference method. For Nocardia nova complex, one of Nocardia species frequently encountered in clinical isolates, specificity to species level is as high as 92%. Identification of Nocardia species using MALDI Biotyper enables faster turn-around times by 48 hours and reduces volume of expensive molecular identification by 59%.

Thank you to all students who submitted an abstract and who chose PHO for their placements!

For more information on the student program at PHO please visit
www.publichealthontario.ca/en/LearningAndDevelopment/Pages/Students.aspx

Student placement postings can be found at:
www.publichealthontario.ca/en/About/Careers/Pages/Student-Training-and-Opportunities.aspx

Postings are typically up for about 3 weeks in January (for summer placements), June (for fall placements) and October (for winter placements).