

Student Voice

2018 NEWSLETTER

STUDENT PROJECT ABSTRACTS



Public
Health
Ontario

Santé
publique
Ontario

DEAR STUDENTS, PHO STAFF, AND PARTNERS.

Welcome to the ninth edition of the Student Voice newsletter.

Over the past year, Public Health Ontario (PHO) hosted over 130 student placements. Students were able to apply their skills and knowledge within our laboratories, research departments and programs throughout the province. Students complete placements and practicums from a range of academic programs such as communications, epidemiology, health informatics, medical laboratory science, pharmacy, public health and preventative medicine and many more. The roles and career paths for public health workers are continuing to grow and evolve.

PHO staff support our student program in a variety of ways, including supervising student placements, being a mentor and sharing career advice. I'm very proud of the supportive learning environment that we have created here at PHO.

With the release of the updated Ontario Public Health Standards, increased attention and response to the opioid epidemic and the legalization of cannabis across the country, it's an inspiring time to be working in public health. I encourage students and new professionals to be curious, ask questions and make connections. In the wise words that I received from a fortune cookie: keep an eye open for an opportunity.

In this edition of the newsletter, students wrote summaries of the projects that they completed in 2018. Additionally, there are articles focused on our mentoring program, summer student day and opportunities through the Sheela Basrur Centre.

All the best in the upcoming year,

DAN JOHNSON

*Education Specialist,
Public Health Ontario*



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SUMMER STUDENT DAY 2018:

Public health responses to food and food safety

Summer student day is an opportunity for placement students from different program areas within PHO to come together to explore an emerging public health topic from a variety of perspectives. This year, we focused on food safety and the different roles within public health that are involved in preventing, controlling and monitoring food safety and outbreaks. This year's learning objectives were to:

1. Recognize the basic principles of food safety.
2. Identify and discuss roles of public health in the control of food-borne diseases.
3. With the assistance of an expert advisor, respond to a case study that highlights public health's roles in food safety and food-borne diseases/outbreak investigation.
4. Synthesize learnings and deliver a presentation based on the case study to a panel.

This year we had Irene Mentis from the Canadian Food Inspection Agency (CIFA) attend the morning session. Irene offered her national perspective of the role of the CIFA in preventing and monitoring food safety and outbreaks. Students heard presentations from those involved in food safety, monitoring and testing at PHO including the environment and occupational health team, the enteric, zoonotic and vector borne disease team, as well as from the public health laboratory.

In the afternoon, students broke out into small groups to apply their new knowledge to a case study involving food safety and outbreak



management. The case study focused on a chicken dish prepared using the sous vide cooking method and a week later, the Public Health Ontario Laboratory noticed an increased in the number of a rare serotype of Salmonella Nottingham, which included five cases, among three health units. Students were split into three groups: foodborne investigations, food laboratory testing and effective communication. In their groups and through consulting with the expert advisors, students worked together to learn more about the expert's role in food safety. These findings were presented back to the larger group.

Overall, it was a great day where students learned the importance of food safety and monitoring, especially when it comes to chicken and spices.





BUILDING LASTING CONNECTIONS

PHO's Student Mentoring Program

The PHO Student Mentoring Program began in 2017 and was very well-received by both the summer placement students, as well as the PHO employees who acted as mentors.

In 2018, the program continued with 17 mentor-mentee pairs. Highlights of the program included a full orientation, identifying goals and numerous opportunities for both formal and informal mentoring.

Below is an anecdote from one of the 2018 mentees:

“As a student, coming into a professional organization like PHO for a summer placement can feel intimidating. In addition to wanting to impress people with your public health knowledge and research skills, you’ve been told by multiple sources to take advantage of this opportunity, make connections and network. However, networking with professionals within the field you hope to break into can feel daunting.”

“But luckily, not only is PHO’s environment conducive to making connections (and even friends), for the students, it provides a built-in networking program- the mentorship program. The mentorship program was vital for my professional development and networking at PHO. I couldn’t avoid this stuff even if I tried. My mentor helped me with everything from job prospects, resume critiques and of course networking with other professionals. This mentorship program was one of the many reasons I have felt privileged to complete my practicum at PHO.”

We are excited to continue to grow the program for more students in the upcoming year. It’s a great opportunity for them to learn more about career opportunities within public health.

SHEELA BASRUR CENTRE

Student Opportunities

The Sheela Basrur Centre (SBC) was established to honour the legacy of Dr. Sheela Basrur, Ontario's former chief medical officer of health, and a long-standing advocate for the health and well-being of all Ontarians. The SBC is supported by PHO and offers training and education programs, as well as special events. The focus of the Centre is on enhancing the communication and leadership skills of existing and emerging public health experts.

The SBC Student Travel Bursary supports students in pursuing their travel placements abroad, enabling a deeper understanding of public health from an international perspective. Through this experience, students witness how public health programs work in diverse communities while enhancing their leadership skills.

University of Toronto, Masters of Public Health student, Leah Shipton, was awarded the 2018 SBC Student Travel Bursary earlier this year. Leah completed her practicum in the Gender, Equity and Human Rights department at the World Health Organization (WHO) in Switzerland. During her placement, she contributed to initiatives related to public health policy, human rights and global governance.

In addition to the SBC Student Travel Bursary, there is a Student Communications Award. This award provides students from public health and/or communication disciplines an opportunity to demonstrate their knowledge and creativity by developing communications strategies on critical public health issues.

For more information on the Sheela Basrur Centre and student opportunities, please visit www.sheelabasrurcentre.ca.



2018 STUDENT PROJECTS

Abstract Overviews



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.

RACHEL PICKARD and MARY-ROSE FAULKER

Project titles:

Waning of Measles Immunity in Elimination Settings: a Systematic Review

Summary of projects:

The endemic circulation of the measles virus has been successfully prevented in many countries. This is a result of well-established vaccination programs and the strong immunity of previously infected individuals; however, the duration of this protection in the absence of natural boosting is still unknown. Therefore, we sought to determine whether measles immunity is waning among previously infected and vaccinated individuals within elimination settings and if so, at what rate?

This project was part of a series of systematic reviews conducted for the World Health Organization examining various elements of measles immunity in elimination settings. From the 1,508 articles that passed title and abstract screening, only 16 met all of the inclusion criteria, 10 of these articles focused on the immunity of vaccinated individuals and seven looked at the

immunity of naturally infected individuals (one paper provided information on both groups). We extracted data from each paper and created a series of graphs showing changes in the immunity over time for both groups. We used linear and Poisson regression to estimate the rate of waning. We conducted quality appraisal using the PHO Meta-QAT as well as a risk of bias assessment for each study. This allowed us to conduct a sensitivity analysis to support our results.

University/College:
University of Toronto

Program:
Master of Public Health,
Epidemiology

Supervisor at PHO:
Dr. Shelly Bolotin and
Dr. Natasha Crowcroft





Communicable Diseases, Emergency Preparedness and Response

The Communicable Diseases, Emergency Preparedness and Response department provides evidence-based scientific and technical advice to local, provincial and federal partners in government, public health and healthcare. The department has six areas of expertise: Communicable Diseases, Emergency Preparedness, Enteric/Zoonotic/Vector-Borne diseases, Immunization and Vaccine-preventable diseases, Operations and Response and Public Health Economics Research.

ROBYN BECKETT

Project title:

Party & Play and Sexually Transmitted and Blood-borne Infections Risk: A Systematic Review

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Summary of project:

Party and Play (PnP) (also known as chemsex) is sexualized drug use or the use of drugs immediately before or during sex and usually refers to sex between men. Primary PnP drugs include crystal methamphetamine, gamma hydroxybutyrate (GHB), poppers and erectile medication. During my placement at PHO, I conducted a systematic review on PnP, sexually transmitted and blood-borne infections and sexually transmitted enteric infections risk alongside Fiona Guerra and Lindsay Friedman. This project was initiated by the

Gay Men's Sexual Health Alliance (GMSH) who are embarking on a campaign to respond to potential challenges posed by PnP and to promote progressive, informed and compassionate conversation on sex and substance use. This project involved a literature search, literature screening, evidence appraisal using MetaQAT, data extraction, knowledge synthesis and an evidence brief write-up based on the systematic review. The evidence brief will be incorporated into the GMSH campaign.

University/College:

Dalla Lana School of Public Health, University of Toronto

Program:

Master of Public Health, Health Promotion

Supervisor at PHO:

Dr. Fiona Guerra

SARANYAH RAVINDRAN

Project title:

Immunization Coverage in Ontario School Pupils: LHIN-level Estimates for the 2017-18 School Year

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Summary of project:

Immunization coverage refers to the proportion of a population that is appropriately immunized against a specific disease based on their age and calculation provided by Public Health Ontario (PHO) for school pupils at both the provincial and public health unit (PHU) level.

The objective of my practicum was to develop a method to assign Ontario school-aged children to a Local Health Integration Network (LHIN) in order to introduce LHIN-level immunization coverage estimates

to PHO's annual coverage report. Using SAS statistical software, I developed an algorithm to select a single residential address record that could be matched to a single LHIN for each of the over 600,000 school-aged children in Ontario for the 2017-18 school year. Assessment of LHIN-level coverage estimates will now be routinely included in annual immunization coverage assessments using this algorithm. Furthermore, the algorithm can expand coverage assessments to other geographic areas that require residential address assignment.

University/College:

Dalla Lana School of Public Health, University of Toronto

Program:

Master of Public Health, Epidemiology

Supervisors at PHO:

Dr. Sarah Wilson



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.

YANG LUO

Project title:

Traffic Related Air Pollution Monitoring at Daycare Centers in Toronto

Summary of project:

Traffic-related air pollution (TRAP) is a major contributor of urban air pollution. Pollutants such as nitrogen oxides (NO_x), black carbon (BC), and ultrafine particulates (UFP) can serve as indicators of local contribution of TRAP and are measurably elevated in the immediate vicinity of high volume traffic. Daycare centers are among the most TRAP-sensitive locations due to its young-aged occupants.

A land-use regression model was used to estimate the level of air pollution at all daycare centers in Toronto based on their

location, nearby traffic volume, and land-use. Samples of NO_x, BC, UFP, and PM_{2.5} were taken over the course of 15 minutes at 30 daycare locations.

Sampled results were adjusted using a reference location to allow for spatial comparisons. Results can be used to assess the predictive capability of the land-use regression model and to identify highly exposed sites for future long term TRAP monitoring. Results can also be used to identify highly exposed daycare centers for education in TRAP-reducing methods.

University/College:

University of British Columbia

Program:

Master of Science, Occupational and Environmental Hygiene

Supervisor at PHO:

James Johnson

JESSICA MAITLAND

Project title:

Environmental Lead Exposure and the Burden of Cardiovascular Disease Mortality

Summary of project:

The Environmental Burden of Disease (EBD) project seeks to describe and quantify the impact of environmental hazards on deaths and health care utilization in Ontario. A key part of the project is the analysis of exposure-response functions for various hazards including environmental lead exposure. We evaluated the weight of evidence for health endpoints related to lead exposure and explored the outcome of cardiovascular disease mortality. We investigated the impact of different

analytical choices for the theoretical minimum risk level and hazard ratio on the burden estimate. Our findings suggested that for current Canadian blood lead levels, lead does not contribute appreciably to the burden of cardiovascular disease mortality at two of three potential counterfactual levels. These results highlighted the success of environmental policies, namely the phasing out of leaded gasoline and paint, at reducing population lead exposure and the associated burden of disease.

University/College:

McGill University

Program:

Master of Science, Public Health

Supervisors at PHO:

Sue Greco



Health Promotion, Chronic Disease and Injury Prevention

The Health Promotion, Chronic Disease and Injury Prevention (HPCDIP) department delivers high-quality research products and capacity building services to Ontario's public health system, partner ministries, health promotion intermediaries and partner resource centres. The work of HPCDIP covers a broad range of public health topics including, health promotion, chronic disease prevention, injury prevention, alcohol policy, nutrition policy, child and youth health, family health, tobacco control, health equity, mental health and more.

ALANNA CHU

Project title:

The Epidemiology of All-Terrain Vehicle and Snowmobile Injuries in Ontario

Summary of project:

Off-road vehicles (ORV), such as All-Terrain Vehicles (ATVs) and snowmobiles, are popular recreational vehicles in Ontario; however, there is a risk of serious injury with their use. The goal of this project was to examine ATV and snowmobile injuries and fatalities in Ontario, including the frequency of injury, type and mechanism of injury and the rates of injury by public health unit (PHU). We used a retrospective case series design using administrative and survey data.

The results of this study suggested there is a large burden of ORV injuries in Ontario, with males and children representing a high proportion of all injuries presented at hospital. The most common mechanism of injury was falling off /ejection from the vehicle. Across PHUs, the rates of injury were higher in more rural areas versus urban units. These results will provide PHUs with data to support advocacy, decision making and planning regarding ORV safety.

University/College:

Dalla Lana School of Public Health, University of Toronto

Program:

Master of Public Health, Epidemiology

Supervisor at PHO:

Dr. Sarah A. Richmond

JESSICA LEE

Project title:

Media Analysis of "Choose to Boost Veggies and Fruits": An Exploration of Potential Exposure to and Engagement with the Healthy Kids Community Challenge (HKCC).

Summary of project:

In response to high rates of childhood overweight and obesity, the Ministry of Health and Long-Term Care developed the Healthy Kids Community Challenge (HKCC), a health promotion program providing 45 communities across Ontario with resources and tools to promote healthy behaviours among children ages 0 through 12. The HKCC is a theme-based program and has a social marketing component that aims to promote healthy behaviours at the population level using hashtags related to the program (e.g. #HKCC; #choosetoboostvegiesandfruit). This media analysis explored

engagement with HKCC Twitter content across theme three of the HKCC to understand utilization of and potential exposure to social media messages in health promotion settings. The project piloted the use of a data collection tool, NCapture and used virality metrics as evaluation indicators. Overall, it was observed that there was an increase in engagement with Twitter messages and an increase in tweets that promoted the theme's target behaviour, which was increased fruit and vegetable consumption.

University/College:

Dalla Lana School of Public Health

Program:

Master of Public Health, Health Promotion

Supervisors at PHO:

Rachel Laxer and Dan Harrington



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.

LINA KO

Project title:

Developing Resources to Facilitate Shared Decision Making about Antibiotic Use in Community Practices

Summary of project:

Antibiotic overuse in acute respiratory tract infections (ARTIs) is a major issue in primary care. It contributes to antibiotic resistance, where bacteria develop mechanisms to deem antibiotics ineffective. Research reveals that a major factor for antibiotic overuse is patient and clinician misperceptions. Patients often hold unrealistic beliefs about the effectiveness of antibiotics, while clinicians tend to overestimate patient expectations for antibiotics. The key to resolving these misperceptions is effective communication, which can be achieved through shared decision making (SDM). SDM can be described as two-way information exchange,

where patients share their expectations, values and preferences with clinicians, while clinicians inform patients about aspects of treatment, like the benefits and harms. Our team developed several resources to facilitate these conversations, including a guide to SDM for clinicians and four “Let’s Talk” fact sheets, one for each of bronchitis, pharyngitis, sinusitis, and otitis media. These evidence-based fact sheets can be used by clinicians during patient visits to supplement their discussion of the role of antibiotics in ARTIs. SDM has been shown to reduce unnecessary antibiotic use and that is the trend we hope to see as clinicians and patients engage in more SDM conversations.

University/College:
University of Toronto

Program:
Doctor of Pharmacy

Supervisor at PHO:
Bradley Langford



*PHO students
sharing and
learning at
Summer
Student Day*

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.

AYA MAHDER-BASHI

Project title:

Marginalization and Communicable Diseases: A Population Health Assessment

Summary of project:

Social and environmental determinants of health are major drivers of rates of infectious disease and mortality. Given these inequalities, it is critical to provide interventions that aim to address these imbalances at the neighbourhood/community level. Developing a better understanding of the associations between disease distribution and neighbourhood characteristics allows for more tailored and responsive needs-based population health planning and service delivery.

Our study used the 2016 Ontario Marginalization Index to provide a description of the associations between area-level marginalization and incidence rates of HIV and AIDS, Tuberculosis, Hepatitis viruses, sexually transmitted infection and invasive Group A Streptococcal infections in Ontario from 2015-2017. For the majority of diseases, we saw significant positive correlations between rates of diseases and material deprivation, as well as residential instability. Trends between rates of diseases and ethnic concentration along with dependency were vastly different across the diseases.

University/College:
University of Toronto

Program:
Masters of Public Health,
Epidemiology

Supervisor at PHO:
Karin Hohenadel &
Trevor van Ingen





Public Health Laboratory

PHO has eleven public health laboratory sites across Ontario. We go beyond the clinical testing role of traditional laboratories and address the broader challenge of infectious disease prevention and control. Our labs offer services in clinical and environmental testing, clinical consultation, education and training programs for laboratory professionals and evaluation of new laboratory technologies and methodologies.

ALVIN JANES

Project title:

The WELLness Tool: Enhancing Well Water Safety and Stewardship in Rural Communities Using Smartphone Technology

Summary of project:

Access to a reliable supply of safe drinking water is both a basic human right and a powerful environmental determinant of health. In regions heavily dependent on private water supplies, such as rural Ontario, water contamination remains an issue of public health concern. Unlike residents receiving water from public networks, private well users are responsible for maintaining their water systems and submitting samples for testing. To support well owners with these tasks, our team contributed to the development of a

smartphone application for private well stewardship. Tool development will be the culmination of a multi-year investigation of well contamination and stewardship behaviors in Ontario. I contributed to this project by completing a scoping review of relevant smartphone applications and in addition, I investigated the science and psychology of web-based tools. I also reviewed knowledge translation and behavior change literature, as it pertains to web-based applications and well stewardship.

University/College:

Queen's University

Program:

Master of Public Health

Supervisor at PHO:

Dr. Anna Majury



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).



