

## Message from our Director: 2020 Reflections on the year



Dr. Murray Krahn

I've lived through JFK's assassination (1963), AIDS (1983-2020+), Chernobyl (1986), the fall of the Berlin Wall and the Soviet Union (1991), 9-11 (2001), the invasion of Iraq (2003), SARS (2003), Black Friday (2008), MERS (2012), and Ebola (2014).

And yet, it's hard to look back or forward, in 2020, except through the lens of COVID. We're all at home. Many are afraid, or anxious. For two hundred thousand people so far, COVID has been the end of a life. For many more, a family tragedy. For even more, a period of stress and economic dislocation. This is a global phenomenon. It affects everyone from high to low, in every continent.

Lenin, in discussing a crisis that arose 3 years after the Bolshevik revolution used the analogy of lightning- it "threw more of a glare upon reality than anything else". The COVID crisis is like that. A flash of lightning that throws into sharp relief some things we didn't see as clearly before. Here are some of the big things:

Overpopulation, destruction of habitat, and encroachment on the living spaces of wild creatures has had an effect. COVID is the earth pushing back- if climate change alone was not sufficient to alert us, this should be a strong signal that we must change our relationship with the natural world.

In April 2020, it is the frailest and the weakest who are dying in developed countries, in part, because we have not been able to care for them as well as we should.

Over the next year, lower and middle income countries will increasingly bear the brunt of the pandemic. The crisis casts a harsh light on inequality and injustice, whether within or between countries.

Every day, our fellow citizens go to work at grocery stores, pharmacies, gas stations, long-term care facilities, and hospitals. The act of going to work, in the face of possible injury or death, requires courage. Heroism seems like too fancy a word- courage better describes the actions of those who unglamorously do their work simply because the work must be done. The work of volunteers in long term care homes, those who help neighbours or friends or others who just need help, is deeply admirable. I know that many of the people in the THETA community are making major and often unsung contributions.

Most of us are now not spending our time in the maelstrom, but in the quiet places, home mostly. Well maybe not so quiet for those with children at home. Most of us are hard at work at home. Some are also rediscovering the joys of baking or gardening or simply enjoying the fact that they can spend time with loved ones. Many are enjoying a quieter life without commuting, meetings or academic pressure. This is a between time, an interlude that may not be repeated in our lifetime.

It's also a time of opportunity for researchers, not only for funding, but to be of service, especially for those who study COVID. Many THETA investigators and students have played a constructive role by predicting resource needs and studying how individual institutions and the health system as a whole will respond.

What will the post COVID world look like for us?

In this new era, we as individuals and as an organization, should be able to contribute, and maybe even shine. We need to be grateful for the opportunities we have individually and collectively, and use our skills to build a better Ontario and Canada, and because of our growing global connections, a better world. We have been given much, and much should be expected of us.

## In this Issue:

COVID-19: Dr. Beate Sander's THETA Team	2
Announcements: Arrivals, Departures, Congrats	3
Director/Staff/Trainee Awards	4-5
Education Bulletin	6-7
THETA/BRU Courses & Workshops	8-9
Diabetes Action Canada Project Spotlight, Data Management Solutions (REDCap)	10

Our Global Reach	11-13
Featured Grants and Publications	14-16
THETA/ClinEpi Rounds	17



# COVID-19: Dr. Sander's THETA Team Responds

Our resident Canada Research Chair in Economics of Infectious Diseases, Dr. Beate Sander, has certainly been actively engaged in research throughout this pandemic, coordinating resource modeling in Ontario through the efforts of the COVID-19 Mod Collab group whose work will be used to inform public health policy in the province in tandem with Public Health Ontario and Ontario Health.

Using the CORE (COVID-19 Resource Estimator) Model 1.3, the team has modeled the burden on Ontario by forecasting the demand for ICU beds, ward beds, ventilators and personal protective equipment (PPE) bundles.

**Method:** The team's model factored in a number of parameters including the number of COVID positive patients requiring hospitalization, taking into account whether or not the patient would need a ward or ICU bed, the number of ICU patients requiring a ventilator, the lengths of stay for a patient admitted to a ward or the ICU or both, and the probability of death (PoD) for patients who have to wait for an ICU bed or ventilator, as well as PoD for patients admitted to the ICU or ones with access to a ventilator. The team then modeled best, expected and worst case scenarios based on local data and those from other jurisdictions to help pinpoint when resource capacity may be reached.

Preliminary takeaways:

(\*please note, actual figures will not be provided here, please see the Collab's website for further details\*)

Mod Collab Group Site: <https://www.covid-19-mc.ca/home>

The general tone of the expert advice offered by the group certainly emphasized the need to continue physical distancing as well as vastly increasing capacity for testing and contact tracing.

**Emerging Research:** The focus will be on group settings such as Long-Term Care (LTC) facilities, group homes and shelters. These facilities are currently facing exacerbated issues in dealing with COVID-19 partially due to less stringent protocols in LTCs vs. acute care hospitals, staffing shortages, and an even higher than normal requirement for PPE. LTC facilities are reportedly

the new 'hotbed' for COVID-19 cases.

Our cardiac resources group is currently investigating the impact of the delays in patients undergoing cardiac procedures that were previously postponed due to COVID concerns.

Moving into the next phase of life, given the persistence of the virus over the next 6 months, patients with other serious ailments will have to be addressed once again.

What do future hospital protocols look like when physical distancing is finally relaxed? How do we allocate resources based on the type of surgery (some that can be easily delayed and some that cannot), while considering another influx of COVID cases later this year and ensuring hospitals have surge capacity so they're not placed in a difficult, resource strapped position

again? These are all questions to be reported on in the coming weeks and months.



(Clockwise starting top left) Core group: Kali Barrett, Raphael Ximenes, Stephen Mac, Yasin Khan, David Naimark  
Interactive Model Group: Anna Health, Petros Pechlivanoglou, David Rios, Nadia Alam  
Case predictions: Juan Pablo Martinez  
Cardiac Resources: Derrick Tam, Harindra Wijeyesundera  
Personal Protective Equipment: Terra Ierasts, Nathan Stall, Yoshiko Nakamachi, Andrew Morris

# Our Trainees: Welcome!

Some new faces, some familiar...



**Hafizah Besar Sa'aid**

Supervisor: Dr. Beate Sander



**Gebremedhin Gebretekle**

Supervisor: Dr. Beate Sander



**Adeteju Ogunbameru**

Supervisor: Dr. Beate Sander



**Aysegul Erman**

Supervisor: Dr. Beate Sander



**John Peel**

Supervisor: Dr. Murray Krahn

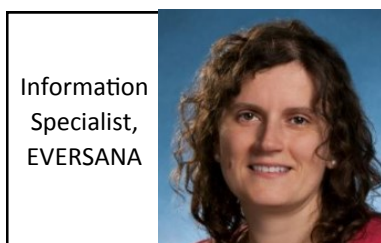


**Nicolas Iragorri**

Supervisor: Dr. Beate Sander

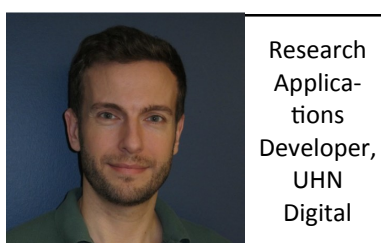
## Moving on Up!

It is always with mixed emotions that we watch our accomplished staff members, nurtured at THETA, expand their horizons and apply their expertise in new and exciting settings. Here's where they are now!



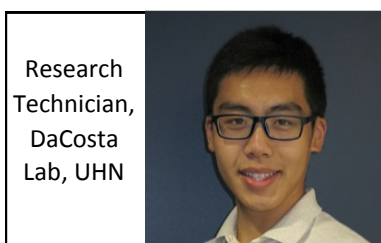
Information Specialist,  
EVERSANA

**Joanna Bielecki**



Research Applications Developer,  
UHN Digital

**Welson Ryan**



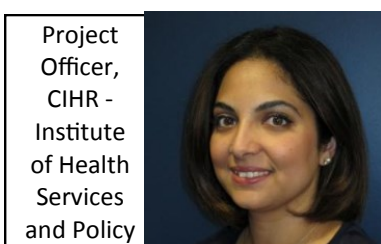
Research Technician,  
DaCosta Lab, UHN

**Arcturus Phoon**



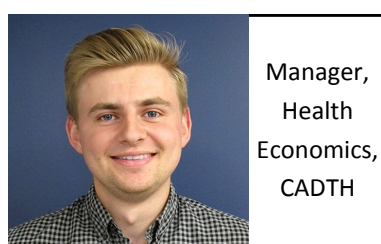
Post-doc fellow at Universidade Federal do Paraná, Brazil

**Letícia Leonart**



Project Officer,  
CIHR - Institute of Health Services and Policy

**Nida Shahid**



Manager, Health Economics, CADTH

**Alex Haines**

## Congratulations!!

Introducing the lovely new additions to the THETA family:

Whitney



A special welcome to our own Heather Baltzer's beautiful new baby girl Whitney

Elizabeth

And another to lovely Elizabeth Rose, Lisa Masucci's new baby girl, seen here with her older sister Emily.



Rose



# ...> Congratulations are in order!

In recognition of just a few of many achievements over the past year by our directors and their students, our congratulations go out to:



**Dr. Lusine Abrahamyan,**

Appointed as a Scientist to Toronto General Hospital's Research Institute (TGHRI)



**Dr. Murray Krahn,**

Recipient of the Society for Medical Decision Making (SMDM) Career Achievement Award



**Dr. Beate Sander,**

Awarded the Canada Research Chair (Tier 2) in Economics of Infectious Diseases

## Staff/Trainee: Hall of Fame

This certainly doesn't encompass the full extent of accolades earned by our staff and trainees but here are some highlights:

We were thrilled to hear that four of our staff were accepted into their program of choice at the University of Toronto's Institute of Health Policy, Management and Evaluation (IHPME). Rafael, Alex and Troy were accepted into PhD programs, while Welson earned his place in a Master's program.

### Upcoming Doctoral Projects:

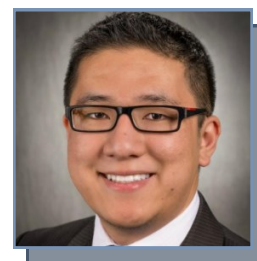
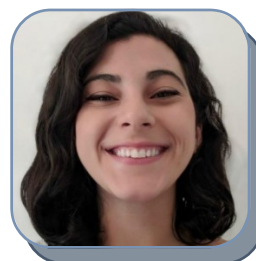
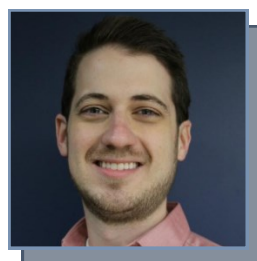
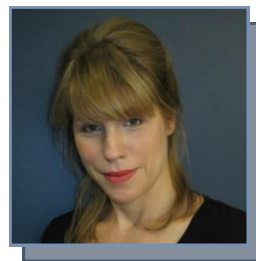
Troy: The diversion and unexplained losses of controlled substances in Canadian hospitals.

Rafael: Mitigating the wait-time mortality in patients referred for Transcatheter Aortic Valve Implantation (TAVI) .



(L-R) Rafael Neves Miranda, Welson Ryan, Alex Haines, Troy Francis

Cont'd from previous page



Top row:

**Anna Cooper Reed:** 2019 Helene and George Coward Award & successful transfer to PhD

**Stephen Mac & Karen Chung:** Canada Graduate Scholarships, Michael Smith Foreign Study Supplements & CIHR Graduate Supplement Award, Frederick Banting and Charles Best Canada Graduate Scholarship (CGS-M) Award & successful transfer to PhD program (Karen Chung)

**Aleksandra Stanimirovic:** Novartis-Diabetes Action Canada (DAC) Fellowship & DAC Fellowship, Patient Oriented Research (POR) Intercentre Trainee Internship Award

**Yeva Sahakyan:** promotion to the position of Scientific Associate

Middle Row: **Troy Francis:** Ontario Graduate Scholarship — Doctorate

**Lauren Ramsay & Marina Richardson:** Frederick Banting and Charles Best Canada Graduate Scholarship Doctoral (CGS-D) Award

**Gebremedhin Gebretekla:** SMDM International Travel Scholarship

**Leif Erik Lovblom:** Frederick Banting and Charles Best Canada Graduate Scholarship Doctoral (CGS-D) Award

Bottom Row: **Aysegul Erman:** successful completion of PhD program & CIHR Post-doc Fellowship

**Sonia Meerai:** SSHRC Doctoral Fellowship

**Rafael Miranda & Laura Oliva:** TGHRI Poster Award

**Douglas Cheung:** Toronto Hospital Urological Scholarship & successful transfer to PhD

# Education Bulletin

A closer look at our directors' commitment to students in our local community through teaching and mentorship:

There are a number of ways to engage with and learn from our expert staff at THETA and the BRU including:

- Formal mentorship through courses at University of Toronto's Institute for Health Policy, Management and Evaluation Masters and Doctoral programs with emphasis on the Health Services Research (HSR) and Clinical Epidemiology and Health Care Research (CEHCR) streams. The below list outlines courses taught in the 2019-2020 academic year and which professors are accepting new students.
- THETA and the BRU also hold yearly courses including our HTA institute & R workshops as well as our ongoing THETA and ClinEpi rounds held weekly Friday afternoons from 1-2pm. (See pgs. 8-9 for details.)
- Volunteer with us! Mentorship is highly encouraged outside of these streams and graduate students interested in the areas of Clinical Epidemiology, Health Economics, Health Technology Assessment, Clinical Trials and ELSI+ (Ethical, Legal and Social Implications) are welcome to send our scientists an email stating their interest, background and attaching their CV for consideration. Please refer to our website ([theta.utoronto.ca](http://theta.utoronto.ca) -> Opportunities for more information.



Dr. George Tomlinson

Spring 2020 (Clin Epi):

HAD5313H Advanced Design and Analysis Issues in Clinical Trials

R Course Series (see pg. 8 for details)

**\*\*Currently accepting students in the MSc/PhD – CEHCR programs\*\***

Winter 2020 (MHSc): HAD5020H Canada's Health System and Health Policy – Part 2

Fall 2019 (HSR): HAD5011H Canada's Health Care System

HAD5022H Politics, Policy, Public Health and Health Technology

**\*\*Currently accepting students in the MSc/PhD – HSR programs\*\***



Dr. Fiona A. Miller  
Faulty Lead Health Policy



# Education Bulletin Cont'd...

Winter 2020 (HSR): HAD5779H Evidence Synthesis for Health Services, Systems and Policy Research

Spring/Summer 2019: HAD6770H Applying Health Services Research Methods

**\*\*Currently accepting students in the MSc/PhD – HSR programs\*\***



Dr. Lusine Abrahamyan  
Faculty Co-Lead  
Outcomes and Evaluation



Dr. Beate Sander  
Faculty Co-Lead,  
Health Technology Assessment

Fall 2019 (ClinEpi): HAD5304H Clinical Decision Making and Cost Effectiveness

**\*\*Currently accepting students in the MSc/PhD – HSR & CEHCR programs\*\***

Winter 2020 (HSR): HAD5743H Evaluation Design for Complex Interventions

(MHSc): HAD5770H Program Planning and Evaluation

**\*\*Currently accepting students in the MSc/PhD – HSR programs \*\***



Dr. Valeria Rac

## Spotlight on Rounds

A special thank you goes out to our collaborators who engaged the THETA community every week through our THETA/Clin Epi Rounds Series. Here are a few highlights:

Dr. Robert Wu



Smartwatch Monitoring of Patients with COPD  
May 24, 2019

Dr. Wendong Chen



Real-World Studies in China: Opportunities and Challenges  
March 22, 2019

Dr. Holly Witterman



User Involvement in Technology Development and Evaluation  
January 11, 2019

To receive future notifications/participate in rounds please contact us at: [info@theta.utoronto.ca](mailto:info@theta.utoronto.ca)

## Health Technology Assessment for Decision Making (HTA4DM)

THETA hosted a 3 day intensive workshop introducing the principles of HTA, defined as:

“a multi-disciplinary field of policy analysis that examines the medical, economic, social and ethical implications of the incremental value, diffusion and use of a medical technology in health care.”



**Location:** THETA Collaborative Office, Toronto General, 10th floor, Eaton North, Rm 240

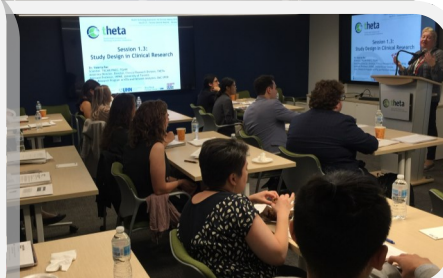
**Date:** September 25-27, 2019

**Faculty:** **Peter Dixon**, Jennifer Gibson, **Alex Haines**, **Murray Krahn**, Valerie McDonald, **Fiona Miller**, Nicole Mittmann, Michelle Mujoomdar, Petros Pechlivanoglou, **Valeria Rac**, Lynette Reid, **Beate Sander**, Prakeshkumar Shah, Meredith Vanstone, Charles Wright



COURSE KIT HAD1911

AN INTENSIVE WORKSHOP ON PRAGMATIC HTA TOOLS FOR DECISION-MAKERS, INDUSTRY REPRESENTATIVES, AND RESEARCHERS



### • Course objectives include:

Day 1—Intro to HTA and Clinical Evidence	Day 2—Economic Evidence	Day 3—Ethics and Social Values
<ul style="list-style-type: none"> <li>Understanding HTA processes: how HTA organizations function and why decisions are prioritized in this manner</li> <li>Types of clinical research and the influence of bias</li> <li>How systematic reviews research conclusions are summarized</li> <li>Gain practical experience appraising and grading evidence</li> </ul>	<ul style="list-style-type: none"> <li>Understanding principles of economic evaluation</li> <li>Calculation of QALYs and their usage in cost utility analysis</li> <li>How to critically appraise and interpret economic evaluations in HTA</li> </ul>	<ul style="list-style-type: none"> <li>Identify gaps in clinical and economic evidence</li> <li>Explore strategies for incorporating additional evidence/expertise</li> <li>Review the role of process in decision making</li> <li>Apply decision framework to make recommendations about collective coverage for case study technology</li> </ul>



## The BRU's Annual R Course Series— Course Offerings & Learning Objectives

Introduction to R	From Raw to Ready: Preparing Your Data in R
Getting to know R and R Studio <ul style="list-style-type: none"> <li>◇ The R Studio programming environment</li> <li>◇ R script files</li> <li>◇ Objects, assignment, and functions</li> <li>◇ Vectors and data frames</li> <li>◇ Reading in data and saving results</li> </ul>	Guidelines for raw data collection <ul style="list-style-type: none"> <li>◇ Describing raw data, summary, describe</li> </ul>
Basic R Graphics <ul style="list-style-type: none"> <li>◇ Boxplots, Histograms, Scatterplots</li> <li>◇ Adding colours and informative labels to figures</li> </ul>	Transforming datasets <ul style="list-style-type: none"> <li>◇ Merge, join_all, dcast</li> </ul>
Useful Statistical Tests and Procedures <ul style="list-style-type: none"> <li>◇ Categorical data: Binomial, Chi-squared, and Fisher's Exact tests</li> <li>◇ Continuous data: t-test and non-parametric tests</li> <li>◇ Sample size calculations</li> </ul>	Dates <ul style="list-style-type: none"> <li>◇ chron, lubridate</li> </ul>
	Cleaning and deriving data <ul style="list-style-type: none"> <li>◇ apply family, dplyr, parse, grepl</li> </ul>
	Summarizing data <ul style="list-style-type: none"> <li>◇ CreateTableOne</li> </ul>



**2019 Spring and Summer R Course Series**  
Courses organized by Biostatistics Research Unit (BRU) at UHN, and THETA Collaborative

**2019 Spring and Summer R Course Series**

**Introduction to R** – May 13, 2019 and May 14, 2019  
(Instructors: George Tomlinson, PhD and Nicholas Mitsakakis, PhD)  
► Why R? ► Getting to know R and R Studio ► Basic R graphics ► Useful statistical procedures

**From Raw to Ready: Preparing Your Data in R** – June 3, 2019  
(Instructors: Nicholas Mitsakakis, PhD and Leah Szadkowski, MSc)  
► Why do this work in R? ► Guidelines for raw data collection ► Describing raw data; transforming, cleaning, and deriving data and dates ► Summarizing data

**Data Visualization with ggplot2** – June 26, 2019  
(Instructors: Juan Pablo Diaz Martinez, PhD (c) and Julie Hudson, MSc)  
► Why ggplot2? ► Scatterplots, histograms, boxplots, polygons, dotplots, etc. ► Adjusting the plot: scales, shapes and colours, axes, legends ► Best practices of data visualization

**Reproducible Reports in R** – July 8, 2019  
(Instructors: Leah Szadkowski, MSc and Juan Pablo Diaz Martinez, PhD (c))  
► Why make reproducible reports? ► R markdown, the basics ► Tables and Figures ► References

### Faculty Profiles:

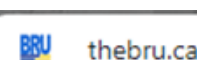
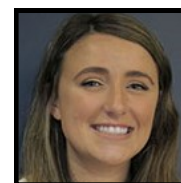
**Nicholas Mitsakakis** (top left), MSc, PhD, Assistant Professor at the Institute of Health Policy, Management and Evaluation, University of Toronto.

**Leah Szadkowski** (bottom left), BSc, MSc, Biostatistician at Biostatistics Research Unit (BRU) at University Health Network, Toronto.

**George Tomlinson** (middle), MSc, PhD, Biostatistician, Director of the Biostatistics Research Unit, University Health Network, Toronto; Associate Professor at the Institute of Health Policy, Management and Evaluation, University of Toronto.

**Julie Hudson** (top right), BSc, MSc, Biostatistician at the Biostatistics Research Unit, University Health Network, Toronto.

**Juan Pablo Diaz Martinez** (bottom right), BSc, MSc, PhD (c), Biostatistician at the Biostatistics Research Unit, University Health Network, Toronto.



### Data Visualization with ggplot2

Introduction <ul style="list-style-type: none"> <li>◇ Why ggplot2?</li> <li>◇ Grammar of graphics</li> </ul>
Geometric objects <ul style="list-style-type: none"> <li>◇ Points, Histograms, Boxplots, Densities, Others (polygons, dotplots, etc.)</li> </ul>
Adjusting the plot
Best Practices of Data Visualization <ul style="list-style-type: none"> <li>◇ Scales, shapes and colours, axes, legends, positioning, other features (faceting, themes, model visualization), dos</li> </ul>

### Reproducible Reports in R

Why make reproducible reports?
R markdown, the basics <ul style="list-style-type: none"> <li>◇ Word, PDF, HTML, LaTeX, Code Chunks, Adding and formatting text</li> </ul>
Tables
References <ul style="list-style-type: none"> <li>◇ Knitr, pandoc, kable, excel output, Figures (sizing, ggsave, ggarrange), Cross-references, Bibliographies and citations</li> </ul>



# Project Highlight: Diabetes Action Canada (DAC)

## Strategy for Patient-Oriented Research Network (SPOR) – Network evaluation

September 2018

We began our collaboration with Dr. Mathieu Ouimet's Team to evaluate the Diabetes Action Canada (DAC), a CIHR Strategy for Patient-Oriented Research (SPOR) Network

October 2019

Presented and provided our first evaluation report, using a State of Network Evaluation Framework, to the Steering Council of Diabetes Action Canada to positive feedback.

**Key themes:** Network Connectivity, Network Health and Network Results.

Methods used to study key themes:



Valeria Rac, MD, PhD

THETA Team:

**James Bowen,**  
BScPhm, MSc

**Joanna Bielecki,**  
BSc, MSt



Mathieu Ouimet,  
PhD

Department of  
Political Science,  
Université Laval  
Expertise: Social  
Network Analysis  
(SNA)

Laval Team:

**Justin Lawarée,** PhD

**Ashley Rhéaume,** MA

**Network connectivity:** a cross-sectional social network analysis of members was used to assess the frequency of interactions and the topics discussed during them and how networking effectively facilitates interactions and collaboration among its members.

**Network Health:** assessed through semi-structured qualitative interviews, a membership survey inquiring about satisfaction and experience with the Network and a review of funding and infrastructure to evaluate Network Sustainability.

**Network Results & Impact:** examined using of the Canadian Academy of Health Sciences (CAHS) preferred framework and indicators to measure returns on investment in health research.

Our analysis found that within the DAC SPOR Network, which has a membership of over 150 Patient-Partners, Researchers and Clinicians across Canada, the most common exchange of information between members relates to research and patient engagement. New collaborations are one of the Network's key success factors and for many members it was a significant motivating factor to join.

Network Results and Impact were examined across the 5 domains of the CAHS framework which include: advancing knowledge; capacity building; informing decision making; health impact; and economic and social impact. We were able to examine the impact of the Network on advancing knowledge and capacity building through bibliometric evaluation of the 59 identified peer review papers that had been published by the DAC SPOR Network members over the past 3 years, and to describe the support of trainees within the research groups across the country. Influence on informing decision making was also assessed through the description of engagement with government at a municipal, provincial, federal and international level by the Diabetes Action Canada Executive Director, Scientific leads and Investigators.

As the Network is only 3 years old and still evolving, the health, economic and social impact of the research and network activities remain to be fully realized, as may be expected based on the age and the stage of development the network. As the projects and different initiatives mature, the Network will have further opportunity to influence healthcare and research policy as well as economic and societal well-being in Canada.

Contact Val ([valeria.rac@theta.utoronto.ca](mailto:valeria.rac@theta.utoronto.ca)) or Jim ([james.bowen@theta.utoronto.ca](mailto:james.bowen@theta.utoronto.ca)) for more information.

## Research Data Management Solutions at THETA

THETA offers research data management solutions for clinicians, scientists and investigators, including:

- Initial database construction
- Development, design and programming of electronic data capture forms
- Continued database support throughout your study



We will build and support your electronic data capture requirements for single and multi-site studies using REDCap. REDCap is a secure web application for building and managing online surveys and databases.

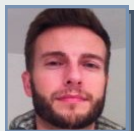
While REDCap can be used to collect virtually any type of data (including 21 CFR Part 11, FISMA, and HIPAA-compliant environments), it is specifically geared to support online or offline data capture for research studies and operations.

Currently, we are providing solutions for Drs. Shabbir Alibhai, Mandeep Singh, Anna Sawka, and Sharon Walmsley at UHN amongst others.

For more information and to set up a meeting please contact Suzanne Chung and Steven Carcone: [info@theta.utoronto.ca](mailto:info@theta.utoronto.ca).



Suzanne Chung,  
BFA, BEd, CCRP



Welson Ryan



Steven Carcone, MSc

# Our Global Reach: A closer look at visiting scholars' experience at THETA and THETA trainees' experiences abroad



## Reflections on THETA from Abroad: Richard Ssegonja

Visiting scholar, Richard Ssegonja, PhD (c) from Uppsala University, Sweden, completed a 3-week term at THETA under the supervision of Dr. Murray Krahn with a focus on assessing the cost-effectiveness of an indicated preventive intervention for depression in adolescents using health economics modelling methods.

Richard had this to say about his experience with us, "THETA is a wonderful research community with many resourceful people that are willing to both help and teach. I had great help with the travel paper work and appropriate visa information, thanks to Karen.

While at THETA I focused my efforts on learning as much as possible. I received timely supervision and guidance from Dr. Murray Krahn. I maintained the work relationship/collaboration with THETA even after the research stay. Dr. Murray Krahn, my research team and I continued to work on a research article together. The after work hangouts and the trip to Niagara Falls were memorable."

Richard continues in his role as a Health Economist for NordIQ Analytics in Stockholm alongside his studies and we wish him the best in all his endeavours.



## Reflections on THETA from Abroad: Leticia Leonart

**Project:** Pharmacological Acromegaly Treatment: Cost-Utility and Value of Information Analysis.

"I spent 10 months at THETA during my PhD. It was an amazing experience and I learned a lot. I was very well received by the team. The infrastructure at THETA is great: the environment was very quiet and pleasant, and I had at my disposal all the material I needed to conduct my study. Furthermore, I could discuss my work with my colleagues, especially with Dr. Krahn, who was extremely helpful with all my questions and guided through this project. I audited two courses (Clinical Decision Making and Cost

Effectiveness – Dr. Beate Sander, and Decision Modelling for Clinical Policy and Economic Evaluation – Dr. David Naimark) which helped me a lot to improve my model development skills. The rounds, which occurred every Friday, were also another positive point. Every week, we had an interesting talk with someone from a different research center, from different countries. Besides that, I also participated in other events that only a big city like Toronto could offer. I would like to thank you Dr. Krahn once again for welcoming me to THETA, and also the Brazilian (CAPES) and Canadian (ELAP) governments for the scholarships."

<https://pubmed.ncbi.nlm.nih.gov/32299084/>

## Karen Chung in Ethiopia



**Project Title:** The Health and Economic Burden of Cleft Lip and/or Palate (CLP) and the Cost-Effectiveness of Cleft Care in Ethiopia

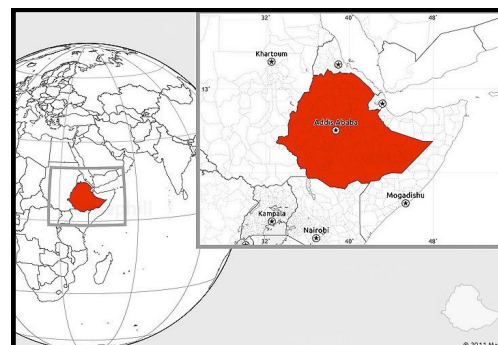
**Location of Research:** Addis Ababa, Ethiopia

**Collaborators who made this research possible:**

Gebremedhin Gebretekle, Mekonen Eshete, Beate Sander, Christopher Forrest, Yared Belay, Aster Damena, Bezuwork Alemayehu

**What you've gained from this experience:**

"Everything - I had the privilege of working with an incredible team to collect cleft health utility data from the lay public and from patients. The incredible resilience, kindness and generosity of the Ethiopian people was one of the most rewarding insights that I gained. The success of my time in Ethiopia was absolutely due to the incredible team that I had the privilege of working with."





# Our Global Reach cont'd...

## Stephen Mac in Thailand



### Project Title:

Vaccine Decision-Making and Recommendation Processes: A Comparison between Thailand and Canada.

### Location of Research:

The National Health Foundation (NHF), Bangkok, Thailand and at the Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Nonthaburi, Thailand.

### Collaborators who made this research possible:

#### Funding:

Canada Graduate Scholarships Michael Smith Foreign Study Supplement (CGS-MSFSS)

#### Host Supervisor and Organization:

Dr. Wanrudee Isaranuwachai, and Dr. Yot Teerawattananon, Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health

#### Graduate Studies Supervisor:

Dr. Beate Sander

### What you've gained from this experience:

"During my experience, I attended 'Prince Mahidol Award Conference (PMAC) 2020', an invite-only conference with a universal health coverage theme, attended mostly by nationals, decision-makers and policymakers. It was at this conference that I learned of the different kind of impact that health technology assessment (HTA) has in middle, lower-middle, and low-income countries. HTA in Thailand and surrounding ASEAN countries (e.g. Cambodia, Vietnam, Philippines) is used primarily to establish health benefit packages and universal health coverage.

I was also able to meet researchers from Mahidol-Oxford Tropical Medicine Research Unit (MORU) at Mahidol University, where I attended a Mathematical Modelling in Infectious Diseases course.

Another interesting experience includes the contrasting working culture between Thailand and Canada. Scheduling meetings was very impromptu, and health officials were very accessible. I was able to meet the Chair of the Subcommittee of National List of Essential Medicines one afternoon when he decided to drop by the office to discuss my project."



# Our Global Reach cont'd...

A call for International Doctoral Cluster (IDC) applications came from the University of Toronto and Dr. Sandjar Djalalov answered. An IDC is described as an international strategic partnership between U of T faculty/trainees and a select institution abroad to promote knowledge transfer of U of T faculty expertise and to cultivate top talent around the world with U of T providing one third of the required funding for the proposed initiative, up to \$33,000 CAD.

Dr. Sandjar Djalalov, Senior Economics Lecturer at the Westminster International University in Tashkent (WIUT), has proposed the development of a new Master's Degree in Health Technology Assessment.



Dr. Sandjar  
Djalalov

He describes the case for such a program thusly:

The Uzbek government's capacity in public health is currently restricted as being understaffed with a lack of adequate expertise. As it continues to transform from the traditional Soviet style management to meet increasing demands, as brought on by COVID-19, HTA specific knowledge is required increasingly by policy makers in order to establish more transparent decision making processes and increase public access to medications/treatments.

## Developing HTA Education in Uzbekistan

THETA is working internationally in a variety of countries, including Uzbekistan, Ethiopia, China, and other countries in South America and Africa.

Here is one example of how THETA collaborators in these countries are making real contributions to developing HTA in their country.

As there is a lack of HTA education in Central and Southeast Asia more broadly, including in neighbouring Afghanistan, India, Sri Lanka and Pakistan, WIUT would broaden its mandate and recruit graduates from these countries as well. This degree program can contribute to the graduates' employment prospects as the private sector is interested in public health analysts who possess expertise in economics and management in order to help them mitigate any negative outcomes that are associated with their products.

The proposed curriculum is comprised of the following courses:

Health Finance, Health Management, Introduction to Applied Biostatistics, Evidence Synthesis: Systematic Reviews and Meta-analysis, Health Technology Assessment I (Economic Evaluation Methods of Health Services Research), Health Technology Assessment II (Clinical Decision Making and Cost Effectiveness), Research methods for Health Sciences, Dissertation in Global Public Health and Technology, Law in Health and Introduction to Clinical Epidemiology and Health Care Research.

A tremendous endeavor and we wish him great success in pursuit of its realization!



## Donor Highlight

### Guiding Tele-Ophthalmology Diabetic Retinopathy Screening in Primary Care through the use of Provincial Healthcare Administrative Data.

Principal Investigators: **Drs. Valeria Rac**, Michael Brent, Baiju Shah. Total Funding: \$660,000, 2020-2023

Annual funding for 3 years of \$220,000 has been provided by a generous donation to the TG/W Hospital Foundation by **W. Edmund Clark, LLD**.

Ed Clark is a former president and CEO of TD Bank Group and is the Chair of the Vector Institute for Artificial Intelligence. He has previously advised the Ontario government regarding the province's digital health assets.

<https://www.ontario.ca/page/value-and-opportunities-created-ontarios-digital-health-assets>

## Community Partner Highlight

This project is a part of our ongoing research and collaboration with the Diabetes Action Canada CIHR SPOR Network and is being conducted with:

- ◆ Dr. Michael Brent from the Department of Ophthalmology at UHN and his research team,
- ◆ Dr. Baiju Shah, Department of Medicine (Sunnybrook Health Sciences) and Senior Scientist at IC/ES,
- ◆ Three Community Health Centres (CHC): South Riverdale CHC, Flemingdon CHC and Parkdale Queen Street CHC, Ms. Rebecca Merritt, Manager, Service Administration and Quality at South Riverdale CHC, being the lead contact.

## Grants

Dr. Valeria  
Rac:

2018/10 - 2020/12 Principal Applicant  
**Research Program in HTA and Network Analytics**

Funding Source: SPOR Diabetes Network - Diabetes Action Canada  
**Total Funding** - \$450,000 CAD

2019/7 - 2021/6 Co-Principal Applicant  
**Physician intuition versus model predicted prognosis in heart failure**

Funding Source: Heart and Stroke Foundation of Canada (HSFC) Grant-in-Aid  
**Total Funding** - \$340,000 CAD  
Principal Investigator: Alba, C

2019/07-2022/06 Co-Applicant  
**Determining sex disparities In Stroke Care and Outcomes to optimize recovERY (DISCOVER)**

Funding Source: The Heart and Stroke Foundation of Canada (HSFC)  
**Total Funding**: - \$249,738 CAD  
Principal Applicant: Yu, A  
Co-Applicants: Kapral M, Smith E, Austin P, Bayley M, Swartz R, **Krahn M**, Bronskill S

Dr. Murray  
Krahn:



Andrew Mendlowitz,  
PhD (c), Supervisor:  
Dr. Murray Krahn

2019/10-2022/09 Principal Applicant  
**The Epidemiology and Economic Burden of Hepatitis C Viral Infection in the First Nations Population in Ontario**

Funding Source: Canadian Institute of Health Research (CIHR)  
**Total Funding**: \$650,250 CAD  
Principal Investigator: **Krahn M**, Walker J  
Co-Applicants: **Mendlowitz A**, Feld J, Murti M, Isaranuwachai W, Mitsakakis N, Allen V, Sander B, Wong W

2019/09-2024/09 Co-Applicant  
**Non-Inferiority Trial Comparing Online and On-site Cognitive Behaviour Therapy in Major Depressive Disorder**

Funding Source: CIHR - Project Grant  
**Total Funding** - \$677,025 CAD  
Principal Applicants: Daskalakis Z, Ritvo P  
Co-Applicants: Gratzer D, Katz J, Knyahnytska Y, Laposa J, Ortiz A, **Tomlinson G**



Dr. Beate Sander	<p>2019/04 – 2024/03      Principal Applicant.  <a href="#">Canada Research Chair in Economics of Infectious Diseases (Tier 2).</a>  Funding Source: Canadian Institutes of Health Research (CIHR), Canada Research Chairs.  <b>Total Funding</b> - \$600,000 CAD</p>	<p>2019/09-2020/09      Principal Applicant.  <a href="#">Establishing Research Priorities in Adult Congenital Heart Disease Interventions in Canada.</a>  Funding Source: CIHR Planning and Dissemination Grant  <b>Total Funding</b> - \$9,136 CAD  Principal Applicant: Horlick, E</p>	Dr. Lusine Abrahamyan
	<p>2020/4 - 2025/3      Co-Applicant.  <a href="#">Canadian Sepsis Research Network: Improving Care Before, During and After Sepsis</a>  Funding Sources: Canadian Institutes of Health Research (CIHR) Team Grant: Sepsis Research Network  <b>Total Funding</b> - \$5,700,000 CAD  Principal Applicant: Fox-Robichaud A, et al  Co-Applicants: Burns A, et al.</p>	<p>2020/02-2022/02      Co-Applicant.  <a href="#">COVID-19 Ring-based Prevention trial for Undermining Spread (CORPUS).</a>  Funding Source: Operating Grant: COVID-19 - Transmission dynamics/ animal host/modeling  <b>Total Funding</b> - \$1,000,000 CAD  Principal Applicant: Tan D, Mcgeer A  Co-applicants: Chan A et al.</p>	Dr. George Tomlinson
	<p>2019/4 - 2022/3      Principal Applicant.  <a href="#">The Prevention of Group B Streptococcal (GBS) disease in infants.</a>  Funding Sources: Canadian Institutes of Health Research (CIHR) Project Scheme  <b>Total Funding</b> - \$409,276 CAD  Principal Applicant: Crowcroft N, Fell D  Co-applicants: Barrett J et al.</p>	<p>2019/09-2024/09      Principal Applicant  <a href="#">HARM Evaluated: Hospital characteristics &amp; Adverse event Rate Measurement</a>  Funding Source: CIHR—Project Grant  <b>Total Funding</b> - \$1,923,975 CAD  Principal Applicants: Parshuram C, Baker G; Sauro K  Co-Applicants: Belanger et al.</p>	

## Featured Publications

\*Click underlined titles for full article details\*

- 1) [Seizure outcome of pediatric epilepsy surgery: Systematic review and meta-analyses.](#)  
**Widjaja E, Jain P, Demoe L, Guttmann A, Tomlinson G, Sander B.** Neurology. 2020 Feb 18;94(7):311-321. doi: 10.1212/WNL.0000000000008966. Epub 2020 Jan 29. Review. PubMed PMID: 31996452.
- 2) [Bayesian Analysis in Critical Care Medicine.](#)  
**Yarnell CJ, Granton JT, Tomlinson G.** Am J Respir Crit Care Med. 2020 Feb 15;201(4):396-398. doi: 10.1164/rccm.201910-2019ED. PubMed PMID: 31899649; PubMed Central PMCID: PMC7049930.
- 3) [The Role of Disease Label in Patient Perceptions and Treatment Decisions in the Setting of Low-Risk Malignant Neoplasms.](#)  
**Dixon PR, Tomlinson G, Pasternak JD, Mete O, Bell CM, Sawka AM, Goldstein DP, Urbach DR.** JAMA Oncol. 2019 Jun 1;5(6):817-823. doi: 10.1001/jamaoncol.2019.0054. PubMed PMID: 30896738; PubMed Central PMCID: PMC6567830.
- 4) [Hydroxyurea for Children with Sickle Cell Anemia in Sub-Saharan Africa.](#)  
**Tshilolo L, Tomlinson G, Williams TN, Santos B, Olupot-Olupot P, Lane A, Aygun B, Stuber SE, Latham TS, McGann PT, Ware RE; REACH Investigators.** N Engl J Med. 2019 Jan 10;380(2):121-131. doi: 10.1056/NEJMoa1813598. Epub 2018 Dec 1. PubMed PMID: 30501550; PubMed Central PMCID: PMC6454575.

- 5) [The Effect of Cardiac Rehabilitation on Health-Related Quality of Life in Patients With Coronary Artery Disease: A Meta-analysis.](#)  
Francis T, Kabboul N, Rac V, Mitsakakis N, Pechlivanoglou P, Bielecki J, Alter D, Krahn M. Can J Cardiol. 2019 Mar;35(3):352-364. doi: 10.1016/j.cjca.2018.11.013. Epub 2018 Nov 24. PMID: 30825955
- 6) [Tele-retina screening of diabetic retinopathy among at-risk populations: an economic analysis.](#)  
Stanimirovic A, Francis T, Shahid N, Sutakovic O, Merritt R, Brent MH, Rac VE. Can J Ophthalmol. 2020 Feb;55(1S1):8-13. doi: 10.1016/j.jcjo.2019.06.008. Epub 2019 Aug 10. PMID: 31712029
- 7) [SIESTA - Home sleep study with BresDx for obstructive sleep apnea: a randomized controlled trial.](#)  
Fitzpatrick M, Rac VE, Mitsakakis N, Abrahamyan L, Pechlivanoglou P, Chung S, Carcone SM, Pham B, Kendzerska T, Zwarenstein M, Gottschalk R, George C, Kashgari A, Krahn M. Sleep Med. 2020 Jan;65:45-53. doi: 10.1016/j.sleep.2019.07.013. Epub 2019 Jul 22. PMID: 31707288
- 8) [New Insights into the Epidemiology of Prostate Cancer in Ontario.](#)  
Abrahamyan L, Huszti E, Bremner K, Pechlivanoglou P, Mitsakakis N, Krahn M. Cancer Invest. 2019;37(10):513-523. doi: 10.1080/07357907.2019.1682154. Epub 2019 Nov 4.
- 9) [Comparative effectiveness of the different components of care provided in heart failure clinics protocol for a systematic review and network meta-analysis.](#)  
Slater M, Bielecki J, Alba AC, Abrahamyan L, Tomlinson G, Mak S, MacIver J, Zieroth S, Lee D, Wong W, Krahn M, Ross H, Rac VE. Syst Rev. 2019 Feb 2;8(1):40. doi: 10.1186/s13643-019-0953-4.
- 10) [A Systematic Review and Meta-analysis of Health Utilities in Chronic Hepatitis C Patients.](#)  
Saeed YA, Phoon A, Bielecki JM, Mitsakakis N, Bremner KE, Abrahamyan L, Pechlivanoglou P, Feld JJ, Krahn M, Wong WWL. Value Health. 2020 Jan;23(1):127-137. doi: 10.1016/j.jval.2019.07.005. Epub 2019 Nov 28.
- 11) [The health impact of delaying direct-acting antiviral treatment for chronic hepatitis C: a decision-analytic approach.](#)  
Erman A, Wong WWL, Feld J, Grootendorst P, Krahn M. Liver Int 2020 Jan;40(1):51-59. doi: 10.1111/liv.14247.
- 12) [Picturing ELSI+: a visual representation of ethical, legal, and social issues, and patient experiences in Health Technology Assessment in Canada.](#)  
Krahn M, Bremner K, de Oliveira C, Almeida N, Clement F, Lorenzetti D, O'Campo P, Pechlivanoglou P, Tricco A. Int J Technol Assess Health Care. 2019 Nov 15:1-10. doi: 10.1017/S0266462319000722.
- 13) [Home Dialysis is Associated with Lower Costs and Better Survival than Other Modalities: A population-based study in Ontario, Canada.](#)  
Krahn M, Bremner K, de Oliveira C, Dixon S, McFarlane P, Garg A, Mitsakakis N, Blake P, Harvey R, Pechlivanoglou P. Perit Dial Int 2019 Nov-Dec;39(6):553-561. doi: 10.3747/pdi.2018.00268.
- 14) [Mapping the evidence on health equity considerations in economic evaluations of health interventions: a scoping review protocol.](#)  
Besar Sa'aid H, Mathew S, Richardson M, Bielecki JM, Sander B. Syst Rev. 2020 Jan 8;9(1):6. doi: 10.1186/s13643-019-1257-4.
- 15) [Health outcomes associated with Zika virus infection in humans: a systematic review of systematic reviews.](#)  
Ximenes R, Ramsay LC, Miranda RN, Morris SK, Murphy K, Sander B, RADAM-LAC Research Team. BMJ Open. 2019 Nov 3;9(11):e032275. doi: 10.1136/bmjopen-2019-032275.
- 16) [Health related quality of life and associated factors among cervical cancer patients at Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia.](#)  
Araya LT, Fenta TG, Sander B, Gebremariam GT, Gebretekle GB. Health Qual Life Outcomes. 2020 Mar 16;18(1):72. doi: 10.1186/s12955-020-01319-x.
- 17) [How Procurement Judges The Value of Medical Technologies: A Review of Healthcare Tenders.](#)  
Miller FA, Lehoux P, Peacock S, Rac VE, Neukomm J, Barg C, Bytautas JP, Krahn M. Int J Technol Assess Health Care. 2019 Jan;35(1):50-55. doi: 10.1017/S0266462318003756.
- 18) [The Consultant's intermediary role in the regulation of molecular diagnostics in the US.](#)  
Holloway K, Miller FA. Soc Sci Med. 2020 Mar 17:112929. doi: 10.1016/j.socscimed.2020.112929.

## Reviewer Comments:

[first author paper from his MSc thesis]:  
“...In the last year I have reviewed over 50 papers for over 20 medical journals, and I would like to thank the authors for what I consider to be the most methodologically sound, given the limitations of the raw data, manuscript that I have read. In consequence, my comments are relatively minor..”

Clin Epi  
Rounds

**May 29, 2020**

**Title:** TBA

**Speaker:** Lauren Lapointe-Shaw, MD, PhD, FRCPC, Attending Physician, General Internal Medicine, University Health Network

**June 12, 2020**

**Title:** TBA

**Speaker:** Aisling Barry, MSc (candidate), MD, Radiation Oncologist, Princess Margaret Cancer Centre

**June 19, 2020**

**Title:** TBA

**Speaker:** Aniket Bankar, MSc (candidate), MD, Clinical Fellow - Hematology, Princess Margaret Cancer Centre, UHN

**June 5, 2020**

**Title:** TBA

**Speaker:** Tom Trikalinos, MD, PhD  
Director, Center for Evidence Synthesis in Health, Brown University

THETA Rounds

**\*\*Dates/Speakers subject to change, please check our website for details: [theta.utoronto.ca->Education->Rounds](http://theta.utoronto.ca->Education->Rounds)\*\***

THANK YOU FOR READING OUR NEWSLETTER!

We welcome your comments.

[info@theta.utoronto.ca](mailto:info@theta.utoronto.ca)



TORONTO HEALTH ECONOMICS AND TECHNOLOGY  
ASSESSMENT COLLABORATIVE (THETA)

Toronto General Hospital  
10th Floor, Eaton Building  
200 Elizabeth Street  
Toronto, ON M5G 2C4

Tel: 416.634.8790  
Email: [info@theta.utoronto.ca](mailto:info@theta.utoronto.ca)

[theta.utoronto.ca](http://theta.utoronto.ca)