



**CIHR International Infectious Disease &  
Global Health Training Program**  
Canada • Colombia • India • Kenya



**UNIVERSITY  
OF MANITOBA**

**Canadian Institutes of  
Health Research**

**International  
Infectious Disease  
& Global Health  
Training Program**

**ANNUAL REPORT •  
2016**



# 2016 At a Glance

- ABOUT US ..... 1**
- OBJECTIVES ..... 1**
- TRAINEE SPOTLIGHT..... 2**
- LIST OF TRAINEES AND PROJECTS ..... 4**
- 2016 TRAINING PROGRAM GRADUATES ..... 6**
- INFECTIOUS MINDS SCIENTIFIC DISCUSSIONS ..... 7**
- ACADEMIC PROGRAM ..... 9**
- PRACTICA: 2016 REPORT..... 11**
- PROGRAM ADVISORY COMMITTEE..... 11**
- PLANS FOR 2017..... 11**
- FUNDING & ACADEMIC PARTNERS..... 12**

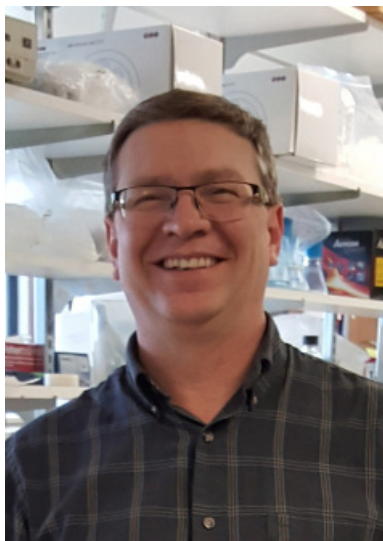


The IID&GH Training Program in Nairobi, Kenya for the major course, “Clinical Trials in a Developing Country Setting” November 14-25, 2016

## ABOUT US

The International Infectious Disease and Global Health (IID&GH) Training Program is hosted by the University of Manitoba under the direction of Dr. Keith Fowke, Professor and Head of the Department of Medical Microbiology and Infectious Diseases.

The IID&GH Training Program seeks to enhance existing PhD and Post-Doctoral Fellow research training programs by linking trainees from four international research sites (Canada, India, Kenya and Colombia). This linkage provides an opportunity for the trainees to explore international infectious disease and global health issues from a multidisciplinary approach.



Dr. Keith Fowke, Director of the International Infectious Disease and Global Health Training Program

## OBJECTIVES

1. To equip trainees with the research, scientific knowledge and skills to become **outstanding researchers** in infectious diseases and global health.
2. To create a novel and stimulating **multidisciplinary** and **truly international** research training environment that fosters creativity, opportunity, and innovation, and one that demands excellence.
3. To harness the unique opportunity offered by the **critical mass** of infectious diseases and global health infrastructure, research opportunities and outstanding scientists in the training of the next generation of infectious disease researchers.
4. To make available **collaborative international research sites** for the trainee's primary research projects, sites for research practica and major course offerings.
5. To offer a **shared learning environment**, where trainees and mentors from all four of CIHR's research pillars and the four international training sites work cooperatively to explore issues of international infectious diseases and global health.



Colin Graydon

## TRAINEE SPOTLIGHT

**Colin Graydon** is a PhD student at the University of Manitoba in the department of Medical Microbiology and Infectious Diseases studying a protein, LAG-3, which he describes acts as a handbrake for your immune cells. Colin chose to pursue his studies in this field because he enjoys learning about how the human body works and believes that infection and immunity are very important health issues. As well, he finds the subject to be extremely complex and intensely interesting.

Since joining The Program, Colin has received a Vanier Canada Graduate Scholarship which is the most prestigious award for a graduate student in Canada. He credits some of his success in obtaining the award to The Program because it showed his desire to learn, his global interests, and his involvement in more than just bench work. He also feels that The Program has given him a wider perspective on infectious disease research. “I joined The Program with exposure to the knowledge of only basic, epidemiological and clinical science, and I have since learned much about program and social science.” From these experiences Colin said, “I would highly recommend this program to others. In completing a PhD, we often need to narrow our perspectives to be able to focus on our specific research subject. The IID&GH Training Program allowed me to put my research in perspective and appreciate the importance of other research pillars.”



Aditi Krishnamurthy

**Aditi Krishnamurthy** is an international post-doctoral fellow from Bangalore, India who joined The Program to broaden her perspective with respect to public and global health and to strengthen her research skills. Aditi’s favorite aspect of The Program is that it is truly global. This year she had the opportunity to travel to Nairobi, Kenya to attend the major course, Clinical Trials in a Developing Country Setting, and she said the experience enabled her to gain new insights and learn a lot from the cultural exchanges during the course. As well, she said that “The Program has driven me to be part of multiple research studies within my work sphere in the TB Health Action Learning initiative. I would confidently take on research work in the near future and I would recommend this Program to others because it has a mixture of several disciplines globally. It would serve to further careers of program implementers as researchers too. The flexibility of the program also allows for realizing research as well as professional goals.”

**Jehidys Montiel** is working towards a doctorate in Epidemiology at the Universidad de Antioquia, Medellin, Colombia. She joined The Program in 2016 because she wanted to work along side multidisciplinary researchers, PhD students and fellows to learn from them and to create future networks for her research career.

Jehidys favorite aspect of The Program is the cultural interchange among her colleagues because she finds it very enriching both professionally and personally. This year she attended the major course in Nairobi, Kenya and said it “was one of the best experiences of my life. From an academic level, it was enriching because it supplemented my background in Epidemiology and provided new tools for me to use to design clinical trials, not only from a clinical focus, but also a social focus. From a personal level the cultural interchange and bonds of friendship were the most valuable aspect of the course.”

By being a trainee in The Program Jehidys says she has enhanced her capacity to problem solve, been exposed to working in teams, improved her English, and established networks for future research projects. She said, “I would highly recommend this program to others because it has enriched my professional and academic life.”

**Kenneth Omollo** is a PhD trainee at the University of Nairobi researching the impact of hormonal contraceptives on HIV target cells and inflammation at the genital tract of women, thus influencing their susceptibility to HIV. Ken’s research is mainly conducted in Nairobi, but because he was awarded a Queen Elizabeth II Scholarship he also conducted part of his research at the University of Manitoba in Dr. Keith Fowke’s laboratory.

Ken’s favorite part of The Program is the Infectious Minds sessions because he has learned about various kinds of science and global health challenges that he would not have been aware of if he was just focusing on his graduate studies. He said, “I believe the program is changing the way I view health challenges as a basic scientist. Through interactions with other trainees and mentors, I am learning to be versatile in my approach to solving public health problems in my country by fusing the social, epidemiological, basic and clinical sciences in implementing new interventions.”



Jehidys Montiel



Kenneth Omollo

# LIST OF TRAINEES AND PROJECTS



Ana Ossa, Swaroop N, and Sandra Gonzalez in the Rift Valley, Kenya

## PhD Trainees

### Dione Benjumea

Assessment of the effectiveness and adherence to treatment for latent tuberculosis infection in children under 5 years of age, household contacts of pulmonary tuberculosis patients in Medellín

### Claudyne Chevrier

Sexual and reproductive health of female sex workers in Winnipeg: an ethnographic exploration of their needs and choices

### Vanessa Cienfuegos

Molecular epidemiology, clinical and economic outcomes of carbapenem-resistant *Klebsiella pneumoniae*, *Enterobacter cloacae*, *Pseudomonas aeruginosa* and *Acinetobacter baumannii* infections in five tertiary care hospitals in Medellín, Colombia

### Colin Graydon

Assessment of the LAG-3 Inhibitory Mechanism on T cell Activation



IID&GHTP trainees: Colin Graydon, Swaroop N, Aditi Krishnamurthy, and Md Niaz Rahim during the Kenya course

### Sandra Gonzalez

Role of Vitamin D in natural resistance to HIV-1 infection: effects on viral transmission during HIV-1 exposure

### Meshack Juma

Antimicrobial susceptibility testing and molecular characterization of *Neisseria gonorrhoeae* isolates from patients with genital discharge in Nairobi, Kenya

### Ziporah Machuki

Differentiating Toll-Like Receptor (TLR) 7 and TLR8 responses in lymphocyte populations contained in peripheral blood mononuclear cells and their effect on HIV replication in vitro

### Leigh McClarty

Understanding healthcare priorities of young women involved in sex work in Zaporizhzhya, Ukraine: Implications for preventive HIV programming



Samuel Mwaniki, Aditi Krishnamurthy, Dessalegn Melesse, Claudyne Chevrier, Colin Graydon, and Leigh McClarty enjoying their tea break during the course

### Dessalegn Melesse

Understanding heterogeneity in HIV transmission dynamics among key populations at highest risk of acquisition

**Jehidys Montiel** Prevalence and risk factors of asymptomatic *Plasmodium* spp. infections in two different endemic malaria regions in Antioquia, (Colombia), 2017

**Florence Mutua** The effect of concurrent HIV infection on interferon signaling and transcript signatures in tuberculosis

**Lucy Mwangi** Limiting HIV Target Cells in the Female Genital Tract by Inducing Immune Quiescence

**Emily Nyariki** Volunteers' perceptions and experiences of clinical research participation in Kenya: case study of KAVI volunteers

**Missiani Ochwoto** Molecular characterization of acute and chronic Hepatitis B Virus among patients attending selected hospitals in Kenya

**Kenneth Omollo** The impact of hormonal contraception on the susceptibility to HIV infection among women from Nairobi, Kenya

**Ana Ossa** Immunogenetic factors limiting HIV-1 transmission in men who have sex with men from Medellín, Colombia

**Juan Carlos Quintero** Study of the social determinants that influence infection by *Rickettsia* in the Uraba region, Colombia

**Md Niaz Rahim** Identification of host cellular factors and mechanisms that interact with Influenza A NS1 protein for replication

**Mallika Tharakan** Changing engagement of women in agriculture and its association with consumption patterns and nutrient intake in rural Karnataka

## Post-Doctoral Fellow Trainees

**Aditi Krishnamurthy** Assessment of the effectiveness of telephone based counselling and follow up for better outcomes in patients with TB and their families in the private and public sectors in selected districts of Karnataka, India

**Swaroop N** Dimensions and determinants of Quality of Life (QoL)



The trainees having fun during one of the Kenya course sessions



Ken Omollo presenting to the class during the Kenya Course



The trainees enjoying Tea time during the Kenya course



IID&GHTP Trainees Leigh McClarty, Mallika Tharakan, Aditi Krishnamurthy, Swaroop N, and Claudyne Chevrier relaxing after a day at the course



# 2016 TRAINING PROGRAM GRADUATES

This year there were 8 PhD trainees who graduated from the IID&GH Training Program. We will miss them all very much and thoroughly enjoyed having them in The Training Program. All the best graduates in your future endeavours!

## List of Graduating Trainees:

Dione Benjumea  
Claudyne Chevrier  
Vanessa Cienfuegos  
Leigh McClarty

Emily Nyariki  
Missiani Ochwoto  
Juan Carlos Quintero  
Md Niaz Rahim



Left to right: Dione Benjumea (UdeA), Claudyne Chevrier (UofM), Vanessa Cienfuegos (UdeA), and Leigh McClarty (UofM)



Left to right: Emily Nyariki (UofN), Missiani Ochwoto (UofN), Juan Carlos Quintero (UdeA), and Md Niaz Rahim (UofM)

\*UdeA: Universidad de Antioquia; UofM: University of Manitoba; UofN: University of Nairobi

# INFECTIOUS MINDS SCIENTIFIC DISCUSSIONS

The purchase of video conference equipment for each international site has enabled important scientific discussions to take place in real time and has allowed the smaller sites the benefit of “critical mass.” These sessions are called Infectious Minds and over the years, numerous sessions have taken place allowing trainees and mentors from all four of CIHR’s research pillars and the four international training sites to work cooperatively to explore issues of international infectious diseases and global health.

Each month, a topic is selected and hosted by a team of trainees from different pillars and training sites. The trainees invite a guest speaker who is an expert in the chosen topic to give a talk and participate in the group discussion. The Infectious Minds meetings are coordinated by Dr. Javier Mignone, a mentor of the training program and former trainee. A list of topics covered in 2016 can be found below.



Split screen view of the trainees and mentors from the four research sites during an Infectious Minds Meeting. Clockwise from top left: Winnipeg, Canada; Medellin, Colombia; Nairobi, Kenya; and Bangalore, India



Above: Winnipeg site during one of the Infectious Minds group activities



Left: Winnipeg site during an Infectious Minds meeting

## 2016 Infectious Minds Meetings

### February 11

Topic: (Re-)emerging infectious diseases of the last decade

Presenters: Leigh McClarty and Missiani Ochwoto

### March 17

Topic: Zika Epidemic: Facts, Challenges and Debates

Guest Speaker: Dr. David Safronetz

Presenters: Dione Benjumea, Kenneth Omollo, and Mallika Tharakan

## **April 21**

Topic: Antibiotic Resistance: Current state of affairs and options for the future

Guest Speaker: Dr. Neeloffer Mookherjee

Presenters: Colin Graydon and Meshack Juma

## **May 19**

Topic: Poverty related infectious diseases

Guest Speaker: Dr. Oommen George

Presenters: Zipporah Machuki, Sandra Gonzalez, and Swaroop N

## **June 16**

Topic: Research to Policy: Knowledge Translation at Work

Guest Speakers: Ruthpearl Wanjiru Ng'ang'a and Carolyn Shimmin

Presenters: Claudyne Chevrier, Lucy Mwangi, and Jehidys Montiel

## **September 22**

Topic: The epidemic is present. The epidemic is over...what next?

Guest Speaker: Dr. Walter Salas Zapata

Presenters: Florence Mutua and Ana Ossa

## **October 6**

Topic: Dengue Vaccine

Guest Speaker: Dr. María Consuelo Miranda

Presenters: Md Niaz Rahim, Juan Carlos Quintero, and Aditi Krishnamurthy

## **November 3**

Topic: Understanding the global burden of diseases: milestones, challenges and opportunities

Guest Speaker: Margaret Haworth-Brockman

Presenters: Dessalegn Melesse and Emily Nyariki



The trainees made a pit stop on their way to their clinical trial learning sites in rural Kenya to enjoy the views of the Rift Valley, Kenya

# ACADEMIC PROGRAM

## 2016 Major Course: Clinical Trials in a Developing Country Setting

by Natasha Hollett, IID&GHTP Program Coordinator

This year, the IID&GH Training Program's 8th major course was held at the University of Nairobi, Institute of Tropical and Infectious Diseases (UNITID) in Nairobi, Kenya. Seventeen trainees from The Program and 13 local Kenyan trainees participated in the course which ran from November 14-25, 2016. The course was sectioned into 3 parts: a scientific symposium, in-class learning, and experiential learning. On the first day, the trainees attended the scientific symposium where each trainee had an opportunity to present their own research and learn about their peer's research. Later that evening, the trainees and lecturers attended a special Welcome Dinner where everyone got to relax, network and enjoy some good food and company.

The following 4 days of the course were spent in the classroom. During the theory component, the trainees gained insight into the complexity of organizing and running a clinical trial, as well as, the importance of community engagement in the overall process. They learned that involving peer leaders, church leaders and chiefs can prevent miscommunication about the trial and increase the overall participation in the trial.



Trainees and lecturers in Nairobi, Kenya for the 2016 major course "Clinical Trials in a Developing Country Setting"



Trainees working together in teams during the 2016 Kenya course



Mallika Tharakan, Samuel Mwaniki, and Sandra Gonzalez at the Pumwani Health Centre

The final component of the course was the learning visits. This is where the trainees traveled to rural areas of Kenya to witness an actual ongoing clinical trial. The trainees were split into 4 groups and each group went to one of the trial sites for 4 days. The sites were located in Thika (HIV), Kisumu (Sickle cell anemia), Kericho (Tuberculosis in HIV Infected Individuals), and Kombewa (Malaria and Ebola) and the purpose of the visits were to expose the trainees to a clinical trial site, have them interact with the nurses and coordinators at the site, and take in the experience. The assignments for the course involved a presentation and written report on 1) the trial they witnessed and 2) their own clinical trial which they designed based on their experience and a topic they selected before the visit. Upon returning to Nairobi, each group presented their assignment to their peers and a panel of expert judges. The judges decided on a winner and this year it was team Kisumu, congratulations team!!! Overall, the Kenya course was a complete success and it was all thanks to the excellent planning by the Kenya Course Committee.



Team Kisumu (Left-Right): Missiani Ochwoto, Samuel Mwaniki, Aditi Krishnamurthy, Leigh McClarty, and Colin Graydon

## **PRACTICA: 2016 REPORT**

Dr. John Wylie is the coordinator of the practicum portion of the IID&GH Training Program. The intention of the practicum is to expose trainees to a completely different type of research experience apart from their main research area and to foster interdisciplinary research. Each practica is intended to last from four to twelve weeks and to be tailored to the specific goals, objectives and time lines of each trainee. The Training Program encourages trainees to seek out their own research practica site in order to reach their practicum goal. Following completion of the practicum, the trainee will write a report and complete an evaluation form to provide feedback to The Program on their experience.

Since the renewal of The Program in 2009, there have been 11 trainees who completed a practicum placement. Some of these trainees have decided to complete their practicums at home while others have obtained external awards and travelled to other countries, such as New Zealand; Colombia; and Canada, for their practicum placements.

## **PROGRAM ADVISORY COMMITTEE**

The Program Advisory Committee (PAC) for the IID&GH Training Program is composed of key stakeholders such as government, industry, community members, non-profit sector, academia, international partners and trainees.

The committee was struck in March 2010 with Dr. Gary Glavin, University of Manitoba Associate Vice-President (Research), serving as the PAC Chair. The responsibilities of the PAC are to advise the Principal Investigator (Dr. Fowke), the Core Committee (Drs. Wylie, Mignone, and Moses), and the Program Coordinator (Mrs. Natasha Hollett) of The Training Program; provide recommendations; and give feedback with regard to the program goals, vision and responsibility. Since 2010, there have been six PAC meetings with the next one to be held on January 9 2017.

## **PLANS FOR 2017**

The IID&GH Training Program will continue in 2017 with 13 trainees, 6 Infectious Minds meetings and 2 mini Scientific Symposiums. We look forward to what the year will bring and are sure the IID&GH Training Program will be just as successful as the previous year.



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## FUNDING & ACADEMIC PARTNERS

### Funding Partners

Canadian Institutes of Health Research (CIHR)  
 Province of Manitoba – Research Manitoba  
 University of Manitoba

- Vice-President Research and International Office
- Faculty of Medicine
- Faculty of Graduate Studies

Alliance Coordinating Office (ACO)  
 Manitoba Health Research Council (MHRC)  
 National Microbiology Laboratory (NML)  
 Natural Sciences and Engineering Research Council (NSERC)  
 Kenya AIDS Vaccine Initiative (KAVI)  
 Karnataka Health Promotion Trust (KHPT)  
 Colciencias  
 National Collaborating Centre for Infectious Diseases (NCCID)

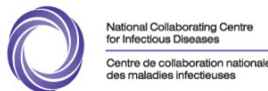
### Academic Partners

University of Nairobi  
 Universidad de Antioquia  
 University of Manitoba Centre for Global Public Health  
 Centre for Aboriginal Health Research  
 St. John's Medical College  
 University of Winnipeg Global College  
 Infectious Immunology Research Interest Group



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