Week 1: June 12-16
- TB Research Methods
- Global Health Diagnostics
- Bioinformatics for Neglected Parasitic Diseases

Week 2: June 19-23
- Advanced TB Diagnostics
- Introduction to Genomic Epidemiology of Infectious Diseases
- Qualitative Methods of Global Infectious Diseases

SUMMER INSTITUTE PARTICIPANTS
In 2016...
- About 400 participants from 46 countries took part in the 5 courses offered over two weeks
- 2 out of every 5 Summer Institute participants were from low and middle income countries
- 94% of Summer Institute participants would recommend their course to a colleague

INCLUDES...
- Excellent lectures and panel discussions
- Numerous chances to network and collaborate
- Opportunities to meet policy makers from disease-endemic countries
- Internationally renowned faculty
- Diverse participant groups
ABOUT THE INSTITUTE DIRECTOR

Dr. Madhukar Pai, MD, PhD
Dr. Pai is a Canada Research Chair in Translational Epidemiology & Global Health in the Department of Epidemiology, Biostatistics and Occupational Health at McGill University, the Director of McGill University’s Global Health Programs and the Associate Director of the McGill International TB Centre. His research program is focused on using translational epidemiology and implementation science to enhance tuberculosis care and control, so that products, knowledge and policies can translate into saved lives. He has coordinated multiple courses and workshops on epidemiology, modeling, systematic reviews and meta-analysis around the world, including week-long courses on advanced tuberculosis diagnostics research in Montreal for the past six years.

2017 COURSE DIRECTORS

Robin Beech, PhD
Associate Professor, Institute of Parasitology,
McGill University
Associate Dean, Graduate & Postdoctoral Studies, McGill University

Dick Menzies, MD, Msc
Director, Respiratory Epidemiology and Clinical Research Unit
Associate Director, McGill International TB Centre

Marcel Behr, MD, MSc
Director, McGill International TB Centre
Professor of Medicine, McGill University
Microbiologist-in-Chief, McGill University Health Centre

Nitika Pant Pai, MD, MPH, PhD
Associate Professor, Division of Clinical Epidemiology & Infectious Diseases, McGill University

Erwin Schurr, PhD
Professor, McGill University
Leader, Infectious Diseases and Immunity in Global Health Program, Research Institute of the McGill University Health Centre

Amrita Daftary, PhD, MPH
Assistant Professor, Department of Epidemiology, Biostatistics & Occupational Health
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Cédric Yansouni, MD, FRCPC, DTM&H
Associate Director, J.D. MacLean Centre for Tropical Diseases at McGill University
Department of Microbiology & Division of Infectious Diseases, McGill University Health Centre

Nora Engel, PhD
Assistant Professor Global Health
Department of Health, Ethics and Society/ CAPHRI
Faculty of Health, Medicine and Life Sciences
Maastricht University, Netherlands

2017 COURSES To Register: http://mcgill-idgh.ca/
McGill University and McGill University Health Centre have exceptionally strong research groups and centres working on TB, HIV, and neglected tropical diseases. These Centres work together each summer to hold several short courses on infectious diseases. McGill Summer Institute courses feature internationally known faculty, a focus on highly applicable new knowledge, and an opportunity to network with fellow global health professionals from around the world.
2017 HOSTS

[Logos and names of institutions and centers related to global health and infectious diseases research.]

2017 PARTNERS

[Logos of various organizations and initiatives related to global health and infectious diseases research, such as CCGHR, CCRSM, IC-IMPACTS, PATH, Step TB Partnership, TB REACH, ASLM, FIND, Global Health Strategies, TB Alliance, Critical Path to TB Drug Regimens, Grand Challenges Canada, and Clinton Health Access Initiative.]
“Very well conceptualized, excellent faculty and overall a great chance to interact with people from a myriad disciplines and countries. Great course...”

– TB RESEARCH METHODS COURSE PARTICIPANT
An intensive course on methods of operational research, molecular epidemiology, randomized controlled trials, systematic reviews and meta-analyses, qualitative/community based research, decision analyses and modeling. Format will include lectures and small groups to develop and present study protocols.

**COURSE DIRECTOR**

Dick Menzies, MD, MSc  
Director, Respiratory Epidemiology and Clinical Research Unit  
Associate Director, McGill International TB Centre  
www.mcgill.ca/tb

**COURSE FACULTY**

Gonzalo Alvarez, MD, MPH - University of Ottawa  
Marcel Behr, MD, MSc - McGill University  
Andrea Benedetti, PhD - McGill University  
Bill Burman, MD - Denver Public Health  
Ted Cohen, MD - Yale University  
Amrita Daftary, PhD, MPH - McGill University  
Maziar Divangahi, PhD - McGill University  
Greg Fox, MD, PhD - University of Sydney  
Anthony Harries, MD - the Union, Paris  
James Johnston, MD, MPH - University of British Columbia  
Faiz Ahmad Khan, MD, MPH - McGill University  
Robyn Lee, PhD - The University of Melbourne, Australia  
Dick Menzies, MD, MSc - McGill University  
Olivia Oxlade, PhD - McGill University  
Madhukar Pai, MD, PhD - McGill University  
Erwin Schurr, PhD - McGill University  
Kevin Schwartzman, MD, MPH - McGill University

**CONTENT**

This course will introduce broad tuberculosis research topics – research as part of the World Health Organization’s new Global Plan to End TB, priorities in drug resistant and HIV-related tuberculosis, as well barriers and progress in indigenous TB in Canada. Every morning session will focus on a different methodology – operational research, molecular epidemiology, systematic reviews, randomized trials and economic analysis and disease modelling. In the afternoons, there will be two “late-breakers”, short presentations of exciting new findings from course faculty, followed by basics in biostatistical methods, then small group sessions to develop study protocols in operational research, molecular epidemiology, systematic reviews, qualitative / community based research, randomized trials or cost-effectiveness analysis. These protocols will be presented to the entire group on the final afternoon.

**TARGET AUDIENCE**

- Trainees starting their TB research careers  
- MSc, MPH and PhD students working on TB research projects  
- Postdoctoral fellows, clinical fellows and residents working on TB projects  
- Junior faculty with a strong interest in TB research  
- Research staff, nurses and coordinators managing TB research projects  
- Persons involved in TB control programmes with interest in research and evaluation methods

**ENROLMENT**

Maximum of 50 participants.

2017 COURSES  
To Register: http://mcgill-idgh.ca/
“I liked the fact that the course critically assessed the clinical needs of diagnosis and helped me to understand how best to apply my technology in the field. This knowledge was only acquired because of the dynamic speakers and professionals that attended the course.”

– GLOBAL HEALTH DIAGNOSTICS PARTICIPANT
GLOBAL HEALTH DIAGNOSTICS • JUNE 12-16, 2017

This 5 day workshop on global health diagnostics focuses on TB, HIV, malaria, sexually transmitted and blood borne infections (STBBIs), and selected neglected tropical diseases (NTDs). The workshop format is a mix of plenary talks interspersed with 1) rich, engaging panel discussions, 2) tech pitches from industry leaders and 3) plenty of opportunity to interact with participants who work across the spectrum of global health diagnostics. Participants will learn from a wide array of key stakeholders including product manufacturers, donors, product development partnerships, policy makers, academics, clinicians, researchers, community advocates, public health implementers and leaders from ministries of health in priority countries.

CONTENT
Infectious diseases continue to pose a major threat to the health of most developing nations. The emergence and spread of infections like XDR-TB, Ebola, dengue, chikungunya, and avian influenza have highlighted the importance of effective global response to epidemic threats. Diagnosis is a critical step in effective disease care and control, but many people in developing countries do not have access to adequate initial diagnosis.

OBJECTIVES
• Convene key stakeholder groups on global health diagnostics, to create a platform for information exchange and knowledge transfer.
• Inform, educate, engage and convene discussions on pertinent issues in diagnostics so as to inform the direction of future practice, policy and funding initiatives for diagnostics.
• Dissect the value chain for global health diagnostics development, current pipeline of diagnostics, market size and dynamics, policies on diagnostics, and barriers for scale-up for selected infectious diseases of global health importance across all infections.
• Debate and propose solutions for accelerating market entry for innovative diagnostics, to sustain and support manufacturers’ engagement in development of new diagnostics that address unmet global health needs.
• Debate and identify novel approaches to scale-up, including innovative business models that leverage market-based incentives.

TARGET AUDIENCE
This course appeals to a wide range of participants including:
• Policy makers and ministry officials
• Researchers, academics, and students studying global health or infectious disease
• Product developers, funders and public health agency officials
• Community advocacy groups- working in diagnostics and global health

ENROLMENT
Maximum of 150 participants.

2017 COURSES To Register: http://mcgill-idgh.ca/
JUNE 12-16, 2017

BIOINFORMATICS FOR NEGLECTED PARASITIC DISEASES

New course by the McGill Institute of Parasitology for 2017!
This course provides hands-on training in the bioinformatics tools that are most often used to investigate parasitic organisms and the resources that are available in the genome age. These include multiple sequence alignment, phylogeny construction and analysis of gene family expansion and contraction, prediction of protein structure and function, prediction of ligand binding pockets and in silico drug docking, protein-protein interaction networks and metagenomic analysis. A description of the major data resources available, including a review of the ParaSite database holding the Helminth Genome Initiative genome data. Biology theory and analytical techniques will be reviewed in organized presentations each morning, followed by practical use of the tools with concrete examples taken from various nematode and single celled parasitic disease organisms.

**TARGET AUDIENCE**

- Scientists working in developed and developing countries on parasitic diseases who wish to gain familiarity with bioinformatics tools and protocols
- Graduate students and postdoctoral fellows interested in this topic
- Research leaders from developing countries who wish to explore how bioinformatics can be applied in the local context

**REGISTRATION**

Maximum of 50 participants

**2017 COURSES** To Register: [http://mcgill-idgh.ca/](http://mcgill-idgh.ca/)
“As a new advocate to the TB field, this course was a fantastic way to dive in. I made some valuable networking connections and built a greater understanding of TB diagnostics that has since informed my work.”

– ADVANCED TB DIAGNOSTICS PARTICIPANT
This advanced course will cover advanced topics in TB diagnostics research and implementation, including incremental value of new tests, impact of new tests on clinical decision-making and therapeutic choices, cost-effectiveness in routine programmatic settings, and impact on patient-important outcomes. The course will introduce multivariable approaches to diagnostic research, and cover alternative designs which evaluate patient outcomes, including the diagnostic RCT, and implementation research. The course will also cover meta-analysis, mathematical modeling, and cost-effectiveness studies. Panel discussions will cover topics such as value chain for TB diagnostics development, market analyses, market dynamics, target product profiles, and barriers to scale-up of new diagnostics. Participants will include product manufacturers, donors, product development partnerships, policy makers, academics, clinicians, community advocates, public health implementers and National TB Program managers.

OBJECTIVES
By the end of the course, participants will understand:
- value chain for TB diagnostics development, current pipeline of diagnostics, market analyses, market dynamics, WHO policies on new diagnostics, and challenges for scale-up
- diagnostic research focused on accuracy of tests
- principles and practice of multivariable approaches to diagnostic research, and adjustment for imperfect reference standards
- meta-analyses of diagnostic accuracy studies and GRADE approach to diagnostic policies
- alternative designs to evaluate impact of new tests on clinical decision-making, therapeutic choices, and patient-important outcomes
- principles of implementation research, collecting evidence for scale-up, cost-effectiveness analyses and modeling studies in TB diagnostics

CONTENT
High quality diagnostic studies are critical to evaluate new tools, and to develop evidence-based policies on TB diagnostics. There is evidence that TB diagnostic trials are poorly conducted and poorly reported. Furthermore, there is evidence that a majority of TB diagnostic studies are focused on test accuracy. There are limited data on outcomes such as accuracy of diagnostic algorithms (rather than single tests) and their relative contributions to the health care system, incremental value of new tests, impact of new tests on clinical decision-making and therapeutic choices, cost-effectiveness in routine programmatic settings, and impact on patient-important outcomes. This poses problems because research on test accuracy, while necessary, is not sufficient for policy and guideline development. Translation of policy into impact requires collecting evidence for scale-up, country-level data on cost-effectiveness and feasibility, implementation research, and local decisions on scale-up, delivery and impact assessment.

TARGET AUDIENCE
- National TB Program managers and National Reference Lab managers
- Clinicians and nurses
- Researchers, students, trainees, fellows and academics involved in TB diagnostics research
- Product manufacturers
- Funding agencies
- Product development partnerships
- Policy makers and public health implementers
- Community advocates and civil society

ENROLMENT
Maximum of 100 participants. Only participants with prior TB diagnostic research experience or advanced training will be eligible.

2017 COURSES To Register: http://mcgill-idgh.ca/
“The faculty were top notch, leaders in their respective fields, and understanding their approach and color on topics was invaluable. It was simply a treat to get to spend a week hearing the lectures and discussion of people whose work I’ve followed and admired.”

– MOLECULAR AND GENETIC EPIDEMIOLOGY COURSE PARTICIPANT
This course will provide an intensive introduction to the methods used for analysis of whole genome sequencing (WGS) data and its application to infectious disease epidemiology. Students will learn bioinformatics approaches to WGS analysis through a combination of lectures and hands-on workshops. Topics will include how to perform de novo versus reference-based assembly, how to identify (‘call’) single nucleotide polymorphisms, and creating/interpreting phylogenetic trees. Emphasis will be placed on applications of WGS to outbreak investigation, study design issues and minimizing bias in genomic epidemiologic studies, and the implications that these data can have for public health. While command line may be used during this course, a priori knowledge is not required.

**COURSE DIRECTORS**

**Marcel Behr**, MD, MSc  
Director, McGill International TB Centre  
Professor of Medicine, McGill University  
Microbiologist-in-Chief, McGill University Health Centre  
www.mcgill.ca/tb

**Erwin Schurr**, PhD  
Professor, McGill University  
Leader, Infectious Diseases and Immunity in Global Health Program, Research Institute of the McGill University Health Centre  
www.idigh.ca

**COURSE FACULTY**

**Vanessa Allen**, MD MPH - Public Health Ontario  
**Marcel Behr**, MD MSc - McGill University  
**Ken Dewar**, PhD - McGill University  
**Jennifer Gardy**, PhD - British Columbia Centre for Disease Control, Vancouver  
**Robyn Lee**, PhD - The University of Melbourne, Australia  
**Erwin Schurr**, PhD - McGill University  
**Torsten Seemann**, PhD - The University of Melbourne, Australia  
**B. Jesse Shapiro**, PhD - University of Montreal

**CONTENT**

This course will introduce the basic principles of genomic epidemiology of infectious diseases. Lectures will cover the methodology behind key WGS analyses and phylogenetic approaches, as well as study design considerations for genomic epidemiology. Lectures will also provide concrete examples of the application of WGS to investigate infectious disease transmission, both in public health and research contexts. Morning sessions will commence with lectures, followed by students breaking into small groups where they discuss published genomic epidemiology manuscripts (provided in advance). The aim of these small groups is to help students learn to critically appraise genomic epidemiology papers, and discuss aspects such as study design and analytic approaches used to address the research questions therein. Afternoon sessions will similarly commence with lectures, followed by practical, hands-on data analysis workshops where students will learn to complete various aspects of WGS data analysis. Time will also be allocated throughout the course for students to ask questions and receive advice on their own WGS analysis and/or research projects. Participants are encouraged to bring their laptops. Mac or Linux-based is preferred; however, Windows-based PCs are accepted.

**TARGET AUDIENCE**

- Epidemiologists and Laboratory personnel from Public Health Units  
- Postdoctoral Fellows and Graduate students working on infectious diseases epidemiological research projects  
- Junior faculty with an interest in infectious diseases epidemiology research

**ENROLMENT**

Maximum of 40 participants.

**2017 COURSES** To Register: http://mcgill-idgh.ca/
JUNE 19-23, 2017

QUALITATIVE METHODS IN GLOBAL INFECTIOUS DISEASES RESEARCH

By popular demand, the Summer Institute is excited to offer a new course in 2017 about qualitative research methods.
QUALITATIVE METHODS IN GLOBAL INFECTIOUS DISEASES RESEARCH • JUNE 19-23, 2017

A course focused on the principles and rigorous application of qualitative methods in formative, operational, evaluation and policy research in tuberculosis, HIV/AIDS, and malaria. Participants will work in small groups to develop qualitative research protocols.

COURSE DIRECTORS
Amrita Daftary, PhD, MPH
Assistant Professor, Department of Epidemiology, Biostatistics & Occupational Health
McGill University, Canada

Nora Engel, PhD
Assistant Professor Global Health
Department of Health, Ethics and Society/ CAPHRI
Faculty of Health, Medicine and Life Sciences
Maastricht University, Netherlands

CONTENT
Qualitative methods can assess the social and behavioural contexts, and the complex determinants, impacts and outcomes of illness, health care seeking and disease control efforts, including public health programs, policies, and technologies. There is growing interest to integrate qualitative methods into traditional operational and biomedical research to improve our understanding of health care seeking behaviour, and challenges to health service delivery to better understand how and why some interventions and technologies are successfully (or less successfully) implemented. This course will build participants’ capacity and research literacy to use qualitative methods to inform, innovate, contextualize, evaluate, and strengthen the delivery and utilization of health care technologies and services for tuberculosis (TB), HIV/AIDS, and malaria in lower- and middle-income settings. The course will be interactive, and utilize case studies and practical exercises to cover the following topics in qualitative research:

1. Study designs and methodologies
2. Theoretical frameworks
3. Focus groups and interviews: designs, skills and implementation
4. Approaches and methods for analysis
5. Multiple methods: integrating and sequencing qualitative and quantitative methods
6. Sampling and participant recruitment
7. Data management and storage, qualitative software
8. Ethics and evaluation criteria
9. Dissemination

Each day will begin with expert lectures on qualitative study design, implementation, analysis, and dissemination; followed by short presentations and/or panel discussions; and end with small group sessions to develop protocols that are implementable over the subsequent year, under the mentorship of course faculty. The course will culminate in a panel discussion and presentation of protocols.

The social contexts of disease

FACULTY
Claire Chandler, PhD - London School of Hygiene and Tropical Medicine
Amrita Daftary, PhD, MPH - McGill University
Nora Engel, PhD - Maastricht University
Jennifer Furin, MD, PhD - Harvard University
Joanne Mantell, PhD - Columbia University
Andy McDowell, PhD - School for Advanced Studies in the Social Sciences

TARGET AUDIENCE
• Persons with a strong interest in qualitative and mixed methods, and little/no prior experience:
• Persons involved in TB, HIV/STI, and malaria programs, including program managers, innovators and M&E officers
• Junior faculty, doctoral and postdoctoral fellows engaged in global health research
• Clinical researchers and residents working internationally
• Research staff, including study coordinators, with an interest in international work
• Representatives of funding bodies and/or grant reviewers

REGISTRATION
Maximum of 30 participants

2017 COURSES To Register: http://mcgill-idgh.ca/
Vibrant nightlife and eclectic cuisine. Cobblestone streets and a horse-drawn calèche. Here in Montreal, the old city blends seamlessly into a modern metropolis of glass and steel, where trendy boutiques sit side-by-side with quaint bistros and brasseries.

Surrounded by the mighty St. Lawrence River and more than 400 islands, Montreal buzzes with energy and excitement all year long. Festivals abound, celebrating the power of laughter, fireworks, diversity, fast cars and cool jazz, a wintertime fusion of performing arts, fireworks and fine wine and dining.

The world’s second-largest French speaking city, Montreal is renowned for its numerous universities, medical and scientific research centers, as well as for its cultural and artistic life, excellent restaurants and hotel network. While French is the official language of the Province of Québec, English is also widely spoken.

You can enjoy the artisan studios of the Old Port, or the shops, theatres, and major department stores of the underground city. Montreal’s artistic scene includes one of the world’s leading orchestras, an internationally-renowned ballet company, English and French theatres, comedy clubs, and dozens of museums and galleries. Enjoy the city’s mixture of European and North American charm that both surprises and enchants participants of the Summer Institute year after year.

Outings and social events (any fees not included) will be arranged by course coordinators.
NEW COURSE FEES
2017 prices (CAD):
• $450 students/trainees from McGill and its affiliated hospitals
• $800 other students/trainees
• $800 applicants from low and middle income countries
• $2,500 applicants working in the industry sector (regardless of country)
• $1,400 all other applicants

NOTES
• Participants may apply for a maximum of two courses which do not interfere with each other.
• Payment information will be provided upon confirmation and acceptance of your application. Please do not make any travel arrangements until your application has been accepted.
• Cancellation and refund policy can be found on the course website.
• Fees are subject to change. Please consult the website for the most up-to-date fee schedule.
Participants from the 2016 Advanced TB Diagnostics Course. Join us for 2017!