



**McGill**

McGill Summer Institute in  
Infectious Diseases and  
Global Health

MCGILL UNIVERSITY • MONTREAL • JUNE 11-15, 2018

# TB RESEARCH METHODS

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
Mon • June 11	Tues • June 12	Wed • June 13	Thurs • June 14	Fri • June 15
8:30AM – 5:00PM	9:00AM – 5:00PM	9:00AM – 5:00PM	9:00AM – 5:00PM	9:00AM – 4:30PM
Introductions and overview	Randomized trials	Modeling and economic analysis	Operational research	Molecular epidemiology, systematic reviews

**HOSTS**



**McGill**



GLOBAL  
HEALTH  
PROGRAMS

PROGRAMMES DE  
SANTÉ  
MONDIALE

Centre  
international  
de TB McGill



McGill  
International  
TB Centre



MacLean  
Centre for  
Tropical  
Diseases  
McGill University

Institut de  
recherche  
Centre universitaire  
de santé McGill



Research  
Institute  
McGill University  
Health Centre

Infectious Diseases and Immunity in Global Health Program  
Programme en maladies infectieuses et immunité en santé mondiale



**McGill**

Interdisciplinary  
Initiative in  
Infection and  
Immunity

**Course Location:** Centre Mont Royal, 2200 rue Mansfield, 3<sup>rd</sup> Floor

**Course readings and presentations:** [http://bit.ly/TBResearchMethods\\_18](http://bit.ly/TBResearchMethods_18)

\*Faculty and speaker information is available in the *Ukova* event app\*



# OVERVIEW OF SMALL GROUPS

## GROUP 1

## Randomized trials

Bill Burman & Greg Fox  
Assisted by Andrea  
Benedetti (bio-statistician)  
as needed

Interpreting RCT results – critical analysis and an applied / translational approach. This group will focus on the application of specific clinical trial results into TB program activities. This will include a careful comparison of the study population to the program population, review of the feasibility of the study intervention to the program, how to prioritize evidence-based interventions when several have been tested in RCTs, estimating relative magnitude of the effect of different interventions on program outcomes, distinguishing statistical significance from programmatic significance. The group will choose the program area of interest to which we evaluate the applicability of RCTs. Participants are asked to indicate ahead of time about areas of particular interest, and reasons for that choice.

## GROUP 2

## Systematic reviews

Faiz Ahmad Khan & James  
Johnston. Assisted by  
Andrea Benedetti

A choice of two approaches is offered:

1. Practical aspects. Searches, file management, data entry, quality assessment, and meta-analysis. This group will have hands on experience with searches – matching search strategies to the PICO, performing searches in different data bases. Saving searches and using different software to manage title selection. Data entry and meta-analysis using R.
2. Protocol development. If there is interest - a sub-group will work on developing a systematic review protocol – from PICO to registration.

## GROUP 3

## Economic analysis

Olivia Oxlade, Alice  
Zwerling, Jonathon  
Campbell & Kevin  
Schwartzman

This group will learn how to design an economic analysis, using a research question selected by the group. In preparing its research protocol, the group will discuss specific types of costs to consider, practical approaches to data gathering, key considerations such as economic perspective and target audience. The focus of the small group will be costing for economic analyses, and will not explicitly include modelling exercises.

## GROUPS 4 &amp; 5

Operational  
Research

Tony Harries, Dick Menzies  
& Gonzalo Alvarez.  
Assisted by Andrea  
Benedetti as needed

This group will meet together on Day 1, and split into sub-groups for the rest of the week. Groups will develop protocols for operational research. Questions will be proposed by participants and shaped into feasible operational research projects by all members of each sub-group, with the help of the facilitators, who will each work with all groups – providing different perspectives and experiences.

# DAY 1 AGENDA

## MONDAY, JUNE 11

### Time

8:30AM

*Registration*

9:00-9:15AM

**Welcome and Introductions**

M. Behr

9:15-9:30AM

**Course objectives and overview**

D. Menzies

9:30-10:00AM

**How will research End TB? The Global Action Framework for TB Research**

D. Menzies

10:00-10:30AM

**How will research End TB? What are the 'big' questions in global TB research?**

B. Burman

10:30-11:00AM

*Coffee Break*

11:00-11:30AM

**Quantitative methods – overview of study designs**

D. Menzies

11:30-12:00PM

**Qualitative methods – a complementary approach with a case study of understanding TB stigma**

A. Daftary

12:00-1:00PM

*Lunch*

1:00-1:15PM

**Late Breaker 1: “Fake basic science news”**

M. Divangahi

1:15-1:30PM

**Late Breaker 2: “A tale of two drugs: Capreomycin vs Linezolid for MDR-TB – results from the latest analyses”**

D. Menzies

1:30-2:00PM

**DPSICO-TB - Developing study objectives - from a problem to precise questions**

D. Menzies

2:10-2:30PM

**Small groups: Organization – who, where, what?**

D. Menzies

2:30-5:00PM

*(Includes Coffee Break)*

**Small groups:**

Overview of each topic by group leaders

Forming sub-groups and selecting objectives

5:15PM

*Group Picture*

6:00-7:30PM

**Welcome Reception**

**Venue:** Notman House / Osmo Cafe (51 Sherbrooke St W, Montreal QC H2X 1X2)

10 min walk on Sherbrooke—Food and non-alcoholic drinks free. Alcoholic drinks for purchase.

# DAY 2 AGENDA

## TUESDAY, JUNE 12

### Time

9:00-9:45AM

**Trial design and selecting study populations– minimizing bias, maximizing generalizability**  
G. Fox

9:45-10:30AM

**Clustered trial designs**  
G. Fox

10:30-10:45AM

*Coffee Break*

10:45-11:15AM

**End-points, planned and unplanned secondary analyses, interim analyses, stopping rules**  
D. Menzies

11:15-12:00PM

**Applying RCT results to practice – clinical and public health**  
B. Burman

12:00-12:45PM

**Data analysis 101**  
A. Benedetti

12:45-1:45PM

*Lunch*

1:45-2:15PM

**Debate “Basic science research in TB should not be publicly funded”**  
Pro: G. Fox  
Con: M. Behr

2:15-2:30PM

**Late Breaker 3: “Fake news from molecular epidemiology: Linking genetic variants with drug-resistance”**  
M. Behr

2:30-5:00PM  
(Includes Coffee Break)

**Small groups:**  
Finalizing the study question  
Picking the design, study populations, and data sources

# DAY 3 AGENDA

## WEDNESDAY, JUNE 13

### Time

9:00-9:30AM

**Introduction to modeling– what it can do, what it can't**

A. Zwerling

9:30-10:15AM

**Introduction to decision analysis**

O. Oxlade

10:15-10:30AM

*Coffee Break*

10:30-11:15AM

**Economic analyses – Not just Dollars and Cents**

K. Schwartzman

11:15-11:45AM

**Key studies in economic analysis – questions, design & methods. Getting the most bang for your buck!**

A. Zwerling

11:45-12:00PM

**Discussion and questions**

12:00-12:45PM

*Lunch*

12:45-1:30PM

**Data Analysis 101**

A. Benedetti

1:30-2:15PM

**Beat the clock – Two teams will compete to develop study objectives in 5 minutes or less.**

**Questions selected from suggestions from participants**

Team 1: J. Johnston, B. Burman

Team 2: G. Alvarez, F. Khan

*Judging – Is the question clear? (using DPSICO criteria)*

T. Harries

2:15-5:00PM

*(Includes Coffee Break)*

**Small groups:**

Refining data gathering

Data analysis and sample size

# DAY 4 AGENDA

## THURSDAY, JUNE 14

### Time

9:00-9:45AM

**Operational research – what, why, and how**

T. Harries

9:45-10:30AM

**Capacity building for operational research in low- and middle-income countries- the SORT IT Model**

T. Harries

10:30-10:45AM

*Coffee Break*

10:45-11:30AM

**Principles and structure of a research protocol**

T. Harries

11:30-12:00PM

**Examples of operations research changing policy and practice**

T. Harries

12:00-12:30PM

**TAIMA TB – the project, the successes and the lessons**

G. Alvarez

12:30-1:00PM

**TBD – Indigenous health research – what, who, and how**

R. Long

1:00-2:00PM

*Lunch*

2:00-2:30PM

**Late Breaker 1: “Fake Epidemiological News”**

R. Long

**Late Breaker 2: “Estimated impact of the World Health Organization latent tuberculosis screening guidelines in a low TB incidence region”**

J. Johnston

2:30-5:00PM

*(Includes Coffee Break)*

**Small groups:**

Finalizing protocols

Preparing presentations

# DAY 5 AGENDA

## FRIDAY, JUNE 15

### Time

9:00-9:45AM

**Molecular methods for typing and branding the tubercle bacillus**

M. Behr

9:45-10:30AM

**Molecular Typing for patient, outbreak and population-level studies of TB epidemiology**

M. Behr

10:30-11:00AM

*Coffee Break*

11:00-11:45AM

**Systematic reviews, and meta-analyses**

J. Johnston

11:45-12:30PM

**Individual patient data meta-analyses (IPD)**

F. Khan

12:30-1:30PM

*Lunch*

1:30-4:00PM

*(Includes Coffee Break)*

### **Small groups:**

Presentation of study protocols by small groups

Comments on study protocols

Moderated by: D. Menzies & F. Khan

4:00-4:30PM

**Course evaluations and closure**

D. Menzies