



**McGill**

Faculty of  
Medicine and  
Health Sciences

Faculté de  
médecine et des  
sciences de la santé

## **Committee for Oversight of Research Units**

### **Annual Reporting for Faculty Supported Research Centres and Networks**

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All Centres (provisional Centres; McGill Centres), Research groups and Networks that receive funding from the Faculty of Medicine and Health Sciences (FMHS) are required to provide an annual report to the Committee for Oversight of Research Units ([CORU](#))

The reporting period is May 1, 2021 – April 30, 2022.

Please submit your report to the Research Office, Faculty of Medicine and Health Sciences ([riac.med@mcgill.ca](mailto:riac.med@mcgill.ca)) before the following deadline:

**Monday, May 2, 2022**

**Continued support from the Faculty is contingent on:**

1. the receipt of the reporting documents on time,
2. the evaluation of reported activities by the Faculty's Committee for Oversight of Research Units (CORU),
3. the availability of Faculty funds.

Your strong engagement in the Faculty's mission for continued research excellence and financial stewardship is truly appreciated.

## Annual Report of Activities and Outcomes

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Name of the Unit: McGill International Tuberculosis Centre (MTBC) / WHO Collaborating Centre for Tuberculosis Research (WHO CC)

1. Name of Unit leader & email address: Dr. Dick Menzies, Director of the MTBC / WHO CC, [dick.menzies@mcgill.ca](mailto:dick.menzies@mcgill.ca), 514-934-1934 ext 32128.
2. If the Unit is a **Senate-approved** McGill Research Centre, indicate date of approval: December 3<sup>rd</sup>, 2014; Board of Governors approval February 2<sup>nd</sup>, 2015.

**Mission statement** of the Unit (~ 2 sentences):

Vision: To contribute to the elimination of TB in the world, especially in high-burden countries and among the most vulnerable population groups.

Mission: To help end TB, within **Canada and globally**, by:

- Doing innovative, interdisciplinary research that will result in the transformative new tools and strategies needed to help end TB.
- Strengthening training and capacity building that can support TB elimination, especially in high-burden countries and vulnerable population groups (indigenous, children, etc.).
- Forging equitable research partnerships with local and international partners.

3. **Total number of Unit members:** 35, including 24 Full members, 9 Foreign-based associate members.

The MTBC includes over 24 investigators and 9 associate members with expertise spanning from basic biomedical research to clinical, epidemiological and social determinants of health.

**Number of members affiliated with McGill's FMHS:** 18

**Unit's website:**

**Please note the website needs to feature:**

- all sources of funding support (including the FMHS logo),
- the list of Members and their institutional affiliation with appropriate links,
- the activities supported by the Unit,
- all previous Annual Reports.

Website address (URL): <http://www.mcgill.ca/tb/>

**Please respect the page limits, where indicated.**

*(minimum font size of 11 pts, use lay language)*

4. **Explain the significance of the Unit's mission at McGill and beyond** (1/2 page max.)

During the last year, the MTBC has been developing a **new Strategic plan 2021-2025**. This plan is consistent with the vision and mission of the MTBC as well as the terms of reference of the WHO CC. MTBC members and McGill students (internal stakeholders), as well as TB partners (external stakeholders) were involved in this strategic planning process. We finalized the strategic plan in early 2022; implementation has begun in the four priority areas identified:

1. Develop new research partnerships in Canada and globally, to strengthen the position of the MTBC and the FMHS as the focal point for all major TB research and training activities in Canada, and to increase our role and visibility globally.
2. Develop new interdisciplinary research among MTBC members, and between investigators of the MTBC and other centres at McGill. We recognized that the McGill TB Centre, while producing excellent research from each individual member, was not necessarily enhancing individual activities through greater collaboration and interdisciplinary research involving multiple members of the Centre. Enhance interdisciplinary research will strengthen the innovation and impact of research, and enhance innovation, and productivity across centres in the Faculty.
3. Create a community Advisory Board in Canada of former patients, community groups and NGOs. This will advise the MTBC on research training priorities and will be unique for TB in Canada, and provide a valuable contribution to the faculty, as a model for other centres and a resource for others to use as needed.
4. Develop a recruitment plan for new investigators; the MTBC needs the reinvigoration and new directions provided by recruitment of new young investigators. This will also strengthen the faculty, particularly since our plan is to work with the "basic science" departments who have potential for recruitment but may have other limitations in research mentoring and infrastructure which the MTBC can offer.

5. **Alignment with the [Faculty's Strategic Research Plan](#)** (1/2 page max.)

Our work aims to develop and evaluate new diagnostic tests and new treatment regimens for the control of TB and other mycobacterial diseases. MTBC investigators and trainees are leaders in each of the three aims laid out in the Faculty Mission Statement: **Education, Research and Service**. In terms of research, the MTBC presents multiple opportunities for synergistic research interactions, both across disciplines and across institutions, thus contributing to the development of innovative research and academic programs. More specifically, MTBC investigators address research goal D.3, by using genomic technologies to advance our study of microbes and their capacity to spread among different host populations (Reed). Additionally, studies of the host resistance to these microbial threats directly addresses research theme E1, Basic Life Sciences, most specifically aims E.1.3 Integrative genomics (Schurr) and E.1.5 Molecular Medicine (Behr). Given our specific expertise in host-pathogen interactions, our work also addresses research goal E. 2.3 Host-Pathogen interactions and Infectious Disease Pathogenesis (Behr, Divangahi). The MTBC expertise has extended to epidemiology, theme E.3.1, including evaluation diagnostic tests (Pai, Alvarez, Behr) and epidemiology of TB in Canada and abroad (Menziés, Schwartzman, Benedetti). The MTBC also maintains an interest in C.3 Health and Society, with a published record of studying the social determinants of TB (Zwerling, Oxlade, Daftary, Engels).

**Planned activities in line with the FMHS Strategic Research Plan:**

- Develop a strategy at the FMHS to recruit new investigators – clinician scientist and PhD scientists.
- Create learning opportunities for students and trainees: Develop an MTBC training plan (workshops series: primary data collection, field studies diagnostic studies, basic studies, training on leadership skills, grant writing courses, interdisciplinary course on TB research, etc.).
- Develop training that allow people in TB high-burden settings to improve TB prevention and care (clinical practice, testing, etc.).

- Sponsor post-doc students and support multi-year funding for trainee positions (co-supervision of a project) from low- and middle-income countries (LMICs).
- Develop on-line activities: Trainings, seminars, webinars, courses; consultation in research (design, execution, analysis, SAC and DSMB roles), consultation in clinical.

**6. Major joint publications over the past 12 months** (including shared software, data repositories; with links)

co-authored by at least two PI members of the Unit:

**Texts**

**Canadian Tuberculosis Standards - 8th Edition** (published March 25, 2022)

The 8th edition of the *Canadian Tuberculosis Standards* (the *Standards*) has been extensively revised to incorporate new evidence, building upon the 7 previous versions of the *Standards* (last version in 2013). The document provides practical management information to public health and clinical professionals on all aspects of the pathogenesis, epidemiology, and management of TB in Canada.

<https://www.tandfonline.com/toc/ucts20/current>

**MTBC members involved:**

- Editor: Dick Menzies
- Associate editors: Gonzalo G. Alvarez; Christina Greenaway; James Johnston
- Chapter Authors: Gonzalo G. Alvarez; Marcel Behr; Jonathon Campbell; Maziar Divangahi; Simon Grandjean Lapierre; Christina Greenaway; James Johnston; Faiz Ahmad Khan; Robyn S. Lee; Dick Menzies; Madhukar Pai; Kevin Schwartzman

**Peer reviewed publications 2021-2022**

“High-dose rifamycins in the treatment of tuberculosis: a systematic review and meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34996847/>

**MTBC members involved:** Anete Trajman; Dick Menzies; James Johnston/**McGill students involved:** Jonathon Campbell; Nicholas Winters

**Completed systematic reviews on Tuberculosis Preventive Treatment in people living with HIV: 4 reviews published as a PLOS Collection** (September 2021)

“Tuberculosis preventive treatment in people living with HIV—Is the glass half empty or half full?”

<https://pubmed.ncbi.nlm.nih.gov/34520458/>

**MTBC members involved:** Olivia Oxlade; Dick Menzies/**McGill students involved:** Hannah Rochon; Jonathon Campbell

“Economic and modeling evidence for tuberculosis preventive therapy among people living with HIV: A systematic review and meta-analysis”

<https://journals.plos.org/plosmedicine/article/figure?id=10.1371/journal.pmed.1003712.g004>

**MTBC members involved:** Olivia Oxlade; Dick Menzies/**McGill students involved:** Aashna Uppal; Samiha Rahman; Jonathon Campbell

“Tuberculosis preventive therapy for people living with HIV: A systematic review and network meta-analysis”

<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003738>

**MTBC members involved:** Andrea Benedetti, Olivia Oxlade; Dick Menzies/**McGill students involved:** Mercedes Yanes-Lane, Edgar Ortiz-Brizuela, Jonathon Campbell

“The latent tuberculosis cascade-of-care among people living with HIV: A systematic review and meta-analysis”

<https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1003703>

**MTBC members involved:** Olivia Oxlade; Dick Menzies/**McGill students involved:** Mayara Lisboa Bastos; Luca Melnychuk; Jonathon Campbell

“Scaling up investigation and treatment of household contacts of tuberculosis patients in Brazil: a cost-effectiveness and budget impact analysis”

[https://www.researchgate.net/publication/357717579\\_Scaling\\_up\\_investigation\\_and\\_treatment\\_of\\_household\\_contacts\\_of\\_tuberculosis\\_patients\\_in\\_Brazil\\_a\\_cost-effectiveness\\_and\\_budget\\_impact\\_analysis](https://www.researchgate.net/publication/357717579_Scaling_up_investigation_and_treatment_of_household_contacts_of_tuberculosis_patients_in_Brazil_a_cost-effectiveness_and_budget_impact_analysis)

**MTBC members involved:** Anete Trajman; Olivia Oxlade; Dick Menzies/**McGill students involved:** Bastos ML; Campbell JR

“BCG vaccination provides protection against IAV but not SARS-CoV-2”

<https://pubmed.ncbi.nlm.nih.gov/35235831/>

**MTBC members involved:** Behr MA; Divangahi M

“Implementing the 4R and 9H regimens for TB preventive treatment in Indonesia”

<https://pubmed.ncbi.nlm.nih.gov/35086621/>

**MTBC members involved:** Benedetti A; Menzies D/**McGill student involved:** Bastos ML

“Lack of evidence for intergenerational inheritance of immune resistance to infections”

<https://pubmed.ncbi.nlm.nih.gov/35058614/>

**MTBC members involved:** Divangahi M/**McGill student involved:** Tran K

“Prescribing practices for presumptive TB among private general practitioners in South Africa: a cross-sectional, standardised patient study”

<https://pubmed.ncbi.nlm.nih.gov/35042710/>

**MTBC members involved:** Pai M; Daftary A/**McGill student involved:** Boffa J

“High-dose rifamycins in the treatment of TB: a systematic review and meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34996847/>

**MTBC members involved:** Trajman A; Menzies D; Johnston JC/**McGill students involved:** Winters N, Campbell JR

“Modeling treatment effect modification in multidrug-resistant tuberculosis in an individual patient data meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34917694/>

**MTBC members involved:** Trajman A; Menzies D; Johnston JC/**McGill students involved:** Winters N; Campbell JR

“Evaluating the performance of propensity score matching based approaches in individual patient data meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34903098/>

**MTBC members involved:** Benedetti A; Menzies D

“TB case fatality and recurrence in a private sector cohort in Mumbai, India”

<https://pubmed.ncbi.nlm.nih.gov/34802496/>

**MTBC members involved:** Pai M, Benedetti A/**McGill students involved:** Huddart S

“TB preventive treatment in high- and intermediate-incidence countries: research needs for scale-up”

<https://pubmed.ncbi.nlm.nih.gov/34615579/>

**MTBC members involved:** Oxlade O; Menzies D

“Experiences with latent TB cascade of care strengthening for household contacts in Calgary, Canada”

<https://pubmed.ncbi.nlm.nih.gov/34567988/>

**MTBC members involved:** Oxlade O; Menzies D

“Economic and modeling evidence for tuberculosis preventive therapy among people living with HIV: A systematic review and meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34520463/>

**MTBC members involved:** Oxlade O; Menzies D/**McGill students involved:** Uppal A; Campbell JR

“Tuberculosis preventive therapy for people living with HIV: A systematic review and network meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34520459/>

**MTBC members involved:** Benedetti A; Oxlade O; Menzies D/**McGill students involved:** Yanes-Lane M; Ortiz-Brizuela E; Campbell JR

“Tuberculosis preventive treatment in people living with HIV-Is the glass half empty or half full?”

<https://pubmed.ncbi.nlm.nih.gov/34520458/>

**MTBC members involved:** Oxlade O; Menzies D/**McGill students involved:** Campbell JR

“The latent tuberculosis cascade-of-care among people living with HIV: A systematic review and meta-analysis”

<https://pubmed.ncbi.nlm.nih.gov/34492003/>

**MTBC members involved:** Oxlade O; Menzies D/**McGill students involved:** Bastos ML; Campbell JR

“Individualized Treatment Duration in Tuberculosis Treatment: Precision versus Simplicity

<https://pubmed.ncbi.nlm.nih.gov/34432615/>

**MTBC members involved:** Behr MA; Menzies D

“Emergence of persistent tubercle bacilli”

<https://pubmed.ncbi.nlm.nih.gov/34326521/>

**MTBC members involved:** Veyrier FJ; Behr MA

“Chest X-ray analysis with deep learning-based software as a triage test for pulmonary tuberculosis: an individual patient data meta-analysis of diagnostic accuracy”

<https://pubmed.ncbi.nlm.nih.gov/34286831/>

**MTBC members involved:** Pai M; Benedetti A; Khan FA; Denkinger C/**McGill student involved:** Campbell JR

“Effectiveness of germicidal ultraviolet light to inactivate coronaviruses on personal protective equipment to reduce nosocomial transmission”

<https://pubmed.ncbi.nlm.nih.gov/34154679/>

**MTBC members involved:** Menzies D; Behr MA

“Evidence-based Definition for Extensively Drug-Resistant Tuberculosis”

<https://pubmed.ncbi.nlm.nih.gov/34107231/>

**MTBC members involved:** Fox GJ; Menzies D/**McGill student involved:** Campbell JR

“Acceptability, feasibility, and impact of a pilot tuberculosis literacy and treatment counselling intervention: a mixed methods study”

<https://pubmed.ncbi.nlm.nih.gov/34006254/>

**MTBC members involved:** Law S; Oxlade O; Menzies D; Daftary A.

“Quality of care for tuberculosis and HIV in the private health sector: a cross-sectional, standardised patient study in South Africa”

<https://pubmed.ncbi.nlm.nih.gov/33990360/>

**MTBC members involved:** Pai M; Daftary A/**McGill student involved:** Boffa J

“Case fatality and recurrent tuberculosis among patients managed in the private sector: A cohort study in Patna, India”

<https://pubmed.ncbi.nlm.nih.gov/33770134/>

**MTBC members involved:** Benedetti A; Pai M/**McGill student involved:** Huddart S

“Tuberculosis active case-finding: looking for cases in all the right places?”

<https://pubmed.ncbi.nlm.nih.gov/33765457/>

**MTBC members involved:** Menzies D/**McGill students involved:** Ortiz-Brizuela, E.

“Effectiveness and cost-effectiveness of a health systems intervention for latent tuberculosis infection management (ACT4): a cluster-randomised trial”

<https://pubmed.ncbi.nlm.nih.gov/33765453/>



**MTBC members involved:** Oxlade O; Benedetti A; Fox GJ; Johnston J; Khan FA

**WHO guidelines, statement and policies 2021-2022**

**WHO-MTBC statement on research needs for Tuberculosis Preventive Treatment (October 2021)**

“TB preventive treatment in high- and intermediate-incidence countries: research needs for scale-up”.

<https://www.ingentaconnect.com/contentone/iatld/ijtld/2021/00000025/00000010/art00008?crawler=true&mimetype=application/pdf>

**MTBC members involved:** Olivia Oxlade; Dick Menzies/**McGill student involved:** Mercedes Yanes-Lane

“Framework for the evaluation of new tests for tuberculosis infection”

<https://erj.ersjournals.com/content/58/2/2004078>

**MTBC members involved:** Olivia Oxlade; Dick Menzies

“Target Product Profiles for tuberculosis preventive treatment”

<https://www.who.int/publications/i/item/target-product-profiles-for-tuberculosis-preventive-treatment>

**MTBC members involved:** Faiz Ahmad Khan; Timothy Evans; Richard Menzies; Olivia Oxlade; Madhukar Pai; Kevin Schwartzman; Anete Trajman/**McGill student involved:** Jonathon Campbell

“WHO target product profiles for TB preventive treatment”

<https://pubmed.ncbi.nlm.nih.gov/35351234/>

**MTBC members involved:** Schwartzman K; Menzies D; Oxlade O/**McGill student involved:** Campbell JR

**Computer aided diagnosis (CAD) Individual patient data meta-analysis 2021 to inform WHO guidelines**

“Chest x-ray analysis with deep learning-based software as a triage test for pulmonary tuberculosis: an individual patient data meta-analysis of diagnostic accuracy”

<https://pubmed.ncbi.nlm.nih.gov/34286831/>

**MTBC members involved:** Claudia Denkinger; Madhukar Pai; Andrea Benedetti; Faiz Ahmad Khan/**McGill student involved:** Jonathon Campbell

7. **Major joint research projects funded over the past 12 months** (involving at least two PI members of the Unit:

For 2021-2022, our members received more than 10 million dollars in grant funding, including Foundation awards from Canadian Institutes of Health Research, Canada Research Chair, and grants from the National Institute for Health and the Centre for Disease Control and Prevention. The TB Centre also trains over 75 students and fellows.

**Major research projects**

**Tuberculosis Trials Consortium Clinical Research Services (2020-2030)**

Funding Sources: Centers for Disease Control and Prevention (CDC)

Total Funding: \$17.2 million CAD

MTBC Co-investigators: Marcel Behr, Kevin Schwartzman, Faiz Ahmad-Khan, James Johnston and Gregory Fox

MTBC Applicant : Dick Menzies

*The purpose of this procurement is to support clinical trials and clinical research on the treatment, diagnosis and prevention of tuberculosis. Emphasis will be given to studies of latent TB infection in low- and medium- TB incidence settings, inclusive of but not limited to the United States and Canada, as well as studies of active TB disease both domestically and internationally. This is a joint application from an established network of investigators at 8 sub-sites in 4 countries – the CAB-V network (Canada, Australia, Benin and Vietnam) – to participate in the TBTC.*

**Tackling the two greatest obstacles to tuberculosis elimination: Treatment of latent infection and drug-resistant diseases (2015-2022)**

Funding Sources: Canadian Institutes of Health Research (CIHR)

Total Funding: \$7,899,734 CAD

MTBC Co-investigators: Kevin Schwartzman, Faiz Ahmad Khan

MTBC Applicant : Dick Menzies

**Human genetics of TB resistance in HIV-infected persons (2016-2022)**

Funding Sources: National Institute for Health (NIH)

Total funding: \$9,000,000 USD

MTBC Co-investigators: Luis Barreiro

MTBC Applicant: Erwin Schurr

**Resilient Responses to Protect Lung Health in Nunavik (2022-2025)**

Funding Sources: Inuit Tapiriit Kanatami, UK Research & Innovation, POLAR, Fonds de Recherche Quebec, NRC-CNR Canada Canada-Inuit Nunangat-United Kingdom Arctic Research Programme

Total Funding: \$600,000 CAD

MTBC Co-investigator: Kevin Schwartzman

MTBC Applicant: Faiz Ahmad Khan

**Chest Radiography and TB Elimination in Nunavik: novel solutions to fill gaps and strengthen regional capacity (2022-2025)**

Funding Sources: Canadian Institutes of Health Research (CIHR)

Total Funding: \$393,000 CAD

MTBC Co-investigators: Kevin Schwartzman, Andrea Beneditti, Marcel Behr

MTBC Applicant: Faiz Ahmad Khan

**Community-partnered infectious disease modeling to inform Covid-19 policies and advocacy in Nunavik (2022-2023)**

Funding Sources: Canadian Institutes of Health Research (CIHR)

Total Funding: \$249,000 CAD

MTBC Co-investigator: Robyn Lee

MTBC Applicant: Faiz Ahmad Khan

**Tuberculosis whole genome sequencing for disease control in Madagascar - A cluster randomized controlled trial to evaluate different community-level strategies to reduce the burden of disease (2021-2025)**

Funding Sources: Canadian Institutes of Health Research (CIHR)

Total Funding: \$761,176 CAD

MTBC Co-investigators: Kevin Schwartzman, Marcel Behr

MTBC Applicant: Simon Grandjean Lapierre

**Artificial intelligence-based analysis of cough for COVID-19 screening in Montreal (2021-2022)**

Funding Sources: Canadian Institutes of Health Research (CIHR)

Operating grant : Emerging COVID-19 Research Gaps & Priorities

Total Funding: \$449,926 CAD

Co-investigators (McGill students): Charity Omenka, Alexandra Zimmer

MTBC Principal Applicant: Maduhkar Pai

MTBC Co Applicant: Simon Grandjean Lapierre

***WHO guideline***

**Technical advisory group to inform WHO treatment Advisory Group (TAG) to expand current WHO recommendation on IGRAs (which are currently limited to QuantiFERON®-TB Gold(QFT-G), Gold In-Tube (QFT-GIT) and T-SPOT®.TB) to similar products that detect an immunological response to M. tuberculosis infection (2022)**

Systematic review to compare new tests with the two currently recommended tests in terms of concordance, and diagnostic accuracy (sensitivity and specificity), plus a description of manufacturers' unit costs and practical considerations, such as laboratory requirements. IGRA Systematic review was completed and presented to WHO on October 24, 2022.

Funding Sources: World Health Organization

Total Funding: \$25,000 CAD

MTBC Co-investigators (McGill students): Edgar Brizuela, Zhini Lan, Sophie Lachapelle

MTBC Applicant : Dick Menzies

**8. Major outreach activities (e.g., seminar series, general public events):**

- From April 1, 2021 to March 30, 2022:
  - A total of **9 TB Seminars** with presentations by MTBC members or international TB researchers, brought together members, students and the TB network with an average of 45 attendees.  
<https://www.mcgill.ca/tb/about/tb-centre-activities/tb-seminars>
  - A total of **8 TB Journal Clubs** with presentations by trainees and students were held.
- General public events: **MTBC Virtual TB Research Day 2022** was held on March 24, 2022– **Over 90 participants** attended the event, including opening remarks from the **Executive Director of the RI-MUHC**, 4 keynote speakers from the WHO, University of California, University of Ottawa/Canadian TB Standards, as well as a TB survivor speaker. **6 McGill students and trainees** were awarded.  
<https://www.mcgill.ca/tb/about/tb-research-day>
- In terms of community engagement and awareness raising, we partnered with Stop TB Canada/Results Canada to support the TB Conqueros network for people affected with TB in Canada. We plan to form a Community Advisory Board (CAB) of patients for the MTBC, and for Canada to support Patient Voice. The creation of the CAB will also serve as a patient advisory group to encourage greater patient involvement/input into research design, as well as help with knowledge translation.

- **Media:** MTBC Members have been in external media at least 40 times (25 TB-related and 15 COVID-related). We are continually sought by national and international media organizations based on our collective expertise. The Centre also sends out a monthly TB newsletter to all its members and TB network.

9. **Major training activities** (e.g., summer schools, co-supervision of trainees, practical workshops):

As a WHO CC, the MTBC partnered with the WHO to host a **5 days virtual training course in Economic Research Methods offered in Low- and Middle-Income Countries (LMIC)** (April 12-16, 2021). 71 participants: senior managers, TB research focal persons and practitioners in public health programs, including TB programs, and faculty and students from universities in LMIC.

The **Summer Institute 2021** was held online May 31-June 18, 2021. The MTBC / WHO CC remained the biggest contributor to the McGill Summer Institute in Infectious Diseases and Global Health ([www.mcgill-idgh.ca](http://www.mcgill-idgh.ca)).

- 9 courses (1-week intensive training), including 3 TB Research courses:
  - Course 1: Qualitative methods in global Infectious Diseases Research
  - Course 2: Advanced TB diagnostics
  - Course 3: Quality of TB care
- 1,643 confirmed registrations (attending);
- 172 faculty and speakers;
- 82 countries represented by participants.

In conjunction with the McGill Global Health Summer Institute, the MTBC / WHO CC held 3 TB Research courses. In order to improve the capacity building of researchers in developing country settings, in discussion with WHO and other partners the course was held virtually, allowing much greater participation than usual by researchers from LMICs. New material relevant to such settings were developed for virtual presentation. These will be further developed to become virtual courses, available through the MTBC web-site. In the end, more than 80% of the participants came from LMICs. Course participants included National TB programme managers and other staff from national TB programmes, as well as providers and clinicians (physicians, nurses and laboratory personnel) from LMICs.

**Support the technical consultation organized by WHO on “Innovative clinical trial designs for the evaluation of new TB preventive treatment” (September 15-17, 2021)**

A Technical Consultation on innovative TB clinical trial design for the development of new TB treatments was organised by WHO in 2020. WHO also developed a position statement. That meeting highlighted the advances in pharmacokinetic / pharmacodynamic modelling and biomarkers that led to the development of adaptive and seamless trial designs, making the process of developing effective and safe treatment regimens shorter and more efficient. The MTBC supported the technical consultation exploring the key challenges in the trial design of TPT to determine if similar innovation and advancement in trial design and analysis is possible for TB prevention / requirements to advance this area by looking into the developments in other areas such as HIV prevention, to see if these can be applied to trials of TPT.

10. If applicable, **list new members** who joined the Unit in the past 12 months (indicate: Name, title, full/associate member, affiliation): none
11. If applicable, **list members who have left the Unit** in the past 12 months (indicate: Name, title, full/associate member, affiliation): none

## Financial report & forecast

Expenses	2021/22 report	2022/23 budget
Total salaries	44,000.87	45,000
Training	0	5,000
Stipends	300	3,000
Outreach	537.96	6,000
Publications		1,000
Other:	0	
<b>Total expenses</b>	<b>44,838.83\$</b>	<b>60 000\$</b>

Revenues - requested from FMHS	2021/22 report	2022/23 budget
Carryover	0	5,161.17
FMHS	50,000	60,000.00
User fees	0	0
Other sources	0	0
<b>Total revenues</b>	<b>50,000\$</b>	<b>65,161.17\$</b>

### 12. Budget justification and details (e.g., itemize if multiple salaries, detail other sources of funding):

#### Justification for Budget requested for 2022-23 from FMHS:

##### *Salaries*

- The majority of salary requested is for the **MTBC Manager** whose main responsibilities are the oversight and administration of the MTBC and WHO CC (this position is also supported by funds from the RI-MUHC), the implementation of the MTBC / WHO CC Strategic Plan 2021-2025, the coordination of the activities – including the Annual TB Research Day, TB Seminars and Executive committee meetings – the financial management of all the expenses related to MTBC accounts, the branding of the TB Centre and the daily communications.  
For the 2022-2023 year, we plan on expanding the activities of the MTBC through the implementation of the Strategic plan 2021-2025. Action plans will be developed for each priority and the development of specific activities will require a Manager salary support (expansion of contracts with universities in LMICs, fostering interdisciplinary projects, writing grants, development of training courses, networking, writing policy briefs to Health Canada / Global Affairs Canada, etc.). Although the MTBC benefits from other sources of funding, few if any allow for salary support for these types of development activities, highlighting the crucial nature of the funding received from the FMHS. The salary Manager is supported from the RI-MUHC and the FMHS. Additionally, an increase in the salary support provided by the FMHS would allow us to hire a manager on a near full-time basis, expand the MTBC's activities and projects and reinforce our strategic positioning in Canada and globally.
- The FMHS funds also help to support a part-time **Clerical Assistant** whose main tasks are maintaining the MTBC website, preparing and promoting the MTBC Newsletter and updating the list of members.

## **Training**

In line with our Strategic plan, we plan to strengthen capacity building activities for trainees from Canada and LMICs and develop:

- **A new interdisciplinary course on TB research for research trainees at McGill** and complete the accreditation process. This will require to hire a consultant to identify the main topics to cover (primary data collection, field studies diagnostic studies, basic studies, training on leadership skills, grant writing courses., etc.) and to develop the training material.
- **New training opportunities targeted to different groups in Canada (Indigenous academics and leaders) and globally (research trainees and National TB programs in LMICs).** This will require to hire 2 distinct consultants to identify the training needs and develop specific trainings (for Indigenous trainees: research methods and operational research/for National TB programs: implementation research and capacity-building for delivery). The development of fully on-line courses and/or on-line (asynchronized) research training courses will also require simultaneous interpretation and a translation budget.

## **Stipends**

- **Community Advisory Board members** will receive compensation and recognition for their patient involvement/input into research design.
- **Research awards to research trainees** – for graduate students and Postdoctoral fellows (co-sponsored with McGill GHP) – include travel awards to defray the costs for presenting at scientific meetings (registration fees and travel expenses).
- Graduate and post-doc students scholarships/sponsorships (co-sponsored with faculties and local institutions) will contribute to support multi-year funding for trainee positions from LMICs.
- **Guest lecturers and speakers** will receive compensation for speaking engagements in MTBC events.

## **Outreach**

A consultant from Stop TB Canada/Results Canada will support the **creation of a CAB of patients** for the MTBC, and for Canada to support Patient Voice. This will contribute to build a TB research network. Part of the mandate includes: the identification and the recruitment of TB survivors and other potential TB practitioners who are interested to help initiate the CAB for the MTBC; the development of a CAB members toolkit (staffing, goals, roles and responsibilities, compensation and recognition), as well as the development of training materials for **community engaged research** (study design, recruitment and dissemination).

## **Publications**

During the Annual TB Research Day, multiple **prizes and awards** are given to students (co-sponsored with McGill GHP). They include publication prizes for the Best Paper in Biomedical Research, Clinical Research and Health Outcomes Research; poster and oral presentations prizes.

## **Other Funding Sources**

The MTBC plans on renewing its funding requests to the RI-MUHC (WHO CC). The RI-MUHC provides infrastructure support for the WHO Collaborating Centre (since November 17th 2018), of the MTBC, to be used toward research, knowledge translation and educational activities that are integral parts of the Centre. Funds are also sought for McGill GHP which provides matching funds for TB Research Day, and travel awards and other opportunities for trainees.

We continue to search for other sources of funding. Recently, we partnered with University Research Corporation (URC), a US-based non-governmental organization as part of a consortium that applied to USAID for the SMART4TB initiative. This involves 6 members of the MTBC, and also includes investigators based at several international universities including Harvard, IRD (based in Pakistan), Stellenbosch (in South Africa), and the University of Sydney, Australia. We have recently partnered with university-based and TB program investigators in Brazil and Indonesia to apply for TB Reach funding, administered by STOP TB partnership. We are exploring other funding sources, particularly UNITAID, which has regular large-scale competitions for TB-related research activities.

In a nutshell, we are trying to broaden our base of research income beyond that of traditional Canadian sources. While the majority of these funds will be for research implementation, there will be inevitably some funding for core administrative activities which will come back to the MTBC.

**13. Explain why continued support from the FMHS is crucial to Unit (½ page max):**

The funds from the Faculty of Medicine and Health Science (FMHS) are essential for infrastructure needed for the implementation of the Strategic plan. The MTBC is at a critical juncture. We have grown over the last seven years to form a large group of investigators. However, the impact of the MTBC - within McGill, Quebec, Canada and globally - is not necessarily more than the individual investigators contributions. This is not to diminish these contributions, but to establish the MTBC as the premier TB research and research training centre in Canada and as the “go-to” institution for all TB-related matters in Canada, we feel we must expand and strengthen our partnerships locally and internationally. This ranges from strengthening ties with the Montreal public health unit to activities with the Canadian Thoracic Society to disseminate the new Canadian TB standards and submission of policy briefs to Health Canada for access to new TB treatments and diagnostics recommended in the Canadian TB standards but as yet unavailable in Canada. This also includes establishing formal agreements with other large TB networks, particularly REDE-TB in Brazil (a network of over 300 TB investigators), and IRD (based in Pakistan and now a highly successful multinational research NGO); both networks have expressed strong interest in formalizing partnerships with us. We also plan to establish formal links with several universities in high TB burden, low-and-middle-income countries. At present, several universities have expressed interest, so the next steps are to select, negotiate, and establish memorandum of understanding (MOU) and/or formal agreements. These activities take considerable time and resources, to initiate contact, develop relationships, hold meetings, exchange correspondence before establishing any agreements. This work is simply not possible with typical research funding such as from CIHR, so the infrastructure funding from the FMHS is essential to this foundational work.

**14. Provide suggestions about how the Faculty could do better to support the Unit and research efforts in general (no page limit but please be specific and unleash your creativity!)**

In order to support the Unit in implementing its new Strategic plan, and to support the Units’ research efforts in general, the FMHS could provide support for:

- The development of formal relationships with LMICs, especially universities (a central resource on how to achieve these from the FMHS could be needed).
- Fully on-line courses – (assistance in accreditation by McGill notably for accreditation from McGill Continuing Professional Development Office, and technical support by a core IT group at McGill).
- The development of Scholarships and research training programmes with Health Canada / Global Affairs Canada.
- Support/assistance with Patient voice (how to/who to, etc) and form a Community Advisory Board of patients for the MTBC, and for Canada in collaboration with Stop TB Canada/Results Canada.
- Expansion of Knowledge Translation activities, as an activity part of research – this is an academic need – shared by all groups, and a new academic field. FMFHS should develop academic expertise in this new field. Specific activities could include:

- Advocating for scientific advances to be implemented in public health practices in Canada (Health Canada, Public Health Agency of Canada) and globally (WHO).
- Write policy briefs to present research and recommendations to specific audiences. These might include disseminating new Canadian TB Standards (guidelines) for practitioners? How to ensure access to new TB treatments and diagnostics? Informing Global Affairs Canada why Canada should invest in global health and TB programs, and informing CIHR why Canada should invest in global health (and TB) research?