Graduate Diploma in Health Research PROGRAM – 2018 SUPERVISOR & PROJECT INFORMATION FORM

Please complete and return via email only (gdip.hres@utoronto.ca) by *September 4, 2018* *(forms received after this date will not be posted).*

Supervisor Information

Name: Kulamakan Kulasegaram; Fok-Han Leung, Richard Pittini

Email: mahan.kulasegaram@utoronto.ca; leung@smh.ca;

Richard.pittini@utoronto.ca

Degree(s): PhD

SGS Department: Department of Family & Community Medicine; IHPME in Dalla

Lana School of Public Health

Academic Rank: Assistant Professor (Mahan);

Field of Research: Medical Education; Assessment & Evaluation, Learning Science

Research Institution Affiliation (if applicable): The Wilson Centre

Allocation of student contact time:
(number of hours per week YOU are available to the student for any concerns or to review progress) 2-3 hrs per week.

Title: The Validity Argument for Progress Testing across UGME and PGME
Description (max 500 words):

Progress testing (PT) is an assessment for learning tool that aims to prepare students for future challenges and give feedback to the students as well as the program. Examinees are challenged with a large number of test questions aligned with the exit level of competency regardless of the examinees' standing in the program. Students repeatedly take multiple versions of the PT over the course of training leading to a trajectory of scores that reflects increasing competency. At U of T, the MD program conducts the MDPT for UGME and the Department of Family & Community Medicine (DFCM) uses the FMMAP (Family Medicine Mandatory Assessment of Progress) PT in post-graduate training. A key element of validity for both of these assessments would be associations with each other and joint prediction of performance in PGME training. While these tools have acceptable associations with internal measures, predictive and construct validity still require evaluation. The latter is especially relevant as the pattern of associations gives insight as to whether the PT is identifying global ability or knowledge specific constructs.

Research questions: 1) What is the association in scores between the MDPT and FMMAP? Are terminal performance (i.e. on the last PT) and the growth trajectory of PT scores on the MDPT and FMMAP predictive of one another? 2) Do associations between the MDPT and FMMAP reflect overall ability or specific knowledge competencies, i.e. are they across multiple domains or limited to family medicine?

Methods

This project is an analysis of secondary data of FMMAP and MDPT data for the training years of 19/20 and 20/21. A large number of PG trainees in DFCM are from the UofT (currently 116/394 of trainees) MD program thus we will have adequate sample size. In this analysis, FMMAP and MDPT data will be de-identified and joined in a common database after appropriate data cleaning. The MDPT is a test written 10 times across the 4 years of training that began with the class of 2T0. Scores are reported as overall score, Z-score, scores on items

students identify as having 'guessed.' Variables in the final dataset for the MDPT include: overall performance per-test, family medicine content sub-scores, Z-score per-test. We will generate an estimated slope for growth of overall PT score using a mixed-effects quadratic function with student and test occasion as a random factor. Similar variables will be included for the FMMAP. Once the dataset has been established a series of mixed-effects linear regressions will test the statistical association between the terminal FMMAP and MDPT tests and the relationship between the slopes for each student across the FMMAP and MDPT. To address question two, the prediction coefficients for the family-medicine sub-score vs the overall score between the MDPT and FMMAP will be compared after correction for reliability and range restriction.

Anticipated Outcomes:

The results of this research will establish validity evidence for the MDPT against postgraduate performance and identify if the FMMAP construct is related to general ability or primarily family medicine content knowledge. The results will provide insight as to the growth of student competence over a key transition in medical training.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

☐**YES** ☐NO ☐Application Submitted ☐

Do you expect this work will be published within the 20 months?
☐**YES** ☐NO ☐Uncertain

__Student's roles and responsibilities__ (please be as specific as possible):

The medical student selected for this project will be required to:
   a) Participate in the data extraction and organization process
   b) Learn about medical education assessment scholarship, research, and practice
   c) Learn statistical techniques in linear and generalized linear modelling
   d) Learn appropriate analysis software
   e) Participate in team meetings and lead analysis discussions
   f) Orally communicate the findings to a diverse audience
   g) Draft the protocol and first drafts of the papers with assistance from the PIs

Please indicate who will serve as the student's direct report for daily oversight (PI, PhD student, technician, etc...):

Daily supervision will be provided by Drs. Kulasegaram, Leung, and Pittini. The student will be expected to be physically present at the DFCM.