



## RESEARCH SCHOLAR PROGRAM – 2018

### SUPERVISOR & PROJECT INFORMATION FORM

Please complete and return, via email only ([crems.programs@utoronto.ca](mailto:crems.programs@utoronto.ca)) by **November 3<sup>rd</sup> 2017** (*forms received after this date will not be posted*).

#### *Supervisor Information*

Name: Jack V. Tu

Email: [tu@ices.on.ca](mailto:tu@ices.on.ca)

Degree: MD, MSc, PhD, FACP, FRCP (C)

SGS Appointment (IMS, IHPME, LMP etc.): IHPME, IMS

Academic Rank: Professor

Field of Research: Cardiovascular Outcomes and Health Services

Research Institution Affiliation (if applicable): Senior Scientist, Institute for Clinical Evaluative Sciences and Clinical Epidemiology Program, Sunnybrook Research Institute

Allocation of student contact time (number of hours per week YOU are available to the student for any concerns or to review progress): 1-2 hours per week

## **Project Information**

Title: The CANHEART Study: Using big data to transform the prevention and management of cardiovascular diseases

Description (max 500 words):

The CANHEART project ([www.canheart.ca](http://www.canheart.ca)) is a unique, population-based observational research initiative aimed at measuring and improving cardiovascular health and the quality of ambulatory cardiovascular care provided in Ontario, Canada. The strength of this project lies in the large sample size and diversity of the databases that are linked together. Currently, 17 different routinely collected data sources have been linked to create the CANHEART cohort, containing information on 9.8 million Ontarians age 20-105 years from 2008. A similar cohort with more recent information is also being developed.

Building upon the insights gained to date through the CANHEART work, we have also recently launched a new CANHEART SPOR project aimed at leveraging ‘big data’ to conduct innovative cardiovascular clinical trials. We will aim to: 1) undertake a pragmatic cluster randomized registry-based clinical trial to improve lipid-management amongst intermediate-and high-risk patients residing in high-risk health regions in Ontario, and 2) develop novel algorithms for measuring clinical outcomes in clinical trials using health-related databases and compare whether they are as accurate as traditional event ascertainment methods. This project will be undertaken by an interdisciplinary team consisting of experts in administrative databases, implementation science, clinical trials and patient engagement.

The student’s project will provide opportunities to support both the CANHEART and CANHEART SPOR studies. Potential project options include:

- Studying the association between patient, community and health system factors, and the incidence of cardiovascular health outcomes. Lipid screening/results (e.g. Total, LDL cholesterol), improved cardiovascular risk models, and statin under-utilization are current priority research areas as are other biochemical parameters (e.g. Hb, troponin, BNP, etc.)

- Working with the study team to develop novel algorithms for identifying clinical outcomes (e.g., myocardial infarction, heart failure) using health administrative data (e.g., hospitalization, emergency department), laboratory data (e.g., Ontario Laboratory Information System), and clinical registries (e.g., CorHealth cardiac procedures).

Our previous CREMS student conducted a meta-analysis of the global prevalence of familial hypercholesterolemia (FH, published in BMJ Open), and is currently studying the prevalence of FH in Ontario using the CANHEART database.

If human subjects are involved, have Ethics been obtained?

YES       NO       Application Submitted       N/A

Do you expect this work will be published within the 20 months?

YES       NO       Uncertain

Student's roles and responsibilities (please be specific)

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

With the study Principal Investigator as his/her direct report, as well as with guidance from CANHEART staff (e.g., epidemiologists, analysts), the student will be responsible for: 1) performing a literature review pertaining to the research topic, 2) developing and documenting study analytic methodologies, 3) working with an analyst to conduct data analyses using the CANHEART database and interpreting results, and 4) preparing an abstract and/or manuscript to share research findings with the academic community. Students with previous training/experience in epidemiology or health services research will be given priority.