



Comprehensive Research Experience for Medical Students
Summer Research Program 2019

Supervisor/Project Information Form

Due February 20 2019 by email to crems.programs@utoronto.ca

Supervisor Name: Keerat Grewal

Project Title: Intracranial **Bleeding** after head injury among anticoagulated elderly patients seen in the Emergency Department (**IBleed-ED**): A population-based cohort study.

Hospital/Research Institution: Sinai Health System, Schwartz/Reisman Emergency Medicine Institute (SREMI)

Email: Keerat.grewal@sinaihealthsystem.ca

Field of Research (2 keywords): health services research, anticoagulation, head injury

Department: Emergency Medicine

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? Yes/No: No If YES, please name:

Brief Project Description (<300 words):

Elderly patients on anticoagulation are commonly encountered in the emergency department (ED). The risk of intracranial hemorrhage (ICH) following a head injury is a major concern in this population; however there is a paucity of high quality data pertaining to management and outcomes of these patients. The proposed study will compare outcomes for patients on warfarin compared to direct oral anticoagulants (DOACs) and will provide insight into the care of elderly anticoagulated patients with a head injury in the ED.

This study is a retrospective analysis of population-based administrative data from Jan 2016 - Dec 31, 2018 from Ontario, Canada. Anticoagulated patients ≥ 65 years who present to the ED with a head injury will be identified from the eCTAS database and linked to other provincial databases. Patients on warfarin will be propensity score matched to those on DOACs. Several clinical outcomes of interest will be compared using multivariable regression modeling. The student involved in this project will assist with two aspects of the study:

- 1) Identifying head injured patients from eCTAS:
 - a. eCTAS is a new database, which electronically triages patients presenting to EDs across Ontario. Patients are triaged via a CEDIS chief complaint. The CREMS student will assist with developing an approach to electronically identify patients with head injury based on chief complaint and triage note.
- 2) Validating 1) ICD-10 codes for traumatic ICH in NACRS 2) head injury presenting complaint in NACRS
 - a. We will perform a chart review at two sites to validate ICD-10 codes for traumatic ICH based on NACRS list at each site compared to the ED chart, and the presenting complaint in NACRS to the triage note and ED chart. Validation of NACRS will allow us to determine the positive predictive value of codes used to identify our cohort and outcomes with administrative data.