Comprehensive Research Experience for Medical Students (CREMS)

2022 Supervisor and Project Information Form

Please complete and return via email ONLY to crems.programs@utoronto.ca by February 18, 2022.

Supervisor Information

NOTE: CREMS will not support pre-determined pairings of students and supervisors. Supervisors must agree to open their projects to all students and interview all that are interested.

Name: Dr. Peter Gill
Email: peter.gill@sickkids.ca

Department: Department of Paediatrics
Hospital/Research Institution: The Hospital for Sick Children, University of Toronto

SGS Department(s) (if applicable): IHPME Clinical Epidemiology

ORCID ID (see https://orcid.org/ - If you do not have an ORCID ID we encourage you to sign up for one):
0000-0002-6253-1312

Location of Work:
Virtual - The Hospital for Sick Children, Toronto, Ontario

Field of Research (up to 4 keywords):
Hospital Paediatrics, brief resolved unexplained event (BRUE), resource stewardship, outcomes research

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 (plan standing weekly meeting) with further availability if needed if issues arise (plan on more intensive support initially)
**Project Information**

**NOTE:** If this project is selected, this information will be posted on CREMS website for interested student applicants to view research opportunities.

**PROJECT TITLE:**
Description of Canadian infants presenting with Brief Resolved Unexplained Events (BRUEs) and validation of a clinical prediction rule for risk stratification

**PROJECT DESCRIPTION:**
Including background, aim(s), methodS and significance of the project. **Maximum 300 words.**

Brief Resolved Unexplained Event (BRUE) is a common reason for presentation to hospital in the first year of life. These events are concerning for caregivers and can appear to be life-threatening. Additionally, these events pose diagnostic and management challenges for healthcare providers as they attempt to identify events likely to recur, or those caused by a serious underlying illness. This uncertainty has been associated with extensive investigations, prolonged hospitalization, significant healthcare costs and stress for caregivers and patients. In 2016, the American Academy of Pediatrics (AAP) published a clinical practice guideline that provided evaluation and management recommendations for patients at lower-risk of recurrence or serious underlying diagnosis. The guidelines did not provide recommendations for higher-risk infants, who comprise most of the BRUE population, due to insufficient evidence.

The aim of this project is to describe the management and outcomes of infants presenting to Canadian hospitals with BRUE and to externally validate recently developed BRUE Clinical Prediction Rules in identified cases. This is a multi-site retrospective study, conducted within the Canadian Pediatric Inpatient Research Network (PIRN), involving several Pediatric centers across Canada. Participants will be identified based on admission/discharge diagnoses and AAP BRUE diagnostic criteria. The Clinical Prediction Rules will then be retrospectively applied for risk stratification and correlated to outcomes. This study will be the first to describe the BRUE population in a Canadian setting and to describe the prevalence of serious underlying etiologies in this population. It will provide the first external validation of the BRUE Clinical Prediction Rules outside of the American cohort where the rules were derived from, allowing to assess whether the rules are equally valid in a Canadian context. It will also provide baseline data for quality improvement initiatives to inform practitioners, decrease variability in management and improve outcomes for infants presenting with BRUE.

**Is this project remote-capable (in case of new restrictions) or have an alternative remote option?**
☒ Yes, remote capable ☐ No
☐ Yes, alternate remote option. Please specify (100 words max): Click or tap here to enter text.

**If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?**
☐ Yes ☒ No ☐ Not Applicable

**If yes, please list the application submission date:**

**Do you expect this work will be published?**
☒ Yes ☐ No ☐ Uncertain / Other
Research Environment and Student Roles and Responsibilities

Please be specific as possible. Please describe the research environment, including availability of required facilities/equipment/expertise, supervisor’s experience and mentorship plans. Please clearly outline the student role(s) and responsibilities related to the project, potential educational value, and indicate who will serve as the student’s direct report for daily oversight (PI, PHD student, technician, etc.). Maximum 300 words.

The student would be responsible for assisting with medical chart review, data identification and extraction. They will receive thorough training prior to starting, therefore expertise in this field is not required. The project supervisor will provide direct oversight and support to the student, and additional supervision will be provided by a senior University of Toronto Paediatrics resident who developed the study protocol. The study team will meet regularly to discuss study progress, methodologic issues and scientific or logistical challenges, and will be available via email or to meet virtually as needed to address questions. This work can be completed remotely, but if required, work space can be arranged.

Through their involvement with this project, the student will gain valuable research skills, including health record review, data extraction utilizing a Manual of Operations and electronic-Case Report Form and applying inclusion/exclusion criteria for participant selection. They will gain insight into a career as a clinician scientist and logistics of conducting a multicenter study and will participate in study meetings with team members across Canada. There is also the opportunity to be included in publication, which is anticipated for this study.

The student will gain knowledge in the field of General Paediatrics, including learning about BRUE and several conditions that can present similarly in infants. They will also learn principles of resource stewardship which can be applied to all areas of medicine.

As a General Pediatrician, Associate Scientist and Vice-Chair of the Canadian Paediatric Inpatient Research Network (https://www.pirncanada.com/), I have experience conducting single and multi-site retrospective chart reviews, including a recently completed 10-site study on orbital cellulitis. I am committed to the success of this research project, and ensuring that this is a valuable learning opportunity for all members of the research team, including any student(s) who are involved.