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: Mark Camp
Email: Mark.camp@sickkids.ca

Department: Surgery
Hospital/Research Institution: SickKids

SGS Department(s) (if applicable):
Click or tap here to enter text.

ORCID ID (see https://orcid.org/ - If you do not have an ORCID ID we encourage you to sign up for one):
0000-0002-5840-4601

Location of Work:
SickKids

Field of Research (up to 4 keywords):
Surgery, Scoliosis, Bone Health, Optimization

Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress):
16 hours per week
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:
Adverse events post-zoledronic acid infusion in neuromuscular scoliosis patients

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

Background: In an effort to decrease the risks of intra- and post-operative complications related to poor bone quality, neuromuscular scoliosis patients at SickKids have been treated with pre-operative zoledronic acid infusions since 2019. Although there is strong evidence for the safety and efficacy of zoledronic acid infusions in other paediatric conditions (e.g. osteogenesis imperfecta), the tolerance, safety, and efficacy in patients with neuromuscular scoliosis who have multiple co-morbidities, has not been established.

Aim: To better understand the type and rate of adverse events post-zoledronic acid infusion in neuromuscular patients to allow more accurate consent discussions with families.

Methods: Retrospective review of all patients who have undergone pre-operative zoledronic acid infusions. Patient demographics, co-morbidities, medications, laboratory investigations, infusion protocol, and adverse events will be collected.

Significance: Patients with neuromuscular scoliosis face significant intra and post-operative risks with the risk of major complications approaching 50%. Pre-operative zoledronic acid infusions have the potential to reduce these risks. However, these potential benefits will need to be weighed up against any harms and adverse reactions from the zoledronic acid infusions.

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:
30/08/2021

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 research will be conducted at the Hospital for Sick Children with the student provided access to Epic (hospital’s electronic medical record) and the appropriate database on the Hospital’s OneDrive.

The student will be given mentorship and guidance from all members of the research team, including: Dr. Mark Camp (Paediatric Spine Surgeon), Anne Murphy (Bone Health Nurse Practitioner), Stan Molls (Bone Health Nurse Practitioner), Dr. Julia Sorbara (Paediatric Endocrinologist), and Natasha Bath (Paediatric Spine Nurse Practitioner).

The students roles and responsibilities will include:

- Data collection
- Data analysis
- Manuscript preparation and submission to a peer-reviewed journal and the American Academy of Cerebral Palsy and Neuromuscular Medicine Annual Meeting

Educationally, the student will benefit from:

- Learning how to conduct clinical research
- Developing improved manuscript writing and presentation skills
- Observing the collaborative nature of multidisciplinary teams
- Understanding how clinicians incorporate research into their practices to improve patient outcomes

Dr. Camp will serve as the student’s direct report for daily oversight and has an excellent track record of successful medical student supervision with:

- All four of his previous U of T summer medical students have published their project in a peer-reviewed journal (3 as first authors)
- All four of his previous U of T summer medical students have presented their project at a national medical conference
- In 2016, his U of T summer medical student won 1st place in the Perioperative Services Summer Student Research Forum at the Hospital for Sick Children.
- 2 U of T summer medical students went on to publish additional peer-reviewed papers after their summer studentship was completed